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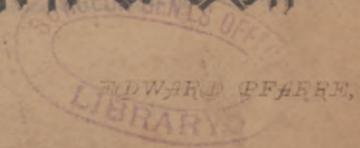
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See Page 83 for

INDEX AND PRICE LIST TO PART IV

OF

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OF

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APPARATUS FOR

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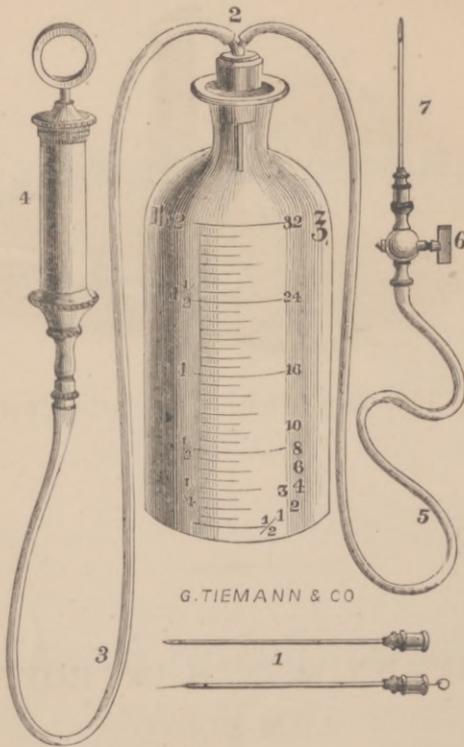
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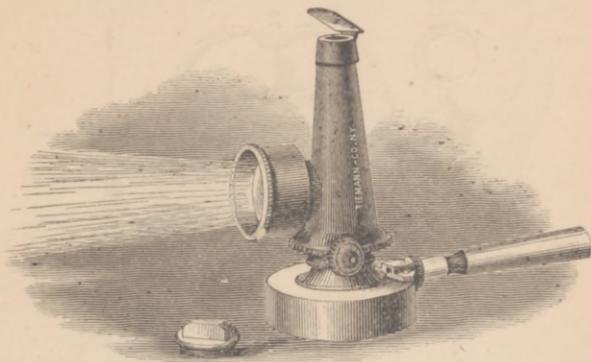
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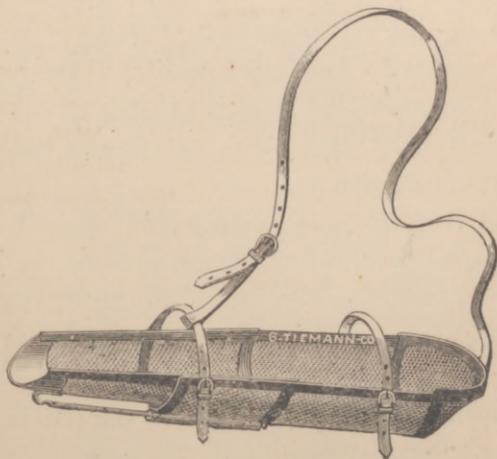
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Price, \$4.50.

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ARM-SLING.

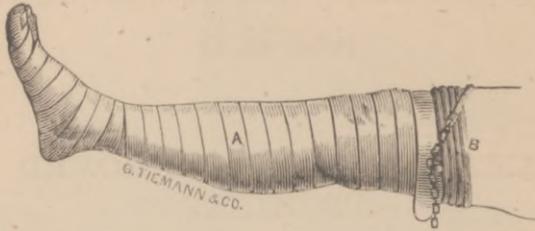


With Sliding Extension Splint for the hand, to facilitate passive motion of the wrist without removing the support.

Price, \$4.50.

A NEW TOURNIQUET, BY PROF. F. ESMARCH, KIEL.

Extracted from *Sammlung Klinischer Vorträge*, No. 58, Leipzig, 1873.



* * * * * “I shall perform an operation (necrotomy, both legs) which would cause a much more profuse hemorrhage than that of yesterday, did I not adopt a method which will enable us to completely control the bleeding.

“While the anæsthetic is being administered, we envelop the lower portion of the limb in oil silk, to prevent soiling the bandage; then we bandage the legs tightly from the toes to above the knees with this elastic rubber bandage (A), which, by gradual compression, forces the blood out of the vessels of the limb. Immediately above the knee, where the bandage terminates, we wind the rubber cord or tubing (B) four or five times around the thigh, and join the one extremity by means of the attached hook to the chain at the other end. The rubber tubing or cord compresses all the soft parts, including the arteries, in such a perfect manner that not a drop of blood can enter the bandaged portion of the limb.

“This tourniquet possesses the advantage over all others, viz.: it can be adjusted to any portion of the limb, and the location of the principal arteries need not be considered.

“We now remove the elastic bandaging and the oil silk, and you will notice that both legs, below the tourniquet, present the appearance of the limbs of a corpse, the pallor of the same forming a remarkable contrast to the rosy hue of the skin above. You will also notice that we will operate exactly *as though on a cadaver*. * * * * *

“After the operation, the rubber cord is slowly removed, the circulation restored, and those arteries which have previously remained unnoticed, tied. * * * The slumbering patient presents the same appearance as before the operation, his pulse is full and strong, and convalescence will no doubt follow much more rapidly and surely than if we had performed the operation in the customary manner.

“The tourniquet can be used with more or less complete success in nearly all operations on the extremities. In extirpation of tumors, in the removal of scrofulous sores or caries, and resections of small bones or joints, you can proceed in the manner I have just demonstrated, viz.: you need not loosen the tourniquet until the wound has been dressed.”

Price, \$3.75.

GEO. TIEMANN & CO.'S IMPROVED STEAM ATOMIZER

Is simpler in construction and more easily managed than any other apparatus of this kind now in use.

DIRECTIONS FOR USE.

Remove the safety-valve (*A*), and after half filling the boiler with water, replace it. Put the medicine into the cup (*B*). Insert the spray-tube (*C*) carefully but not too far into its socket (*D*), and screw it tight.

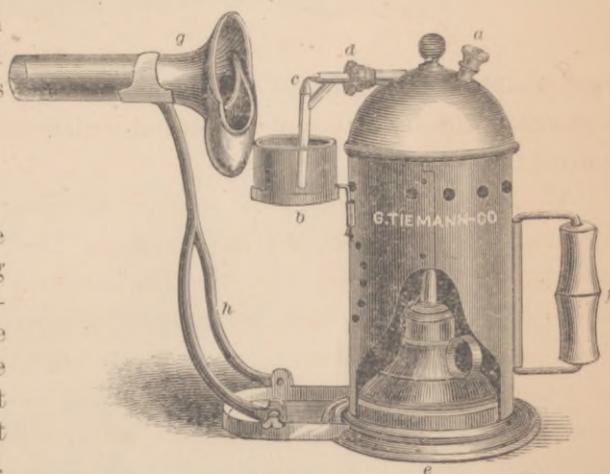
Then prepare the lamp (*E*) with alcohol, and light it. In about three or five minutes, the steam will issue from the boiler orifice of the spray-tube, and, in passing over the opening of the other inserted into the medicine-cup, will cause the medicine to rise and form into spray, forcing it through the face-shield into the mouth.

Its advantages over others are :

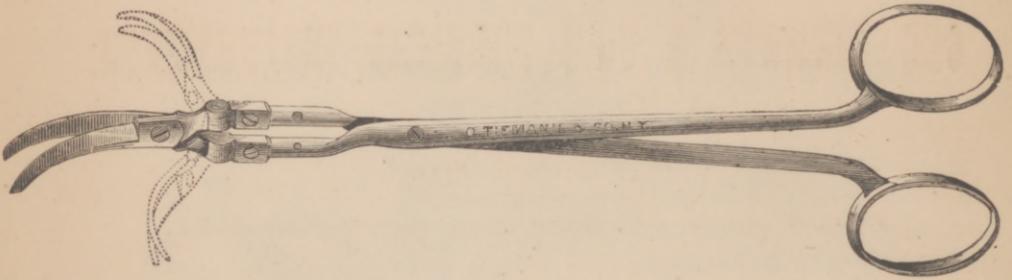
1. A wooden handle (*F*); by means of which the apparatus can be held while in operation. This addition does not interfere with packing, as by folding the handle close to the stand the Atomizer will take up no more room than the ordinary ones.

2. A combined face-shield and drip-cup (*G*). Fluids which are not forced through the funnel will collect in the attached drip-cup, and can from there be returned into the medicine-cup by pushing the face-shield toward the boiler, and tilting it toward one side.

3. The spray can be directed upward or downward by altering the position of the attachment (*H*) holding the face-shield.

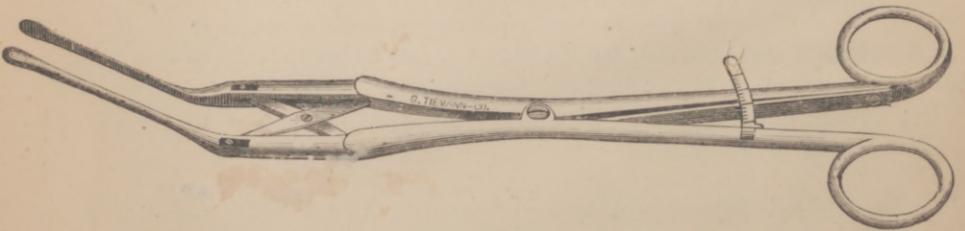


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...

ORTHOPÆDIC APPARATUS,

Apparatus for the Treatment of Distortions and Debilities of the Trunk.

...

SHOULDER BRACES,

*For Unconfirmed Curvatures or "Round Shoulders" in
Children and Youths.*

This condition, brought on by a habit of stooping, or by constant bending forward of the head and neck over the book or desk, is amendable by mechanical treatment. The most approved Instruments for these cases are represented by Figs. 1, 2 and 3.

Figs. 1, 2. ELASTIC SHOULDER BRACES.

For ladies and gentlemen, arranged as SUSPENDERS or SKIRT SUPPORTERS.

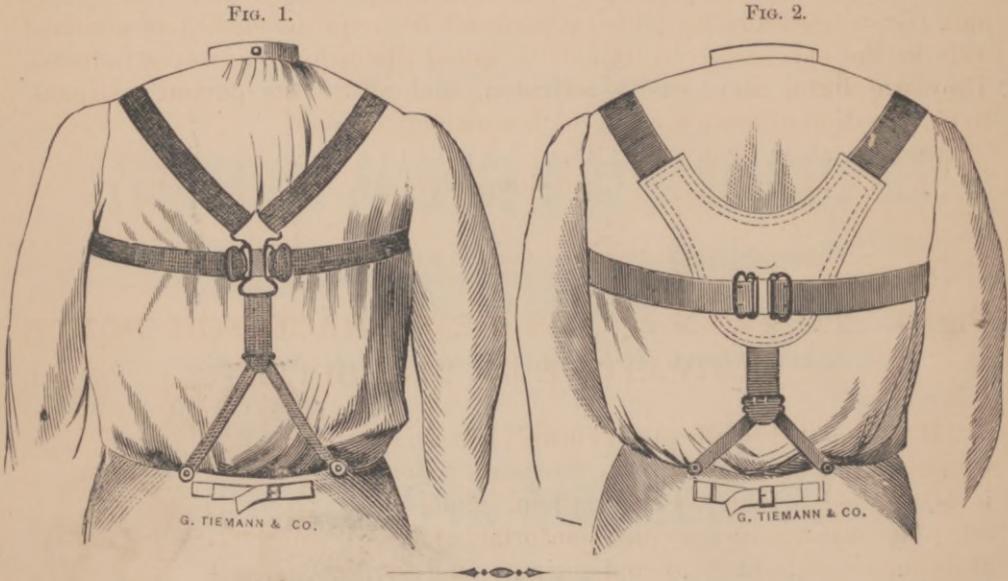
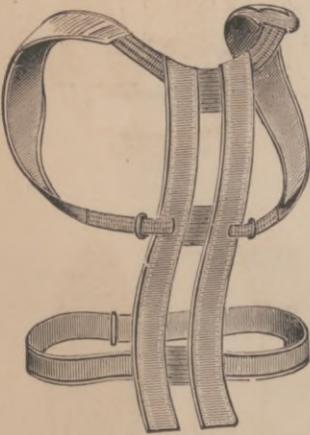


Fig. 3. STEEL BACK SHOULDER BRACE.

For more advanced cases of round shoulders.

FIG. 3.



DIRECTIONS TO MEASURE FOR SHOULDER BRACES :

1. Patient's name (sex).
2. Elastic or steel-back brace.
3. Crest of ilium to axilla, - - - inches.
4. Circumference of pelvis, - - - "
5. Circumference of chest
 under Axilla, - - - - - - - "

Apparatus for Spinal Distortions.

To overcome the objections to the forms of instruments formerly employed in Europe for the correction of spinal curvature, which instru-

ments were heavy, unyielding, limiting muscular motion, and in many cases entirely suspending it, subjecting the patient to the greatest inconvenience without compensating results being obtained—we, some years ago, constructed braces, which possess all the requirements of mechanical aids in the successful treatment of spinal distortions, however induced. They are light, airy, easily adjusted, and afford the patient comparatively freedom of motion along with adequate support.

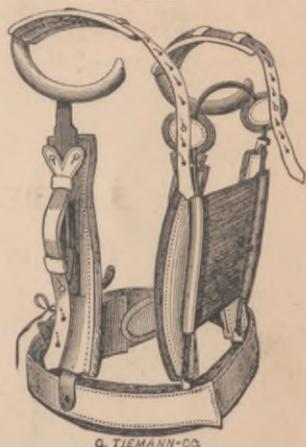
(Extracted from the "Medical Record," New York, Aug. 1, 1868.)

Fig. 4. TIEMANN & CO.'S NEW BRACE FOR POTT'S CURVATURE OF THE SPINE.

"It is intended to afford an entirely elastic continuous and gentle pressure to the parts to which it is applied, giving to the patient, along with adequate support, an easy and comfortable feeling. It is made of light tempered springs, and softly padded wherever it comes in contact with the body.

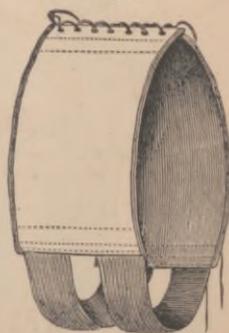
"The belt below passes round the pelvis, and the principal weight is thrown upon the gluteal region. The front portion is broad, so as to compress the protruding abdomen. Two upright parallel bars pass on each side of the posterior elevation, having a portion of silk elastic rubber between them, which gives a constant pressure upon the protuberance. If the latter is inflamed, a portion cut out of the elastic material prevents direct pressure upon the extremity of the bone. Upon these side bars are attached two elliptic and padded springs, yielding to every pressure, and adapting themselves to the sides of the spinal column and keeping the body in an erect position. These are removed or applied by a very simple process. The two padded crutches are elastic, and elevate the body by pressing mostly under the margin of the scapula, thus obviating any tendency to pressure upon the axillary veins. They are constructed in such a manner that the equilibrium of the body can be restored in case one shoulder is depressed."

FIG. 4.



G. TIEMANN & CO.

FIG. 5.



G. TIEMANN & CO.

FIG. 5. "The elastic belt shown in the cut is for the purpose of giving

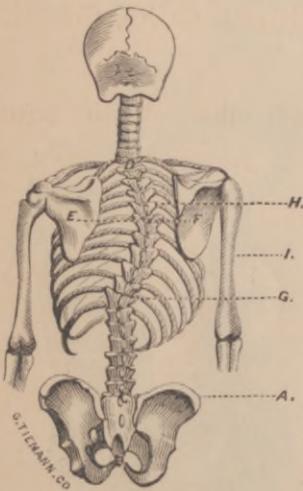
additional pressure, if needed, but mainly to compress the sternum, which generally protrudes. It is also designed to be worn at night, when the apparatus itself is not applied."

We pay special attention to the correct and careful fitting of these Braces.

Surgeons residing at a distance, whose patients cannot visit us for adjustment, will have their orders promptly attended to, by sending us the following particulars:

MEASUREMENT FOR A BRACE FOR POSTERIOR CURVATURE.
(POTT'S DISEASE.)

FIG. 6.



1. Patient's name (or sex).
2. " age.
3. " weight (estimated).
4. Distance from sacro lumbar articulation to vertebra prominens, - - - (C to D)
5. Distance from sacro lumbar articulation to 1st vertebra involved, - - - (C to G)
6. Distance from sacro lumbar articulation to last vertebra involved, - - - (C to D)
7. Distance from crest of ilium to axilla right side, - - - - - (A to H)
- Do. crest of ilium to axilla left side, " "
8. Distance from the centre of one scapula to the center of the other, (E to F)
9. Horizontal (transverse) diameter of the protuberance, - - - - -
10. Circumference of chest under axilla, (H)
11. Circumference of pelvis 1 inch below the iliac crests, - - - - -

FIG. 7.



Fig. 7. TIEMANN & CO.'S BRACE
FOR LATERAL CURVATURE.

(SCOLIOSIS.)

To the pelvic belt are attached laterally two elastic crutches, as in the brace for Pott's disease; to relieve the spine of the weight of the trunk posteriorly, a single, strong, upright bar, holding

a couple of adjustable pads for the scapulæ, and just below, a leather band, of proper width (attached by a number of small brass buttons), terminating in strong elastic India-rubber webbings. This band is passed around the protuberance obliquely, and buckled to the pelvic belt in front, an inch or two beyond the linea alba, and will be found to exercise a gentle, but continuous elastic pressure, at the same time rotating the ribs around their vertebral axes, and thus unfolding the helical curve.

We pay special attention to the correct and careful fitting of these braces.

Surgeons residing at a distance, whose patients cannot visit us for adjustment, will have their orders promptly attended to, by sending us the following particulars :

MEASUREMENT FOR A BRACE FOR LATERAL CURVATURE.

(SCOLIOSIS.)

Is the convexity of the curve to the right or left side? In the figure of the accompanying skeleton it is to the right.

1. Patient's name (or sex).
2. " age.
3. " weight (estimated).
4. Distance from sacro lumbar articulation to vertebra prominens, - - (C to D)
5. Distance from sacro lumbar articulation to 1st vertebra involved, - - (C to G)
6. Distance from sacro lumbar articulation to last vertebra involved, - (C to D)
7. Distance from crest of ilium to axilla, right side, - - - - (A to H)
- Do. crest of ilium to axilla left side, - "
8. Distance from the center of one scapula to the center of the other, - (E to F)
9. Horizontal (transverse) diameter of the protuberance, - - - -
10. Circumference of chest under axilla, (H)
11. Circumference of pelvis 1 inch below the iliac crests, - - - -

INCHES.

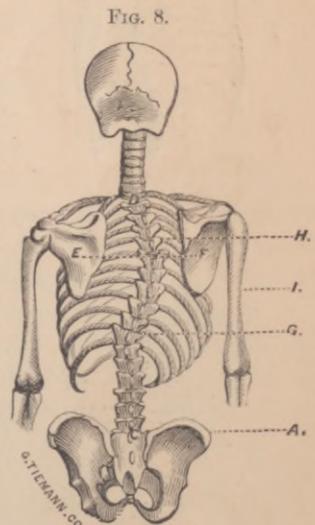


Fig. 9. SPINE BRACE BY Dr. CHAS. WASHBURN.

“Some two years ago it became necessary for me to have constructed a brace for the treatment of angular curvature of the spine, a considerable number of such cases having been quite suddenly thrown upon my hands by the resignation of a consulting orthopedist to St. Luke’s Hospital, New York. It was my desire to obtain an apparatus, which, while fulfilling the indications perfectly, should be simple in construction and not expensive.”

FIG. 9.



“In the accompanying figure *aa* is a steel band which passes half way around the pelvis, just above the trochanters, *bb* are two flat bars of steel, parallel to each other, and curved upon their flattened sides to the form of the spine to which the apparatus is fitted. These bars are curved a little less than the spine, so that when secured in position, their elasticity will constantly operate to rectify the spinal curve. The cross bar at the upper ends of the parallel ones is firmly riveted to them, and is to cross the back just above the spines of the scapulæ. At the ends of this bar are affixed buckles to receive the shoulder straps; *cc* are two movable pads which slide upon the bars to which they are attached—these are best stuffed with chopped cork. These compresses are to be

brought one upon each side of the projecting knuckle of spine and secured firmly by means of the screws provided for that purpose. Buckles are attached to various parts of the brace, by means of which it is secured to the front part of the apparatus, which consists as shown of a piece of twilled muslin, or other strong material, which covers the chest and abdomen and is provided with straps. Such parts as are in contact with the body are carefully padded.”

“Success with this apparatus depends entirely upon the faithfulness with which it is kept adjusted to the spine of the patient. It is only necessary that a gentle pressure should be maintained if it is constant. As the spine approaches its normal shape the curve of the brace will require to be altered from time to time. The steel has a soft temper, so that it will take the form into which it is bent when considerable power is applied, but will be sufficiently elastic for the purposes of this apparatus. With children’s braces the necessary bending is readily accomplished by hand.”

Surgeons residing at a distance, whose patients cannot visit us for adjustment, will have their orders promptly attended to, by sending us the following particulars:

MEASUREMENT FOR WASHBURN'S BRACE FOR POSTERIOR CURVATURE OF THE SPINE.

(POTT'S DISEASE).

1. Patient's name (or sex).
2. " age.
3. " weight (estimated).
4. Distance from sacro lumbar articulation to vertebra prominens, - - - (C to D)
5. Distance from sacro lumbar articulation to 1st vertebra involved, - - - (C to G)
6. Distance from sacro lumbar articulation to last vertebra involved, - - - (C to D)
7. Distance from crest of ilium to axilla right side, - - - - - (A to H)
- Do. crest of ilium to axilla left side, - " "
8. Distance from the center of one scapula to the center of the others, - (E to F)
9. Horizontal (transverse) diameter of the protuberance, - - - - -
10. Circumference of chest under axilla, (H)
11. Circumference of pelvis 1 inch below the iliac crests, - - - - -

INCHES.

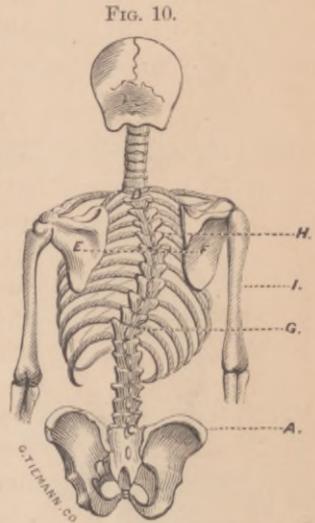


Fig. 11. Dr. THOMAS M. MARKOE'S BRACE FOR TORTICOLLIS.

FIG. 11.

This apparatus is constructed in the following manner: An upright steel bar is fastened to a pelvic band, and carried along the spine to a little below the level of the shoulders, secured in position by straps passing over the shoulders under the axillæ, and fastened to buttons or pads situated over the scapulæ.

A steel lever for extension of the neck, is provided inferiorly with a slot, to admit of adjustment, and connected with the upright bar by means of two screws; the top of this lever is made to form a powerful clamp, for the purpose of holding the head-band, and of securing the head in position. The head-band is formed of a steel spring carried half around the back of the head, softly padded, and the covering extended

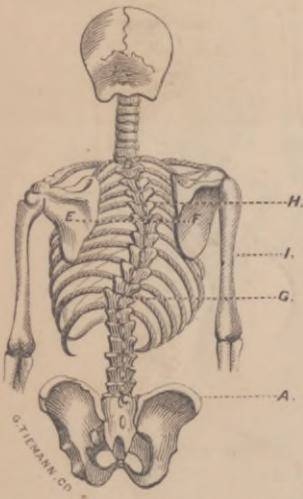


to the front and buckled there. A strap may also be passed across the top of the head from ear to ear.

A bandage, the size and shape of the patient's chin, is buttoned to this head-band laterally with four straps. Fastened to the steel spring of the head-band is a steel stem about one inch or less in length, terminating in a ball; this is held within the grasp of the clamp, thus forming a universal joint, moving freely in all directions. By turning a thumb-screw with which the clamp is provided, the head of the patient may be fixed in any position by the arrest in the movement of the joint.

MEASUREMENT FOR MARKOE'S BRACE FOR TORTICOLLIS.

FIG. 12.



- | | |
|---|-------------|
| 1. Patient's name (or sex). | |
| 2. " age. | |
| 3. " weight. | |
| 4. Distance from sacro lumbar articulation to vertebra prominens, - - | INCHES. " " |
| 5. Distance from sacro lumbar articulation to base of skull, - - - | " " |
| 6. Circumference of pelvis 1 inch below iliac crest, - - - - - | " " |
| 7. Circumference of chest under axilla, - | " " |
| 8. Circumference of the head, | " " |

FIG. 13.

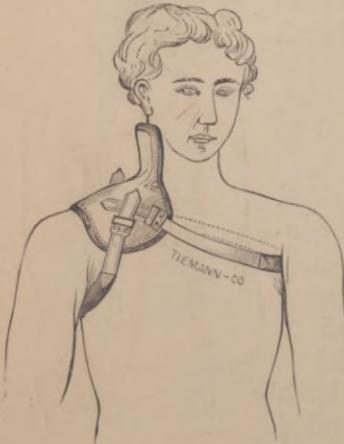


Fig. 13. TIEMANN & CO.'S WRY-NECK BRACE.

This is a simple collar, made of pliable iron wire and covered with silk or buckskin. It is placed on one shoulder and held in position by axillary straps. The iron admits of adjustment. It is a good instrument for slight cases of wry-neck when the head leans to one side, by reason of contractions, lesions of muscles, or burns, but when accompanied by tortuosity of the vertebra, it is not as efficient as Markoe's brace.

MEASUREMENT FOR TIEMANN & CO.'S WRY-NECK BRACE.

1. Patient's name (or sex).
2. " age.
3. Head leans to *right* or *left* side? INCHES.
4. Circumference of the neck, - - - - -
5. Length of the neck at side from clavicle to mastoid process, - - - - -
6. Circumference of chest under axillæ, - - - - -

—◆—

Fig. 14. DR. DAVIS'S APPARATUS FOR CARIES OF THE SPINE.

(Extracted from *Hamilton's Principles and Practice of Surgery.*)

“The principles which ought to govern the construction and application of mechanical supports, in cases of caries of the spine, are the greatest degree of lightness, compatible with the requisite firmness, accurate adaptation; pressure in opposing directions upon the spinal column, sufficient to insure support and steadiness, and to transfer, in some degree, the weight of the spinal column from the affected vertebræ to their corresponding oblique processes, while at the same time these vertebræ shall not separate from each other in a manner to defeat the end desired, namely, their final union and consolidation by callus; the pressure being so applied on either side of the spinous processes, and not upon the processes themselves, so that it shall cause the least pain and not endanger ulceration or excoriation, giving support to the tumid or pendulous belly; interfering in no way with the free motions of the arms or legs. These indications we find more or less completely fulfilled in the apparatus of Davis, Bigg, or Taylor.”

Fig. 14.

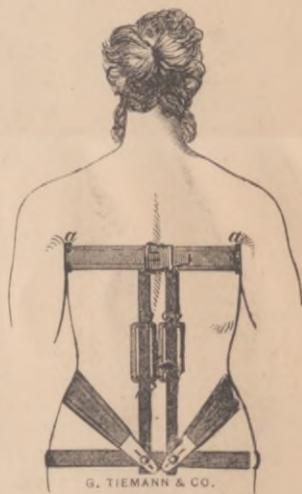


Fig. 15.



Fig. 15.

DR. TAYLOR'S APPARATUS FOR CARIES OF THE SPINE.

MEASUREMENT FOR DR. DAVIS'S OR FOR DR. TAYLOR'S
APPARATUS FOR CARRIES OF THE SPINE.

Required the same as directed for Dr. Washburn's Brace.

(See page 7.)

Abdominal Supporters and Trusses.

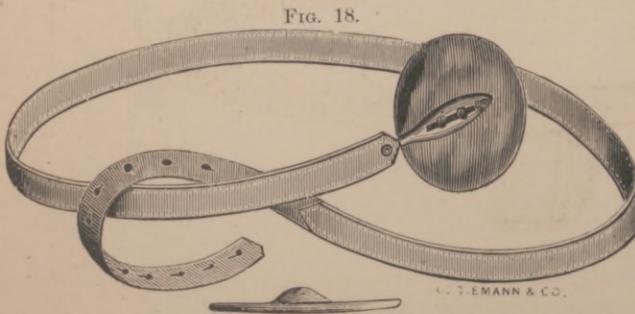
FIG. 17.



FIG. 17. UMBILICAL BANDAGES.

These Bandages are made of linen, satin-jean, or canvas, with hard pads of wood, cork, lead, etc., and with soft pads made of sponge, horse-hair, or of india-rubber, inflated with air.

FIG. 18. CHASE'S UMBILICAL TRUSS.



Has a hard wooden pad, and is a comfortable appliance for corpulent persons, having the advantage of being light and cool, making it comfortable for summer wear.

FIG. 19. BOW SPRING UMBILICAL TRUSS.

The spring of this Truss is made in form of a bow, the convex side of which, supporting the pad, is applied to the rupture. It is forced to conform to the shape of the body by drawing on the straps on either side, which are then buckled just tight enough to be comfortable. They are made with soft or hard pads.

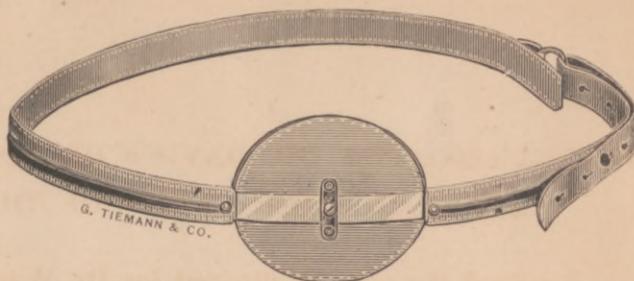


FIG. 20. CHILDREN'S BOW SPRING UMBILICAL TRUSS.



FIG. 21. CHILDREN'S UMBILICAL TRUSS.



Crescent Spring, and with Soft or Hard Pads.

The ORDER FOR AN UMBILICAL BANDAGE OR TRUSS should be accompanied by the following

MEASUREMENTS :

1. Diameter of the protuberance.
2. Circumference of the body at the Umbilicus.

FIG. 22. BOW TRUSS, SINGLE, WOODEN PAD.



Trusses will be carefully fitted. A lady, to wait on lady customers, in attendance at the Branch Store, 107 East 28th Street.

FIG. 23. RATCHET TRUSS, Hard or Soft Pad.

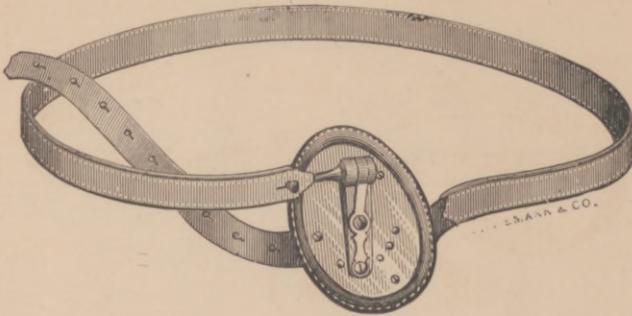


FIG. 24. BEST FRENCH TRUSS, Single, Soft Pad.

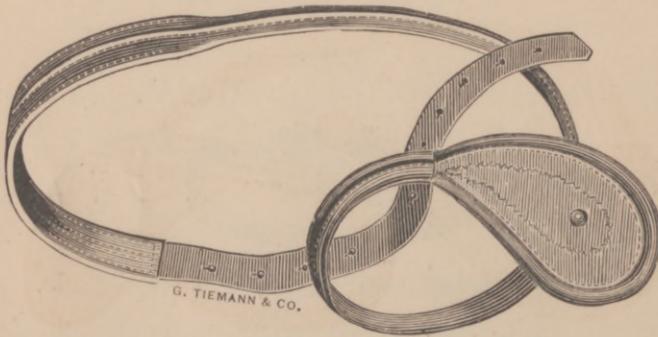
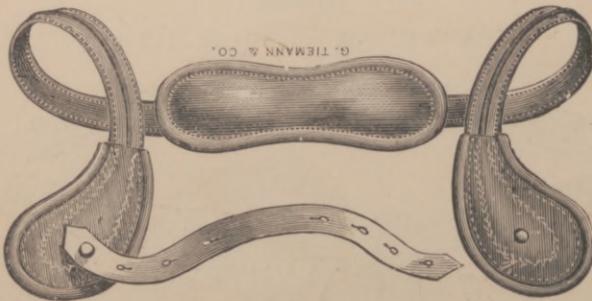


FIG. 25. BEST FRENCH TRUSS, Double, Soft Pad.



Measure around the pelvis, and describe the rupture.

FIG. 26. CHASE'S TRUSS, Cedar Pad.

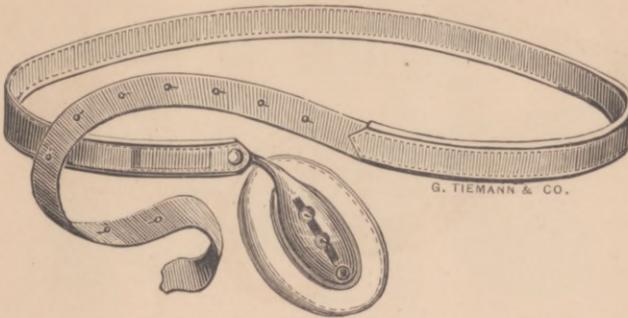
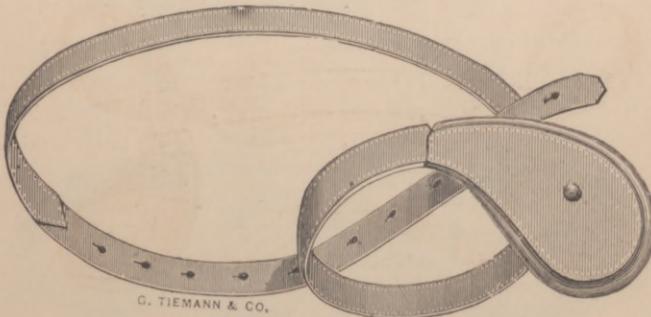


FIG. 27. FRENCH ADJUSTABLE TRUSS, Soft Pad.



FIG. 28. GERMAN TRUSS, Soft Pad.



Measure around the pelvis, and describe the rupture.

FIG. 29. BEST COMMON DOUBLE TRUSS, Soft Pads.

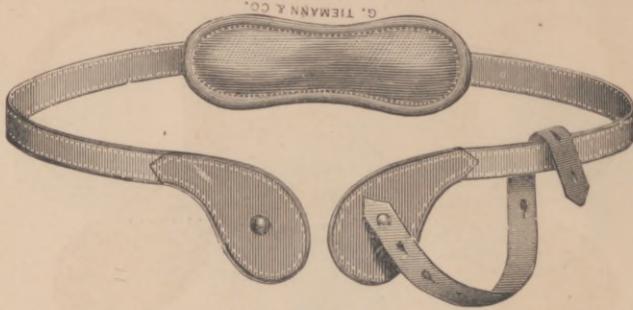


FIG. 30. HULL'S TRUSS, Soft Pad.

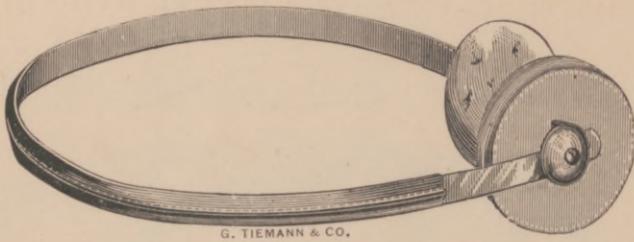


FIG. 31. SELF ADJUSTING, OR BALL AND SOCKET TRUSS. Single, Soft Pad.

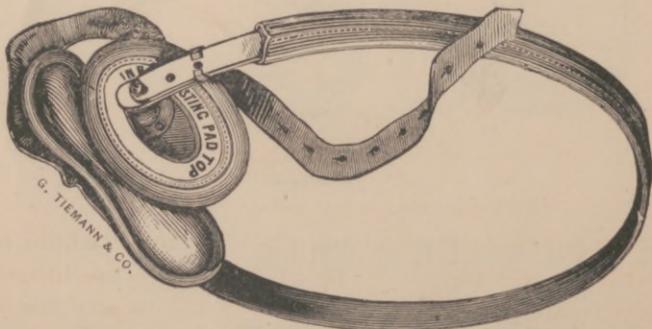
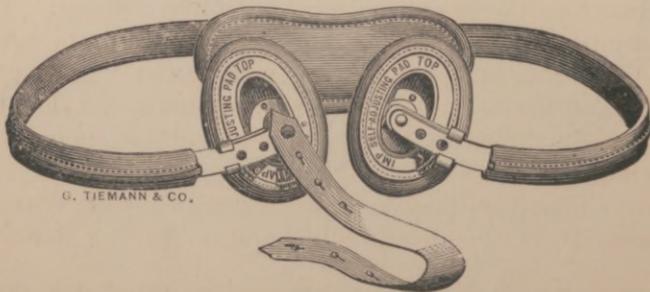


FIG. 32. SELF ADJUSTING, OR BALL AND SOCKET TRUSS. Double, Soft Pad.



Trusses carefully fitted. A lady will wait on lady customers, at the Branch Store, 107 East 28th Street.

FIG. 33. FRENCH ADJUSTABLE TRUSS, Double, Soft Pads.

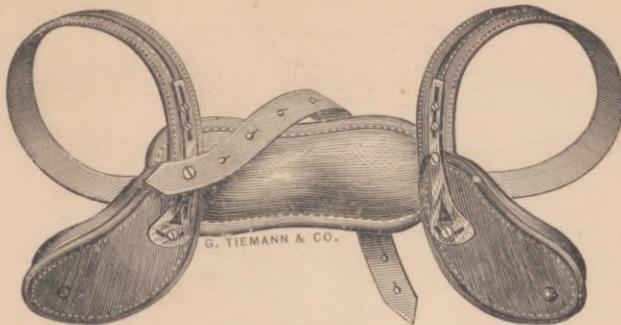


FIG. 34. TIEMANN & CO.'S FINGER-PAD TRUSS.

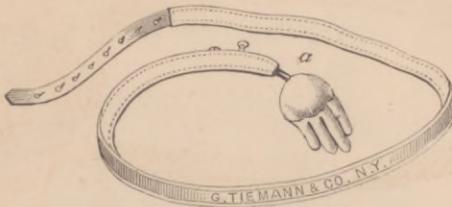


FIG. 35. DR. FOLSOM'S NEW TRUSS.



(Extract from *Medical Record*, New York.)

"This instrument consists of a back-plate of metal, which rests upon the flat surface at the upper part of the sacrum. To this are hinged two arms of steel, which curve around the pelvis just below the crest of the ilium, to avoid the action of the glutei muscles, but fitting very accurately to the shape of the body. To their extremities are attached the pads, upon which they exert such moderate pressure as will ensure safety in each particular case, without aggravating the condition intended to be relieved. The necessary adjustment of curve is, therefore, given in each case, by the hand of the surgeon, before tempering and finishing the instrument. In no other way can the same degree of firmness and efficiency be obtained. The two pads are connected by a single strap, buttoning on studs at their upper part. A double truss is used in every case of hernia.

"The Truss is plated with nickel, and instead of being covered with any absorptive material, is worn over a silk handkerchief or flannel bandage."

Trusses carefully fitted. A lady will wait on lady customers at the Branch Store, 107 East 28th Street.

FIG. 36. DR. SCHUPPERT'S GALVANIC TRUSS.

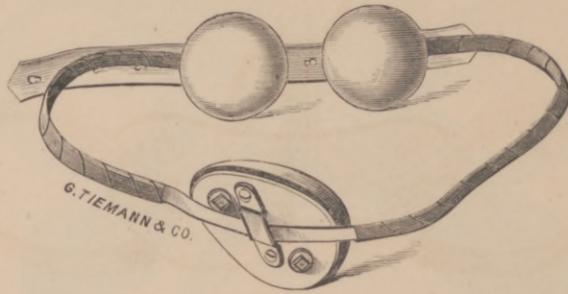


FIG. 37. BOW SPRING ABDOMINAL SUPPORTER.

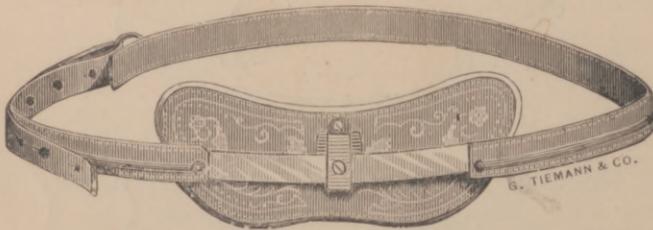
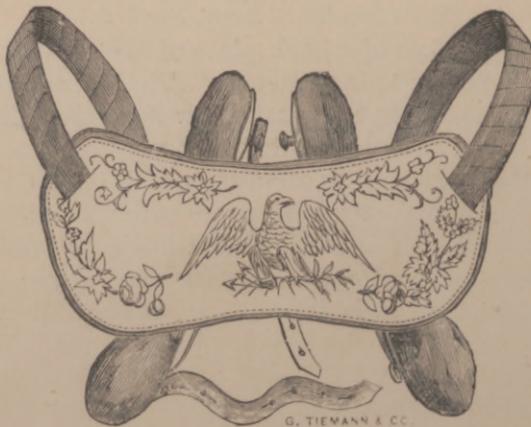


FIG. 38. FITCH'S ABDOMINAL SUPPORTER.



Supporters and Trusses carefully fitted. A lady will wait on lady customers at the Branch Store 107 East 28th Street.

FIG. 39. EUGENE ABDOMINAL SUPPORTER.



FIG. 40. LONDON ABDOMINAL SUPPORTER.

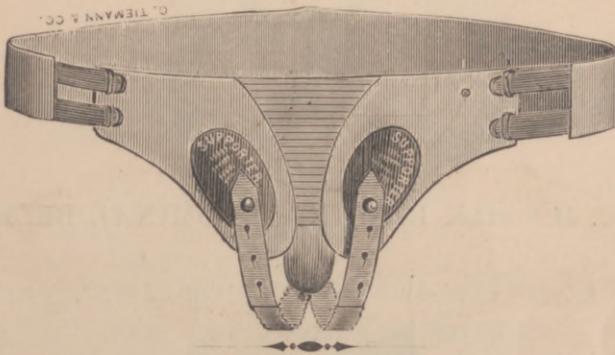


FIG. 41. ABDOMINAL BANDAGE.

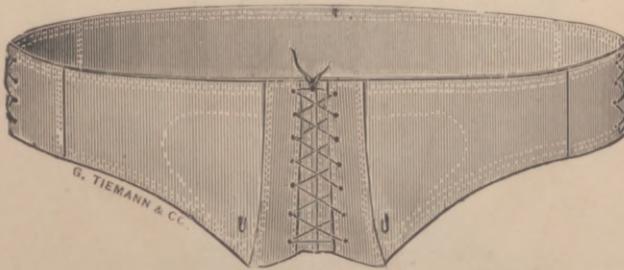


FIG. 42. NOEGGERATH'S ABDOMINAL SUPPORTER.



Supporters and Trusses carefully fitted. A lady will wait on lady customers at the Branch Store, 107 East 28th Street.

FIG. 43. THOMAS'S ABDOMINAL SUPPORTER.

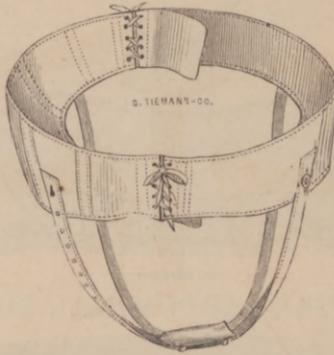


FIG. 44. SILK ELASTIC ABDOMINAL BELT.



We have on hand cotton elastic abdominal belts, canvas riding belts, satin-jean abdominal belts, etc.; also Brauns', Phelps', Dugas', Scanzoni's, the Boston, and a variety of other supporters, and make to order any other pattern desired.

MEASUREMENT FOR SUPPORTERS.

1. Circumference at the iliac crests, - - - inches.

Supporters and Trusses carefully fitted. A lady will wait on lady customers at the Branch Store,
 107 East 28th Street.

FIG. 45. PROLAPSUS ANI AND PILE SUPPORTER.

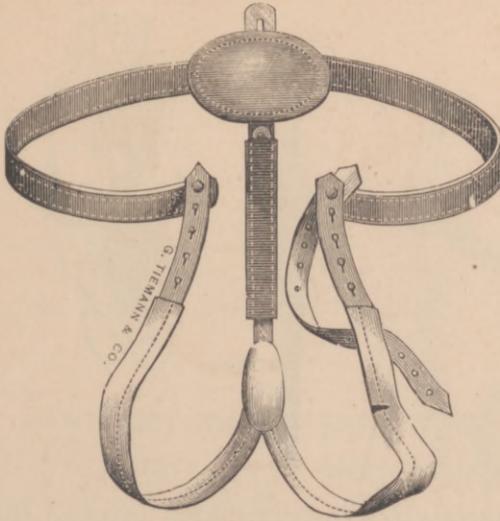
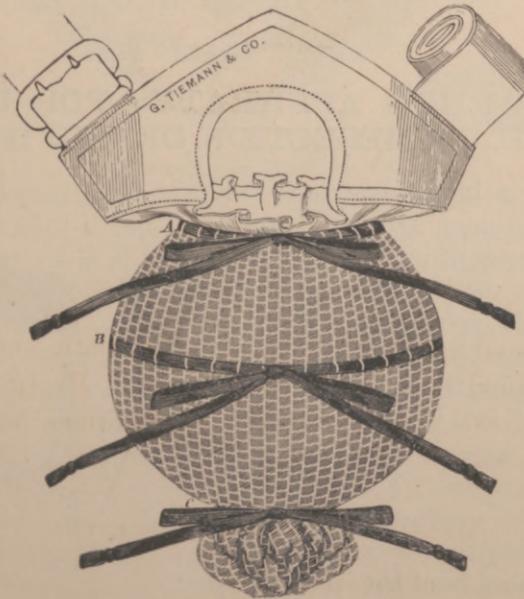


FIG. 46. MILIANO'S COMPRESSOR FOR VARICOCELE, SWELLING, ETC., OF THE TESTES.



We keep in store a large assortment of SUSPENSORY BANDAGES of all kinds and patterns, made of silk, linen, cotton, leather, etc.

FIGS. 47, 48, 49, 50. URINALS FOR INCONTINENCE.

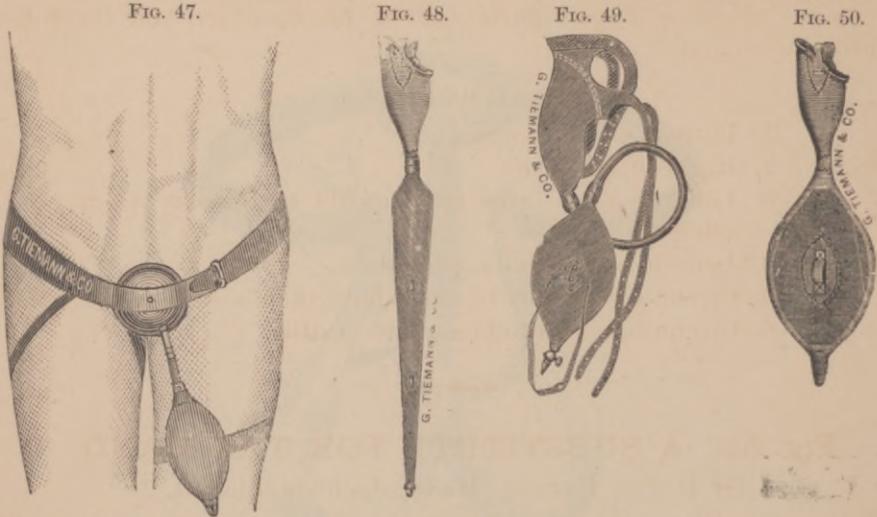
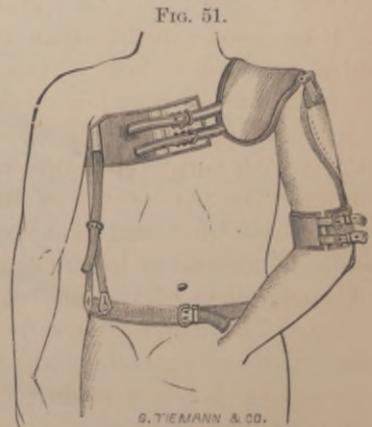


FIG. 47 is Tiemann & Co.'s instrument for inverted (Extrophy of) bladder. It consists of a metallic or hard rubber shield, to the lower extremity of which is attached an elastic tube leading to a soft rubber pouch, to collect the urine. This is buckled to the thigh or may be carried down to the boot. Figs. 48, 49, 50, represent soft rubber urinals for incontinence of urine, we have various other patterns for males and females of English, French and American make.

Fig. 51. PFARRE'S APPARATUS FOR UN-UNITED FRACTURE, OR RESECTION OF THE HUMERUS.

The object of this instrument is to restore an arm to usefulness, which has been deprived of the power of motion by reason of ununited fracture, or of resection of the humerus. This is accomplished by substituting an external lever, upon which the muscles can act, for the injured bone. A brass cap, well padded, is accurately fitted to the shoulder, and kept in place by axillary straps and suspenders. To this cap we attach, by means of a sort of universal joint, a concave steel bar, covered with leather, fitting the arm, and buckled thereto, just above the elbow-joint, and as high up as may be necessary. With the aid of this apparatus a person can use his arm in many directions. In order to make this apparatus fit well, the patient must either visit



us for adjustment, or, if this is inconvenient, the surgical attendant must send us an accurate plaster-paris cast of the shoulder, and the following information and

MEASUREMENTS :

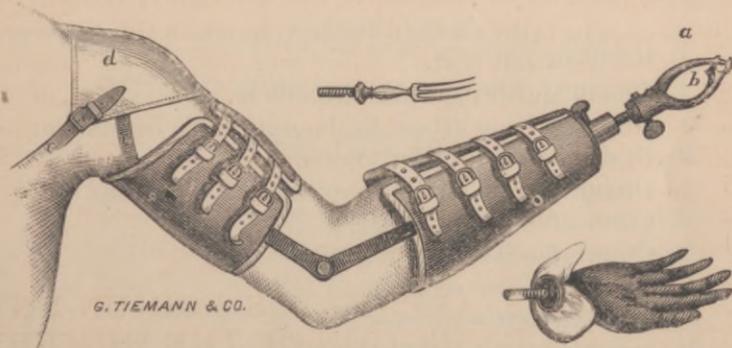
1. Patient's name (or sex).
2. Right or left arm ?
3. Length of the arm from axilla to forearm when flexed, - - - - - INCHES.
4. Length from shoulder to elbow, - - - - -
5. Circumference of the arm above the elbow, - - - - -
6. Circumference of chest under axillæ, - - - - -

◆ ◆ ◆

Fig. 52. A SUBSTITUTE FOR THE HAND.

By DAVID PRINCE, M. D., Jacksonville, Ill.

FIG. 52.



(From *Medical Record*, N. Y.)

“It has been a desideratum to provide a substitute for the hand which will enable a person to hold a pen or pencil, and with the same instrument to grasp the handle of a hoe or shovel. In 1864 I explained my plan to Mr. Stohlmann, of the firm of Tiemann & Co., of New York. Mr. Stohlmann entered with enthusiasm into the idea and produced an instrument which combined the two points of usefulness, the capability of grasping small objects like pins and pencils, and objects of considerable size, like the handle of an axe or hammer, a whip, &c.

A conception of the instrument will readily be obtained by a glance at the cut. The apparatus *a* is fastened to the investment of the limb by means of a screw, and by aid of the other hand, it may readily be replaced by a fork, if it is not preferred to hold the fork in the grasp of the instrument, or a gloved hand can be screwed on in place of the useful instrument.

The fenestrum *b* is for holding a whip or hammer, and its size is regulated by a screw so as to fit objects of different sizes. Small objects are held in the fork at the ends of the apparatus, and by screwing down more or

less the lever which constitutes one side of the fenestrum, the grasp can be accommodated to the size of a needle or a pencil.

The instrument is represented in the cut as not quite closed, for very small objects.

The screw which constitutes the shank of the instrument, is so arranged that it can be made stationary, a necessary condition in holding a whip or a hammer, or left to rotate, as would be necessary in holding the handle of a plough.

It will be seen that the instrument has great variety of adaption.

There are elastic straps *c c* attached to the investment of the arm, and to a shoulder-cap *d*, and passed around the chest to prevent the whole apparatus from sliding off in pulling or in carrying a weight.

The instrument is very far from being an adequate substitute for the natural hand, but it is believed that it combines the utility of a grasp for large objects combined with the capability of holding small things better than any instrument which has yet been devised."

An order for Prince's Substitute for the Hand should be accompanied by the following :

MEASUREMENT :

	INCHES.
1. Right or left arm.	"
2. Distance from shoulder to elbow, - - - - -	"
3. Distance from elbow to the extremity of stump,	"
4. Distance from axilla to elbow, - - - - -	"
5. Distance from axilla to extremity of stump, - - - - -	"
6. Circumference of wrist, - - - - -	"
7. Circumference of forearm, - - - - -	"
8. Circumference of arm, - - - - -	"
9. Circumference of chest, - - - - -	"
10. Length of the sound arm, - - - - -	"
11. A pencil sketch of the size of sound hand.	



Fig. 53. APPARATUS FOR OVERCOMING MUSCULAR CONTRACTION OF THE ELBOW-JOINT, AND FALSE ANCHYLOSIS.

FIG. 53.



G. TIEMANN & CO

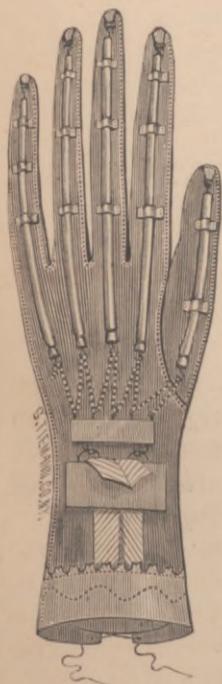
The apparatus here represented, is for the gradual extension of contracted muscles. By persistent and daily passive and active exercise, a flexible and useful joint may be restored. It may also be used for forcible breaking up of false anchyloses if the surgeon prefers this to gradual extension. It forms also a safeguard against malposition, for should it be deemed impossible to effect a cure, the arm may be fixed in such a position to anchylose as shall give it the greatest usefulness.

DESCRIPTION AND MEASUREMENT.

1. Right or Left Arm.					INCHES.
2. Length from wrist to elbow-joint (<i>A to C</i>),	-	-	-	-	“
3. Length from wrist to axilla (<i>A to D</i>),	-	-	-	-	“
4. Circumference of wrist (<i>A</i>),	-	-	-	-	“
5. Circumference of forearm (<i>B</i>),	-	-	-	-	“
6. Circumference of elbow-joint (<i>C</i>),	-	-	-	-	“
7. Circumference of arm (<i>D</i>),	-	-	-	-	“

Fig. 54. TIEMANN & CO'S GLOVE FOR PARALYSIS
OF THE EXTENSORS OR CONTRACTION OF
THE FLEXORS OF THE HAND
AND FINGERS.

FIG. 54.



This apparatus, made of strong yet pliable material, reaches about two inches above the wrist, and is arranged to lace snugly, to prevent displacement.

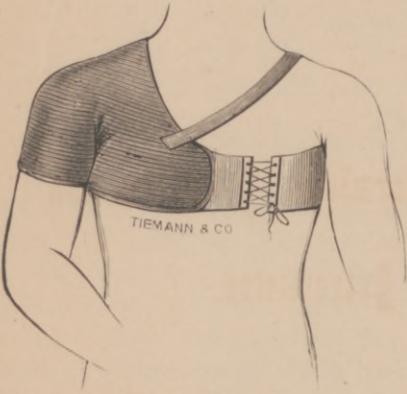
Five india rubber cords, acting as artificial extensors, are distributed along the back of the fingers and thumb. The ends of these cords are provided with hooks which take hold of loops at the extremities of the fingers and thumb, and of chains connected to straps at the wrist. These artificial muscles act independently one of the other, and their strength can be regulated by hooking them to the chains so as to make them more or less tense. They are passed through loops to prevent their slipping out of place.

DESCRIPTION AND MEASUREMENT.

1. Right or left hand.
2. Lay the hand on a sheet of paper and *trace* the outlines with pencil, as far as the glove is to reach.
3. Circumference of the wrist.
4. Circumference of the hand anterior to the thumb.

Fig. 55. APPARATUS FOR PREVENTING DISLOCATION OF THE SHOULDER-JOINT.

FIG. 55.



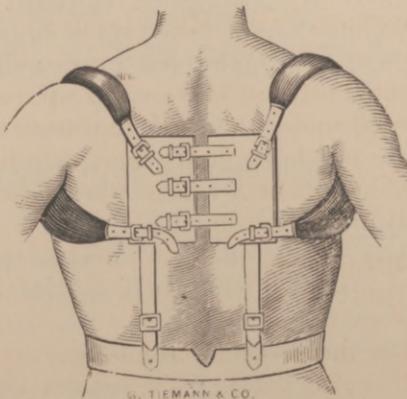
This apparatus is to be worn after reduction of a dislocated humerus, to guard against a recurrence, and also for the purpose of relieving permanent dislocation arising from a laxity of the ligaments, or from paralysis of the deltoid and scapular muscles. It is made of satin-jean with a leather shoulder-cap.

DIRECTIONS FOR MEASUREMENT.

1. Patient's name.
2. Patient's weight (estimated).
3. Right or left shoulder.
4. Circumference of the arm.
5. Circumference axilla to acromion.
6. Circumference of chest under axilla.

Fig. 56. SIR ASTLEY COOPER'S APPARATUS FOR DISLOCATED CLAVICLE.

FIG. 56.



Apparatus for the Treatment of Deformities, Debilities and Deficiencies of the Lower Extremities.

Fig. 57. EXTENSION FOR A SHORT LEG.

For a short leg, the result of infantile paralysis, when the bones have not kept pace in growth with those of the corresponding extremity, we make an extension to correct the patient's limp, and to guard against the danger of spinal curvature. The apparatus consists of a steel frame of proper height, securely fastened under a plain shoe. The steel base has a leather sole attached, to avoid noise when walking on pavements, stone or wooden floors, and to prevent falling on slippery ground. These extensions are light and comfortable. See also Figs. 58 and 59.



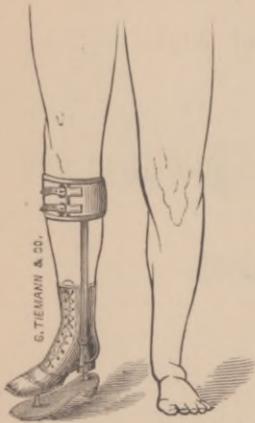
DIRECTIONS FOR MEASUREMENT.

1. Have the patient (both feet bare) stand up, place books or blocks of wood under the short foot until the shoulders and pelvis are in a horizontal plane, then measure these books and blocks, which will be the height required for extension.
2. Send us a well-fitting shoe.
3. Right or left leg?

If we are to furnish shoes, send the measure as directed on next page.

Fig. 58. EXTENSION FOR A SHORT LEG AND BRACE FOR WEAK ANKLE COMBINED.

Fig. 58.



If shortness of a leg is accompanied with inability to bear the weight of the body, the muscles being too weak to keep the ankle straight, the simple contrivance described (Fig. 57) is not sufficient, and the apparatus as shown by Fig. 58 will be required to support the joint. (This is in reality the apparatus Fig. 57 and Fig. 60 combined.)

DIRECTIONS FOR MEASUREMENT.

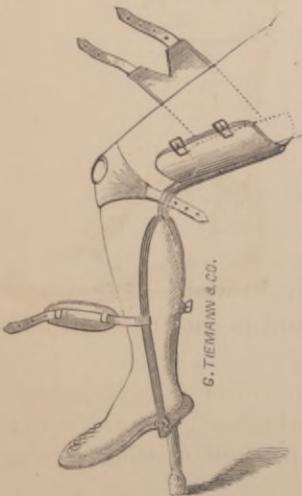
1. Height of the extension as directed for Fig. 57.
2. Right or left leg? INCHES.
3. Distance from sole to ankle-joint, - "
4. Distance from sole to calf, - - "
5. Circumference of calf, - - "

Send us a well-fitting laced shoe, or, if we are to furnish one, the following measure :

- | | INCHES. |
|---|---------|
| <i>a</i> Length of sole of foot, - - - - | " |
| <i>b</i> Circumference of ball of foot, - - - | " |
| <i>c</i> Circumference of instep, - - - - | " |
| <i>d</i> Circumference above the ankle, - - | " |

Fig. 15. BIGG'S INSTRUMENTS FOR A SHORT LEG.

Fig. 59.



This instrument is very useful where shortening of the limb is the result of ankylosis of the knee-joint. It is a modification of Bigg's, and consists of a thigh trough, well padded, and attached to a strong steel stem, bifurcating below the knee, and running down the sides of the leg, terminating in a socket which is filled up with a rubber bottom to rest on the ground. The thigh is secured into the apparatus by straps and buckles. The weight of the body is transmitted to the ground by the side stems in a vertical line, without straining the knee. For further comfort the knee may be kept in place by a knee-cap. A strap is passed over the middle of the leg, whilst the foot rests on a swiveled plate placed between the bifurcated stem.

DIRECTIONS FOR MEASUREMENT.

- | | |
|---|--------------|
| 1. Patient's name. | |
| 2. Right or left leg? | |
| 3. Length from sole of foot to knee-joint, - - - | INCHES. " |
| 4. Length from knee-joint to upper third of thigh, | " |
| 5. Circumference of the thigh, - - - - - | " |
| 6. Circumference of the calf, - - - - - | " |
| 7. Degrees of the angle of flexion, - - - - | " |
| 8. Distance from the heel of the patient's shoe to
the ground when standing erect, | " |

—•••—

Fig. 60. APPARATUS FOR THE SUPPORT OF WEAK ANKLES.

These instruments are used to maintain the position of the foot, after the relief of valgus or varus by the regular clubfoot shoe, and also for correcting simple lateral inversion or eversion of the ankle-joint, resembling varus or valgus, commonly called weak ankle.

We attach, by means of three rivets, to the sole of a common laced shoe, a lateral stem, jointed at the ankle (*a*) passing as high as the centre of the calf, and here fixed to a band (*b*).

The ankle is supported and kept in its corrected posture by a triangular V-shaped leather strap (*c*) acting against and buttoned to the steel stem on the opposite side.

The best direction for selecting the side on which the instrument should be applied, is, that if the outer ankle has a tendency to eversion, the apparatus should invariably be placed to the inner side, and vice versa.

In obstinate cases it is made with double stems, in order to give greater security, and to keep the sole in a strictly horizontal plane; the ankle may be further protected by a small round soft pad, to prevent chafing against the steel.

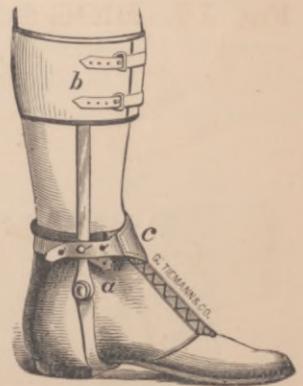


Fig. 61. TALIPES EQUINUS.

FIG. 61.



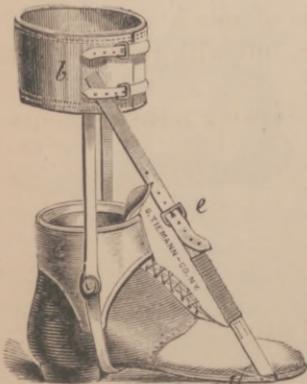
Fig. 62. APPARATUS FOR WEAK ANKLE AND CONTRACTED TENDO ACHILLIS.

(TALIPES EQUINUS.)

Should there be contraction of the tendoachillis, and consequent dropping of the toes, it is conveniently corrected by means of an artificial elastic muscle, one end of which is fastened to the sole of the shoe (Fig. 62), the other to the calf-band (*b*); it may be regulated to any degree of tension by means of a buckle (*e*).

In ordering the apparatus, send the following description and measurements :

FIG. 62.



1. Patient's name (or sex).
 2. Patient's age.
 3. Weak ankle, resembling varus or valgus ?
 4. Right, left, or both feet ?
 5. Tendo achillis contracted ?
 6. Length from sole of foot to ankle-joint, INCHES. "
 7. Length from sole of foot to calf, " "
 8. Circumference of calf, " "
- If you wish us to furnish shoes, send the following additional measurements :
9. Length of sole of foot, " "
 10. Circumference of ball of foot, " "
 11. Circumference of instep, " "
 12. Circumference above ankle, " "

Fig. 63. IMPROVED CLUBFOOT APPARATUS FOR TALIPES VARUS.

Extracted from the "Medical Record," New York, Aug. 16th, 1869.

"The following is a description of a very neat, effective, and comparatively cheap apparatus for talipes, devised by Messrs. Geo. Tiemann & Co., instrument-makers in this city.

"The sole of this strong leather shoe is of metal, with a joint near the heel, allowing lateral motion. A strong and durable spiral spring, as shown in the cut (*a*), draws the foot outward by a constant, elastic, and easy traction. This pressure is increased or decreased at will, by fastening the spring in a series of sockets (*c*).

"The single outside upright steel bar, with joints at the ankle, is fastened round the limb below the knee-joint, and so constructed that the screw at the ankle-joint forces the foot flat upon the floor, which foot in almost all cases is turned under as indicated by the sketch. The spiral spring (*d*), being attached to a catgut cord (passing round a pulley at the centre of the bar and fastened near the toes upon the outside of the foot), elevates the toes and stretches the tendo achillis, at the same time drawing the foot to its natural position.

"The shoe is well padded, and as there is no metal in the heel-cap, no excoriation is occasioned. The contraction of the leather above the heel prevents the shoe from slipping off (always so difficult to retain in fleshy infants). The straps round the instep depress any undue prominence of the arch of the foot, and within the shoe a broad and well-padded tongue keeps the toes flat upon the sole of the shoe. This apparatus resembles much the regular shoe, and shows no deformed appearance."

A very simple and light night shoe, to keep the foot in the same position gained by the above shoe during the day-time, is of much service.

FOR TALIPES VALGUS, the same principle, but with reversed action, is applied.

In ordering the above shoe, please send the following measurements :

- | | INCHES. |
|---|---------|
| 1. Length of sole of foot, - - - - - | " |
| 2. Circumference of calf (<i>d</i>), - - - - - | " |
| 3. Circumference of instep (<i>c</i>), - - - - - | " |
| 4. Circumference of ball of foot (<i>a</i>), - - - - - | " |
| 5. Circumference above ankle (<i>b</i>), - - - - - | " |
| 6. Length from sole to upper part of calf (<i>d</i>), - - - - - | " |
| 7. Right or left foot ? | |
| 8. Talipes—varus or valgus ? | |

FIG. 63.

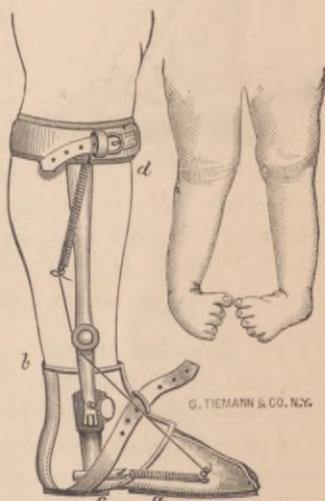
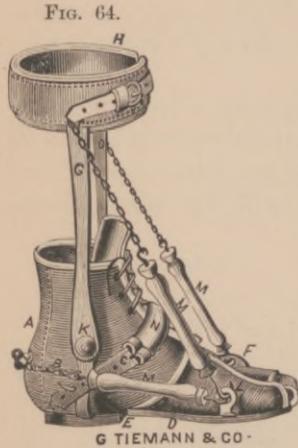


Fig. 64. DR. L. A. SAYRE'S IMPROVED BALL AND SOCKET CLUBFOOT SHOE.



The accompanying drawing (Fig. 64) and explanations give a very correct idea of its construction and modes of action. A cushioned iron cup to receive the heel, the leather covering of which is carried over the instep and ankle, and fastened by lacing. Elastic tubing (*N*) to go in front of the ankle-joint, to further secure the heel in position, and fastening at (*C*) an iron hook on outside of heel-cup. Sole of shoe (*D*), cushioned, and laced securely in front of the medio-tarsal articulation. Ball and socket-joint (*E*), connecting sole with heel. Elevated plate of iron (*F*), properly cushioned to make pressure against base of first metatarsal bone. Steel bars (*G*), connecting the shoe with strap (*H*) to go around the calf. Joint (*K*) opposite the ankle. Stationary hooks (*L*), opposite the toes, for attaching the india-rubber muscles (*M M M*). These india-rubber tubes have chains attached, and are for the purpose of making flexion and eversion.

This shoe has been made more comfortable and convenient by a slight heel, and by making the upper leather nearly like that of an ordinary shoe, and not so clumsy as the primitive clubfoot shoe. The upper leather adapts itself more perfectly by lacing than if arranged with straps and buckles. This shoe, as pictured above, is arranged for valgus or varus. There is really no essential difference, only observe the principle to apply the artificial muscles in such position as shall best supply the place of those paralyzed.

In ordering the above shoe, send the following

MEASUREMENTS :

	INCHES.
1. Length of sole of foot, - - - - -	“
2. Circumference of calf, - - - - -	“
3. Circumference of instep, - - - - -	“
4. Circumference of ball of foot, - - - - -	“
5. Circumference above ankle, - - - - -	“
6. Length from sole to upper part of calf, - - - - -	“
7. Right or left foot ?	
8. Talipes—varus or valgus ?	

Fig. 65. TALPES VALGUS.

FIG. 65.



SAYRE'S

Wire Loops and Hooks,

Spinal Apparatus,

Rubber Tubing for Artificial Muscles,

Hip-joint Splints,

Chains and Tin Splints,

Knee-joints and

Ankle-joint Splints always on hand.

Fig. 66. TALIPES CALCANEUS.

FIG. 66.



Fig. 67. APPARATUS FOR TALPES CALCANEUS.

FIG. 67.



FIG. 68.



This instrument consists of a pair of steel stems, fastened to a shoe, provided with joints at the ankle, and secured to the leg with a calf-band. A strong elastic cord, or webbing, is fastened posteriorly to the calf-band above, and to a spur-like piece of steel at the heel of the shoe below. By drawing this cord tight, the uplifted sole is faced downward, and the strain on the tendo achillis is diminished; at the same time the contracted muscles in front of the leg are extended. The tension of this cord, or webbing, can be regulated at will by a strap and buckle.

Fig. 68 shows the same apparatus with this difference: instead of the cord or elastic webbing contracting posteriorly in Fig. 67, we have a STEEL SPIRAL SPRING placed on a pivot and playing between brackets of the leg and ankle stem, to depress the front part of the foot by extension. There is not so much danger of falling with this apparatus, when descending stairs, the spurs, shown in Fig. 67, being dispensed with.

DIRECTIONS FOR MEASUREMENT.

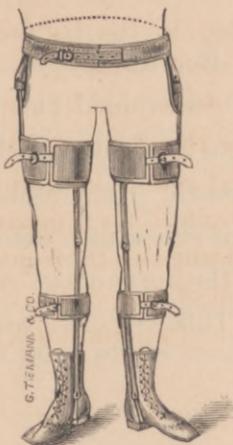
1. Patient's name.
2. Patient's weight.
3. Patient's age.
4. Right or left foot. INCHES.
5. Length from sole to ankle-joint, - - - - - “
6. Length from sole to calf, - - - - - “
7. Circumference of calf, - - - - - “

If we are to furnish shoes, the following measures are required in addition:

- | | INCHES. |
|---|---------|
| <i>a</i> Length of the foot, - - - - - | “ |
| <i>b</i> Circumference of ball of foot, - - - - - | “ |
| <i>c</i> Circumference of instep, - - - - - | “ |
| <i>d</i> Circumference of ankle, - - - - - | “ |

Fig. 69. APPARATUS FOR THE SUPPORT OF WEAK LEGS.

FIG. 69.



This apparatus is for the support of weak legs, when, by reason of relaxed joints, softening of the osseous structure, or partial paralysis, they cannot quite bear the weight of the body; but where the muscles still retain some power to perform their respective functions. Very light steel springs are secured to shoes, and carried up the sides of the legs and to the pelvis. They are provided with joints corresponding to the natural ones and secured to calf, thigh, and pelvis by well-padded bands and buckles. This apparatus is worn when the aid of artificial muscles is deemed unnecessary.

DIRECTIONS FOR MEASUREMENT.

- | | | |
|---|-------|---------|
| 1. Patient's name. | | |
| 2. Patient's age. | | INCHES. |
| 3. Length from sole of foot to ankle-joint, | - - - | “ |
| 4. Length from sole of foot to knee-joint, | - - - | “ |
| 5. Length from sole of foot to hip-joint, | - - - | “ |
| 6. Length from sole of foot to iliac crests, | - - - | “ |
| 7. Circumference of pelvis one inch below iliac crests, | | “ |
| 8. Circumference of thigh, | - - - | “ |
| 9. Circumference of calf, | - - - | “ |

Send well-fitting laced shoes, or, if you wish us to furnish them, the following measurements:

- | | | |
|---|-------|---------|
| <i>a</i> Length of sole of foot, | - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, | - - - | “ |
| <i>c</i> Circumference of instep, | - - - | “ |
| <i>d</i> Circumference above ankle, | - - - | “ |

Fig. 70. APPARATUS FOR PARTIAL PARALYSIS OF THE LEG AND THIGH.

FIG. 70.



In cases of wasting palsy, or when certain groups of muscles become atrophied and lose the power to perform their functions, an apparatus as shown, Fig. 70, suited to the case, should be worn. The muscles are excited into action, and aided by artificial substitutes made of elastic rubber or steel, and placed on the instrument so as to gently exercise the affected parts. This will often recall them to a sense of their duty.

REQUIRED MEASUREMENTS :

- | | |
|--|---------|
| 1. Patient's name. | |
| 2. Patient's age. | |
| 3. Right or left leg. | INCHES. |
| 4. Length from sole of foot to ankle-joint, - - - | “ |
| 5. Length from sole of foot to knee-joint, - - - | “ |
| 6. Length from sole of foot to upper third of thigh, - | “ |
| 7. Circumference of calf, - - - - - | “ |
| 8. Circumference of knee, - - - - - | “ |
| 9. Circumference above knee, - - - - - | “ |
| 10. Circumference of thigh, - - - - - | “ |

Send laced shoes. If you wish us to furnish shoes, the following additional measurements are required :

- | | |
|---|---------|
| <i>a</i> Length of sole of foot, - - - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, - - - - - | “ |
| <i>c</i> Circumference of instep, - - - - - | “ |
| <i>d</i> Circumference above ankle, - - - - - | “ |

If both legs are of equal length the above apparatus is sufficient ; but if the affected limb is shorter than its fellow, the extension apparatus, Fig. 58, must be combined with it.

Fig. 71. APPARATUS FOR HEMIPLEGIA.

The apparatus represented by Fig. 71 is for hemiplegia, affecting the limb to the hip-joint. We have often had occasion to make it, and found it to answer a good purpose, both as a support, and in aiding the restoration of the mobility of the muscles. It answers to the same description as Fig. 70, but is carried up to the pelvis. On to a broad steel pelvic band we fasten the artificial muscles for flexion or extension, as the case may require. This instrument may also be worn with good results after treatment of hip-joint disease, when, by adding a perineal band, the weight of the body is borne by the apparatus.

SEND THE FOLLOWING MEASUREMENTS :

- | | |
|--|-------------|
| 1. Patient's name and description of the case. | |
| 2. Patient's age. | |
| 3. Right or left leg. | |
| 4. Length from sole of foot to ankle-joint, - | INCHES. " " |
| 5. Length from sole of foot to knee-joint, - | " " " |
| 6. Length from sole of foot to trochanter-major, - | " " " |
| 7. Length from sole of foot to crest of ilium, - | " " " |
| 8. Circumference of calf, - - - - - | " " " |
| 9. Circumference of knee, - - - - - | " " " |
| 10. Circumference above knee, - - - - - | " " " |
| 11. Circumference of thigh, - - - - - | " " " |
| 12. Circumference of pelvis 1 inch below iliac crests, " | " " " |

Patients will furnish their own laced shoes, or send the following additional measurements, if they wish us to furnish them :

- | | |
|---|---------|
| <i>a</i> Length of sole of foot, - - - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, - - - - - | " " |
| <i>c</i> Circumference of instep, - - - - - | " " |
| <i>d</i> Circumference above ankle, - - - - - | " " |

Fig. 72. APPARATUS FOR PARAPLEGIA.

The apparatus for paraplegia answers to the same description as the one for hemiplegia, except that it is double. It is used when both of the lower extremities are affected. A general description of the case is necessary to guide us in placing the artificial muscles in the right spot. The directions for measurements are the same as for the apparatus for hemiplegia, Fig. 71.

FIG. 71.

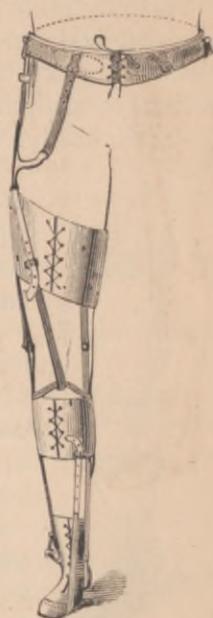


FIG. 72.

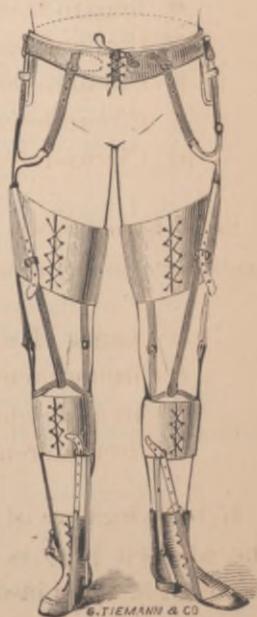
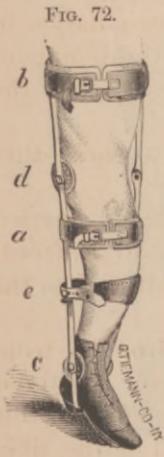


Fig. 73. BOW-LEG BRACES.

The mechanical treatment of bow legs is very simple. 1. The bones, in a softened condition, yielding under the weight of the body, must be assisted by extraneous help. 2. The arched bones must be restored to their normal condition. The instrument illustrated by the cut answers the purpose admirably.



The support is given by double stems of steel (secured to a shoe), carried up as high as the thigh—jointed at the ankle and knee to allow the patient perfect freedom of motion. They are kept in place by calf (*a*), and thigh-bands (*b*).

The bow is corrected by pads (*c*) and (*d*) being placed respectively against the ankle and knee on the concave side of the limb, whilst a strap (*e*) passed around on the highest point of the arc, inside of the outer stem, tightly buttoned to the steel bar on the concave side, gradually compels the leg to become parallel with it.

In slight cases, or when the bow is greatest below the calf, the instrument carried up to (*d*) only is sufficient. To insure a good fit, please, in ordering the apparatus, to send the following description and measurements for a pair of bow-leg braces.

DIRECTIONS FOR MEASUREMENT.

1. Patient's name, or sex.
2. Patient's age.
3. Length from sole of foot to ankle-joint (*c*), - - - - - INCHES. "
4. Length from sole of foot to knee-joint, inner side (*d*) " "
5. Length from sole of foot to knee-joint, convex or outer side, (*d*), - - - - - "
6. Length from sole of foot to upper third of thigh, inner side of leg (*b*), - - - - - "
7. Length from sole of foot to highest point of the arc (*e*), " "
8. Circumference of calf (*a*), - - - - - "
9. Circumference of thigh (*b*), - - - - - "

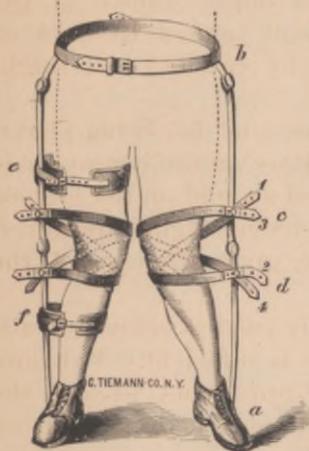
Patients will furnish their own laced shoes, or send the following measurements, if they wish us to furnish them :

- | | | |
|--|-----------|---------|
| <i>a</i> Length of the sole of the foot, | - - - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, | - - - - - | " |
| <i>c</i> Circumference of instep, | - - - - - | " |
| <i>d</i> Circumference above ankle, | - - - - - | " |

Fig. 74. GENU-VALGUM, OR KNOCK-KNEE BRACE.

The mechanical treatment of knock-knees requires a proper instrument of sufficient strength and yet not too heavy—to suit the condition of the patient. The one represented is the simplest and most effectual one of which we know. It consists (if the deformity be double) of two lateral stems, with joints at the ankles, knees and hips, extending from the heels of strong shoes (*a*) to a well-padded pelvic band (*b*). The pelvic band is made in two halves in order to admit of adjustment—the tightening of the posterior buckle everting the toes, that of the front buckle inverting them.

FIG. 74.



A pair of padded straps secured to each other crosswise act in the following manner:

End 1 is buttoned to the thigh stem (*c*), carried from behind, below the inner condyle, to the front, terminating in the end 2, which is buttoned to the leg stem (*d*).

The end 3 buttons to (*e*) is carried from the front to the back of the knee, passing over the inner condyle, and secured to the button (*d*). In this manner they support both the head of the tibia and femur, whilst their combined direction of

force being outwards gradually corrects the deformity.*

Some surgeons prefer to have the apparatus without a joint at the knee, but is there not a risk of inducing ankylosis by too long retention of the limb in one position? Besides, the patient is liable to fall with stiff splints, and is thus in constant danger of fracturing the bones of the thigh or leg. In ordering the apparatus, send the following description and measurements for knock-knees:

- | | | |
|---|--|---------|
| 1. Patient's name. | | |
| 2. Patient's age. | | |
| 3. Length from sole of foot to ankle-joint, | - - - | INCHES. |
| 4. Length from sole of foot to knee-joint, | - - - | " |
| 5. Length from sole of foot to hip-joint, | - - - | " |
| 6. Length from sole of foot to iliac crests, | - - - | " |
| 7. Circumference of pelvis 1 inch below iliac crests, | - - - | " |
| 8. Circumference of thigh at <i>c</i> , | } A stick to be placed on the out-
side of the limb, and these two
measures taken around both. | " |
| 9. Circumference of leg at <i>d</i> , | | " |
| 10. Right, left, both feet. | | |

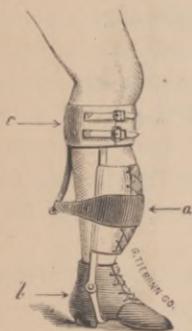
If you wish us to furnish shoes, send the following additional measurements:

- | | | |
|------------------------------------|-------|---------|
| 11. Length of sole of foot, | - - - | INCHES. |
| 12. Circumference of ball of foot, | - - - | " |
| 13. Circumference of instep, | - - - | " |
| 14. Circumference above ankle, | - - - | " |

* This instrument exerts very much more power, and answers better when provided with padded metal bands at the thigh (*e*) and calf (*f*).

Fig. 75. BRACE FOR CORRECTING ANTERIOR CURVATURE OF THE TIBIA.

FIG. 75.



This cut is a fair representation of the instrument. It consists of two upright steel stems, fastened below to a shoe and terminating above the calf-band. The deformity is corrected, either by passing a leather bandage around the stems and tightly lacing it in front over the arc of the curvature (*a*), or by a strap passed over the arc of the curvature and fastened to a spur suspended from the calf-band behind (*c*).

The points of resistance being in either case the heel of the shoe (*b*) and the posterior trough of the calf-band (*c*).

In ordering the apparatus, send the following particulars and measurements.

1. Patient's name (or sex).
2. Patient's age.
3. Anterior curvature of the tibia.
4. Which foot?
5. Length from sole to ankle-joint, - - - - - INCHES.
6. Length from sole to calf (*c*), - - - - - "
7. Circumference of calf, - - - - - "

If you wish us to furnish shoes, send the following additional measurements:

- a* Length of sole of foot, - - - - - INCHES.
- b* Circumference of ball of foot, - - - - - "
- c* Circumference of instep, - - - - - "
- d* Circumference above ankle, - - - - - "



FIG. 76.

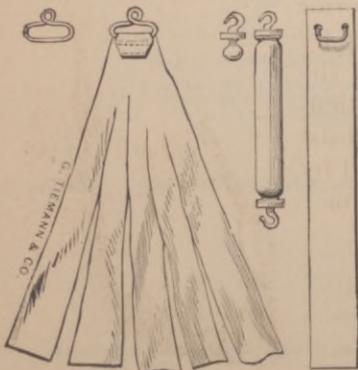


Fig. 76.

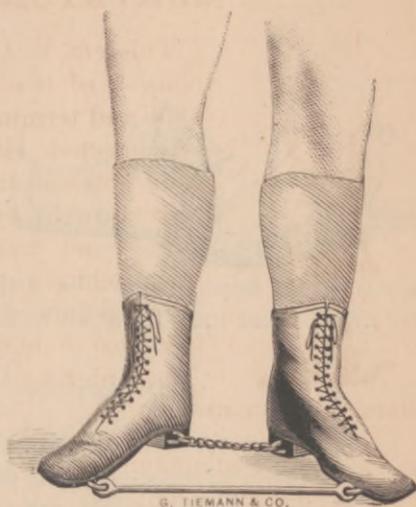
BARWELL'S ATTACHMENTS AND ARTIFICIAL MUSCLES FOR ADJUSTING CLUB- FEET.

Moleskin plaster, wire loops, tin plates, hooks for rubber tubes, and tubing for artificial muscles.

Fig. 77. APPARATUS TO EVERT THE FEET.

FIG. 77.

This apparatus answers well for in-door exercise, but patients cannot get up or down stairs, nor walk on uneven ground without being in constant danger of falling. An apparatus carried up to a pelvic band, made in two halves, answers this purpose better. This pelvic band admits of adjustment, the tightening of the posterior buckle everts the toes, whilst that of the front buckle inverts them. All our pelvic bands on the apparatus for the lower extremities are arranged in this manner, and answer the purpose very well. (See pelvic bands described on apparatus, Fig. 74.)

**STEEL SOLES FOR FLAT FEET.**

For flat feet we make a plain steel sole, well tempered, and shaped to approach an ideal arch of a foot. These soles are covered with buckskin, and fastened inside of a common shoe with a single screw. It affords a person afflicted with flat feet immediate relief. It should be thin to yield a little, but strong enough to keep the bones arched. In ordering the steel sole for flat feet, send measure or the outlines of the foot, and state if they are wanted for the right, left, or for both feet.

Fig. 78. BIGG'S APPARATUS FOR BUNIONS.

FIG. 78.

This apparatus consists of a delicate lever of spring steel, with an oval ring in the centre, which is provided with hinges at its anterior and posterior margin. The apparatus is attached to the instep by a laced band, and the toe to the extremity of the spring by a piece of webbing. It affords the articulation freedom of motion in the natural plane, whilst the malposition of the toe is gradually rectified by constant lateral traction. It can be worn in a shoe.

DIRECTIONS FOR MEASUREMENT.

1. Place the foot on paper and trace with pencil.
2. Circumference of ball of foot, - - - INCHES.
3. Circumference of instep, - - - "



Fig. 79. APPARATUS FOR OVER-RIDING TOES.

FIG. 79.



The apparatus for over-riding, or "hammer toes," consists of a steel sole arranged with slits corresponding to the spaces between the toes. A strap of webbing is passed through these slits and over the contracted toe (or over each and all, as the case may require), and buckled or tied under the sole, tense enough to straighten the toe. This

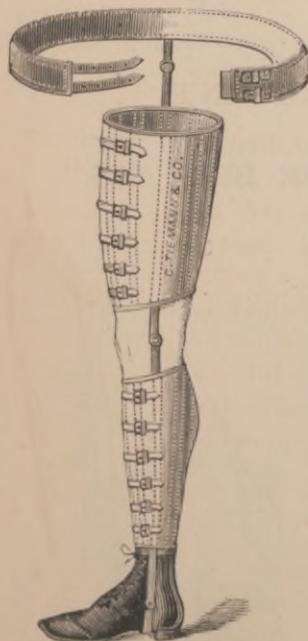
apparatus is kept in place by a thin silk, linen or cotton covering, laced to the instep, and may be worn in an ordinary shoe.

DIRECTIONS FOR MEASUREMENTS.

- | | |
|---|---------|
| 1. Place the foot on paper and trace with pencil. | INCHES. |
| 2. Circumference of ball of foot, | " |
| 3. Circumference of instep, | " |

Fig. 80. APPARATUS FOR FALSE JOINTS IN THE LEG OR THIGH RESULTING FROM RESECTION OR FRACTURE OF THE BONES (Ununited).

FIG. 80.



This apparatus consists of two lateral steel stems, the inner one of these is carried to the upper third of the thigh, the outer one terminates in a pelvic band situated an inch below the iliac crests. Calf and thigh-bands, made either of sole-leather, nicely moulded to the limb, or of sail-cloth, stayed by a number of steel springs, corset-like, and well padded, connect the steel stems, which latter are provided with joints for the ankle, knee and hip. The strength of these stems must be in proportion to the patient's weight. The leather or sail-cloth casing is required only at the place of the false joint, the other band may be softer and smaller, as convenient. If desired, the knee-joint may be made to remain stiff when walking, and flexible when sitting down, by merely touching a spring with the hand outside of the clothing.

DIRECTIONS FOR MEASUREMENT.

1. Patient's name.
2. Patient's weight.
3. Right or left leg.
4. Position of false joint.
5. Length from sole to ankle, - - - - - INCHES. " "
6. Length from sole to knee, - - - - - " " "
7. Length from sole to crutch (perineum), - - - - - " " "
8. Length from sole to trochanter major, - - - - - " " "
9. Length from sole to iliac crest, - - - - - " " "
10. Circumference at

1st buckle,	-	INCHES.	7th buckle,	-	INCHES.
2d " "	-	" "	8th " "	-	" "
3d " "	-	" "	9th " "	-	" "
4th " "	-	" "	10th " "	-	" "
5th " "	-	" "	11th " "	-	" "
6th " "	-	" "	12th " "	-	" "
11. Circumference of pelvis one inch below iliac crests, - " "

If it be desirable to furnish shoes, the following additional measurements are required :

- | | | | | | |
|---|---|---------|---|---|-----|
| <i>a</i> Length of the sole of foot, | - | INCHES. | - | - | - |
| <i>b</i> Circumference of the ball of foot, | - | " " | - | - | " " |
| <i>c</i> Circumference of instep, | - | " " | - | - | " " |
| <i>d</i> Circumference of ankle, | - | " " | - | - | " " |

Fig. 81. DAVIS' HIP-JOINT SPLINT.

Davis' Portable Extension Apparatus allows mobility of the joint, while it diminishes friction of its surfaces. It is used in attempting to re-establish the natural functions of the part. The apparatus is to be worn when the acute stage is passed. Extension is made from the foot, counter-extension from a twofold perineal band, the outer one of which is inelastic, the other composed of elastic webbing, so as to allow extension to a certain point only, when the joint can be fixed. It is applied to the limb by means of adhesive plaster strips, secured with roller bandage. It is applicable to either right or left leg.

DIRECTIONS FOR MEASUREMENT.

Length from the ankle to iliac crest, - - - - - INCHES.

This is the only measure needed, as the splint admits of considerable adjustment of length.

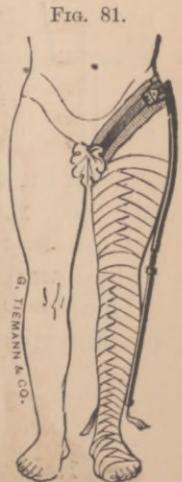
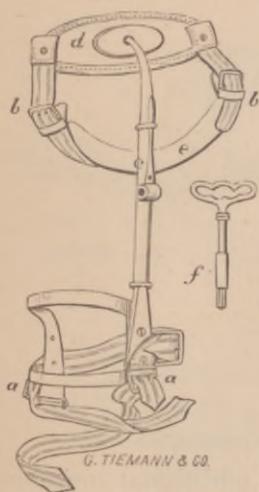


Fig. 82. DR. L. A. SAYRE'S APPARATUS FOR THE TREATMENT OF HIP-JOINT DISEASE,

FIG. 82.



consists of two portions, the upper, made of corrugated steel, attached by means of a universal joint to a pad of proper size (*d*) fitting on the dorsum below the crest of the ilium, and holding in place a perineal band (*e*) adjustable by strong webbing and buckles (*bb*).

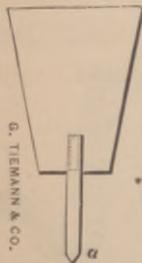
The lower portion (*f*), is simply a ratched bar, sliding within the first. Its inferior extremity is easily adjusted by means of a single screw to either side of two semi-circular bands (*aa*), embracing the thigh just above the knee, making the apparatus answer for both limbs. The cut representing the same arranged for the left leg.

Extension is made by working the splint with the key *f*.

THE APPLICATION OF THE SPLINT

is as simple as its construction. Take strong adhesive plaster, spread on twilled muslin, cut two fan-shaped pieces (Fig. 83), one large enough to reach from the perineum to within two or three inches of the condyle of the femur, on the inner side of the thigh, the other from the trochanter major to a point directly opposite the end of the inner plaster.

FIG. 83.



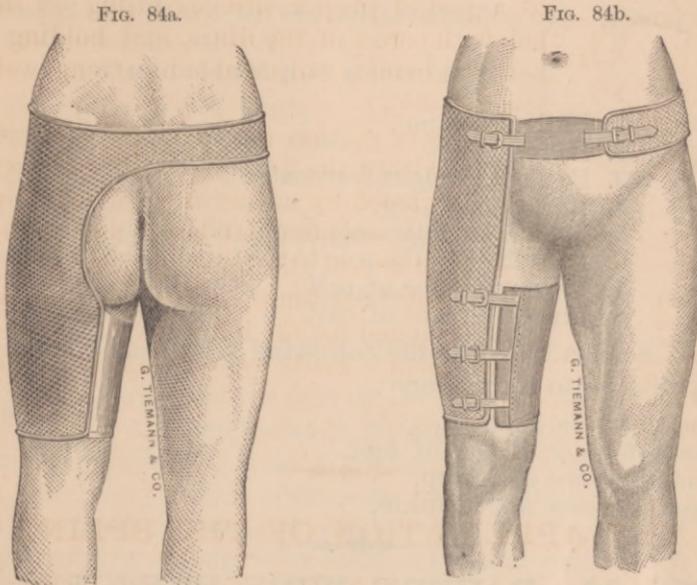
Sew on the narrow end of each (Fig. 83), *a*, one of the webbings, represented in Fig. 82, *aa* (not on the sticky side). Apply them to their respective places, and after pressing them with the warm hand, to obtain a firm adhesion, secure them further by a well-adjusted roller. The instrument contracted, is now laid over the thigh, the webbing (Fig. 83), *a*, firmly fastened over the rollers to the buckles (Fig. 82), *aa*, and the remaining one around the thigh. The perineal band is now adjusted, rather firm, and the instrument extended with the key, just enough to make the patient comfortable, and then locked by pulling the slide down over the spring (Fig. 82), *c*.

In order to prevent the limb from swelling below the bandage, Dr. Sayre recommends the use of an elastic stocking or knee-cap.

DIRECTIONS FOR MEASUREMENT.

- | | |
|--|---------|
| 1. Length from trochanter major to knee-joint, | INCHES. |
| 2. Circumference of thigh above knee, | “ |

Figs. 84a, 84b. HAMILTON'S WIRE GAUZE SPLINT FOR HIP-JOINT DISEASE.



The above splint consists of an iron wire frame, moulded to the outside or back of the pelvis and thigh, covered with wire gauze. It is kept in place by a pelvic and a broad thigh-band, and secured with buckles. Dr. Hamilton advises its use whenever it is desirable to secure immobility of the joint, together with exercise in the open air.

DIRECTIONS FOR MEASUREMENT.

1. Name of patient.
2. Age of patient.
3. Weight of patient (estimated).
4. Right or left side.
5. Crest of ilium to the condyles of the femur, - - - - - INCHES. "
6. Circumference of the pelvis at iliac crests, - - - - - "
7. Circumference at the nates, - - - - - "
8. Circumference of the upper part of the thigh, - - - - - "
9. Circumference of the thigh above the knee, - - - - - "

Fig. 85. BAUER'S HIP-JOINT APPARATUS.

FIG. 85.



This apparatus affords extension in a vertical line, and complete immobility of the joint. By being fastened to a shoe it utilizes the foot for extension, the tuber ischii for counter-extension and the key rack and pinion for a moving power. No adhesive strips are used with this apparatus.

DIRECTIONS FOR MEASUREMENT.

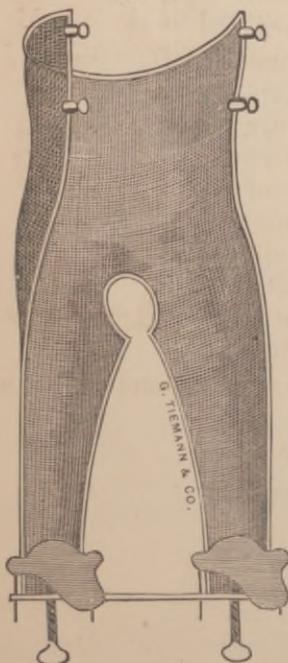
1. Patient's name.
2. Patient's age.
3. Patient's weight (estimated).
4. Right or left leg.
5. Length from the sole to the tuber ischii (sound leg) INCHES. "
6. Length from the sole to the tuber ischii (diseased leg) "
7. Circumference of calf - - - - - "
8. Circumference of calf, - - - - - "

Send a shoe, or the following additional measures if you wish us to furnish one :

- | | |
|---|---------|
| <i>a</i> Length of the foot, - - - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, - - - - - | " |
| <i>c</i> Circumference of instep, - - - - - | " |
| <i>d</i> Circumference above ankle, - - - - - | " |

Fig. 86. BAUER'S WIRE BREECHES.

FIG. 86.



Bauer's Wire Breeches are used after excision of the head and neck of the femur in necrosis, after the removal of shattered bone, or balls in gun-shot fracture, and in the treatment of chronic inflammation of the hip-joint when perfect rest and position of the affected parts are desired. It consists of a heavy wire frame covered with wire gauze to fit the posterior half of the body from the axillary cavity to the sole of the foot.

Proper sized openings may be cut through the gauze to admit of dressing any wounds, without being obliged to remove the splints. There is also an opening for the anus, so that the patient can pass his faeces by having the lower end of the apparatus raised and a bed-pan placed under it. The apparatus may be lined with cotton batting, and the patient securely fastened with adhesive plaster strips and roller-bandages. After the feet are secured to the foot-board, extension can be made by turning the thumb-screws, counter-extension being from the healthy extremity.

DIRECTIONS FOR MEASUREMENT.

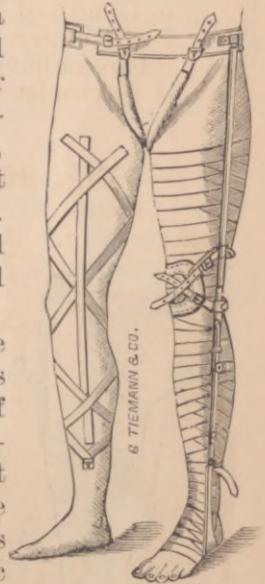
1. Patient's name.	
2. Patient's age.	
3. Patient's weight.	
4. Length from sole of foot to axilla, - - - - -	INCHES. " "
5. Length from sole of foot to perineum, - - - - -	" "
6. Circumference of calf, - - - - -	" "
7. Circumference of knee, - - - - -	" "
8. Circumference of thigh, - - - - -	" "
9. Circumference at the nates, - - - - -	" "
10. Circumference of pelvis at iliac crests, - - - - -	" "
11. Circumference of waist, - - - - -	" "
12. Circumference of chest under axillæ, - - - - -	" "

Fig. 87. TAYLOR'S HIP-JOINT SPLINT.

This splint extends from the sole of the foot to the crest of the ilium, at which point it is connected to a pelvic band by means of a joint allowing flexion and extension, abduction and adduction: which latter motion is regulated by means of a thumb-screw. Extension is made by means of a rack and pinion rod, sliding within a steel tube, moved by a key, and kept in position by a spring catching the teeth of the rack. Counter-extension is made by means of two perineal straps fastened to the pelvic band with straps and buckles.

Application of the splint: Adhesive straps are applied to both sides of the leg, the inside straps terminating in a buckle, the outside in a piece of webbing which is passed through a slit in the apparatus, thence under the foot and through another slit at the end of the footpiece, and buckled to the inside strap just above the internal malleolus. The splint is kept in place by a knee-cap. After adjusting the pelvic band and the perineal straps snugly, further extension is made with the key.

FIG. 87.



DIRECTIONS FOR MEASUREMENT.

1. Name of patient.	
2. Age of patient.	
3. Weight of patient.	
4. Right or left leg.	
5. Length from sole to crest of ilium, - - - - -	INCHES. " "
6. Circumference of pelvis at iliac crests, - - - - -	" "

FIG. 88.

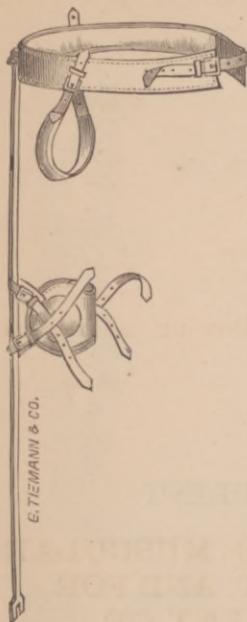


Fig. 88. WASHBURN'S HIP-JOINT
SPLINT.

This is a simple, straight bar of steel, jointed to a pelvic band. It is intended for poor patients, and has neither racks, pinions, nor screws. Extension is made, after fastening the lower end with adhesive strips, simply by the degree of tensiity to which the perineal straps are adjusted. A knee-cap assists in keeping the splint in place.

DIRECTIONS FOR MEASUREMENTS.

1. Length from ankle to dorsum ilii, - - - INCHES.
2. Circumference of pelvis, - - - - - "

FIG. 89.

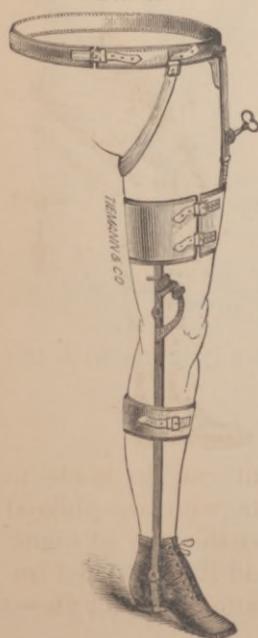


Fig. 89. J. C. HUTCHINSON'S HIP-JOINT
APPARATUS.

This apparatus is portable, and, being fastened to a shoe, needs no adhesive strips. Two rods of steel extend from the foot to the upper third of the thigh and are secured to the leg with calf and thigh-bands. The outside rod, longer than the other one, is ratched, and slides in a steel tube which is hinged by a ball and socket joint to a pelvic band. To this pelvic band is attached a perineal strap for counter-extension. Extension is made by working the splint with a key. The splint is provided with joints for the ankle and knee, the later one is adjustable to any degree of flexion and extension, and may be fixed at any point or its motion limited, by an arrangement of a semi-circular screw and two nuts.

DIRECTIONS FOR MEASUREMENT.

- | | |
|--|---------|
| 1. Name of patient. | |
| 2. Age of patient. | |
| 3. Weight of patient. | |
| 4. Right or left leg. | |
| 5. Length from sole of foot to ankle joint, - - - | INCHES. |
| 6. Length from sole of foot to knee joint, - - - | " |
| 7. Length from sole of foot to trochanter major, - - - | " |
| 8. Length from sole of foot to crest of ilium, - - - | " |
| 9. Circumference of calf, - - - - - | " |
| 10. Circumference of thigh, - - - - - | " |
| 11. Circumference of pelvis, - - - - - | " |

If you wish us to furnish shoes, send the following additional measurements:

- | | |
|---|---------|
| <i>a</i> Length of foot, - - - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, - - - - - | " |
| <i>c</i> Circumference of instep, - - - - - | " |
| <i>d</i> Circumference of ankle, - - - - - | " |

Fig. 90. APPARATUS FOR OVERCOMING MUSCULAR CONTRACTIONS OF THE KNEE-JOINT, AND FOR FAVORING THE RE-ESTABLISHMENT OF MOTION IN CASES OF FALSE ANCHYLOSIS.

It consists of metal troughs 1, 2, 3, for the reception of the thigh and leg, united by two lateral shafts, provided with joints at the knee and ankle and attached to a shoe. A knee-cap, adjusted to buttons on the lateral shafts with strong elastic straps, exerts pressure on the patella, whilst the instrument may be flexed and extended by means of a key (*g*) and ratchet-joint, opposite the knee.

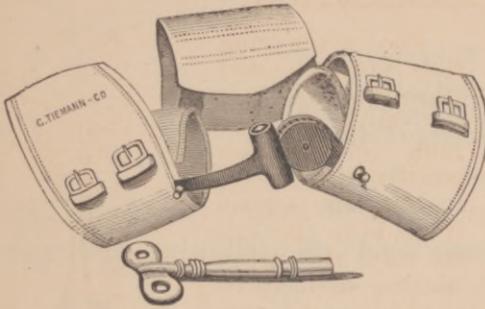
It is an admirable apparatus for the gradual extension of contracted muscles and for favoring the re-establishment of motion in cases of false ankylosis, and of remaining stiffness and dryness after treatment of joint disease. By persistent and daily passive exercise a flexible and useful joint may be restored without confining the patient to bed or room. The mechanism is powerful, and may be moved swiftly, adapting it to the forcible breaking up of adhesions as well, should the surgeon prefer this to gradual extension. If desired, the instrument can be made to detach from the shoe, for the greater comfort of patients who are obliged to wear the apparatus continually, but wishing to remove the shoe at night. It is also the best guard against malposition, for should it be deemed impossible to effect a cure the limb may be placed in a situation (to ankylose) most conducive to its future usefulness.

FIG. 90.



Fig. 91. SHORT ANCHYLOSIS APPARATUS FOR KNEE AND ELBOW-JOINT.

FIG. 91.



This is the same in principle as Fig. 90, but consists of a thigh and a calf band only. It does not keep in place as well as the one described above, but answers well in slight cases.

FIG. 92.

Fig. 92. ANCHYLOSIS APPARATUS FOR KNEE AND ELBOW-JOINTS.

WITH SCREW.



This is a simpler and lower-priced apparatus, but not so elegant in form, nor so comfortable to wear. The cut explains itself.

Either pattern may be adapted for the arm or leg.

In order to insure a good fit, we require the following description and measurements :

1. Ankylosis Apparatus, Fig. 90, Fig. 91, or Fig. 92.
2. Right or left leg.
3. Patient's name.
4. Patient's age.
5. Length from sole of foot to ankle joint (*a*), - - - - - INCHES.
6. Length from sole of foot to knee joint (*d*), - - - - - "
7. Length from sole of foot to upper third of thigh (*f*), - - - - - "
8. Circumference above ankle (*b*), - - - - - "
9. Circumference of calf (*e*), - - - - - "
10. Circumference of knee (*d*), - - - - - "
11. Circumference above knee (*e*), - - - - - "
12. Circumference of thigh (*f*), - - - - - "

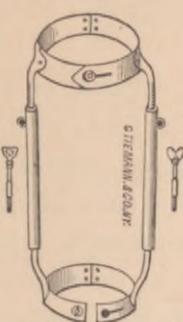
If you wish us to furnish shoes, send the following additional measures :

- | | |
|---|---------|
| <i>a</i> Length of sole of foot, - - - - - | INCHES. |
| <i>b</i> Circumference of ball of foot, - - - - - | " |
| <i>c</i> Circumference of instep, - - - - - | " |
| <i>d</i> Circumference above ankle, - - - - - | " |

Fig. 93. DR. L. A. SAYRE'S APPARATUS FOR THE EXTENSION OF THE KNEE-JOINT IN CHRONIC INFLAMMATION.

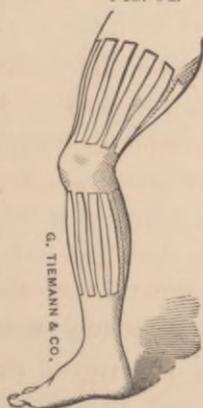
It consists of two bands or collars of sheet-steel, about an inch wide, embracing the limb—the one above the ankle, the other at the upper third of the thigh. They admit of adjustment by means of a hinge and slide, and may be locked, at any given point, by turning the nut with the key fitted for this purpose. They are connected on either side by an extension rod, of the rack and pinion (or screw) construction.

FIG. 93.



To apply this instrument, adhesive plaster is required, spread on twilled goods, and cut in strips one inch wide and long enough to reach from just below the knee to near the ankle, and from the knee upwards several inches, as here represented. (Fig. 94.)

FIG. 94.



These plasters are secured to within an inch of their extremities by a snugly adjusted roller, as seen in the cut (Fig. 95). The instrument is then placed on the limb, the collars fastened sufficiently to be comfortable, and the loose ends of the adhesive plasters turned over and secured by a roller.

FIG. 95.



The connecting rods are extended simultaneously (by the keys of the rack and pinion construction, or by turning the screws if made in the latter way, the articulating surfaces of the tibia and femur separated from each other, and the limb brought nearly straight as in Figs. 96, 97, until pressure can be made on the foot without pain. A roller is applied over the foot and leg up to the instrument, to prevent œdema. A large coarse sponge is placed in the popliteal space, and other pieces of sponge completely surround the knee-joint; these are secured by a tight roller and then saturated with cold water. The cold water not only reduces the inflammation of the joint, but, by increasing the pressure of the sponge, promotes the absorption of the deposits that generally occur around and in a joint in this condition of chronic inflammation.

FIG. 96.

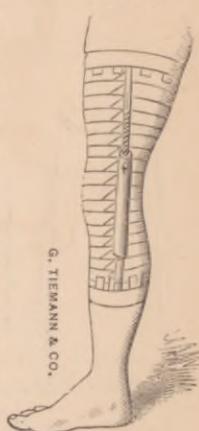
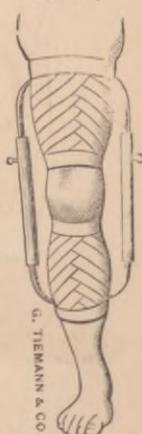


FIG. 97.



The necessary measurements in ordering the above are:

- | | INCHES. |
|---|---------|
| 1. Circumference of thigh, | “ |
| 2. “ leg above ankle | “ |
| 3. “ knee, | “ |
| 4. Length from above ankle to upper third of thigh, | “ |

Fig. 98. DR. L. A. SAYRE'S APPARATUS FOR THE
EXTENSION OF THE ANKLE-JOINT IN
CHRONIC INFLAMMATION.

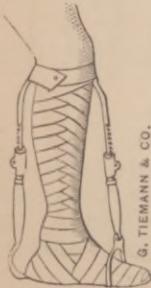
FIG. 98.



FIG. 99.



FIG. 100.



This instrument consists of a firm steel plate, made to fit the sole of the foot; at the heel is a hinge-joint, and attached to it a rod, slightly curved at the bottom, and extending up the back of the leg to near the knee. Over the instep is an arch, like the top of a stirrup, with a hinge-joint at its summit from which springs another rod, which runs in front of the leg, of equal length with the one behind. These rods are made with a male and female screw, or ratchet and cog for extension, and connected at the top by a firm band or collar of sheet-steel, admitting of adjustment by a slide, and may be locked by turning the nut with the key. The instrument is applied with firm adhesive plaster, cut in strips about one inch wide, and long enough to reach from the ankle to near the tubercle of the tibia, and placed all around the limb, Fig. 99; the plaster is secured in its position, to within an inch of its upper extremity, by a well-adjusted roller.

The instrument is fixed, and the foot firmly secured by a number of strips of adhesive plaster, and a roller should be carefully applied over this plaster to prevent its slipping, and the ends of the plaster at the top of the instrument turned over the collar, which has been previously locked, just tight enough to be comfortable, and secured by a turn or two of the bandage as represented above. (Fig. 100.)

The necessary measurements in ordering the above are :

- | | | | | |
|---|---|---|---|---------|
| 1. Length of the sole of the foot, | - | - | - | INCHES. |
| 2. Height from sole to 2 inches below knee, | - | - | - | " |
| 3. Circumference of calf, | - | - | - | " |
| 4. Circumference of instep, | - | - | - | " |

Elastic Hose.

We keep constantly in store a large assortment of the best qualities of

SILK AND COTTON ELASTIC HOSE,

For the treatment of varicose veins, weak joints, sprains, etc.

DIRECTIONS FOR MEASURING FOR ELASTIC HOSE.

Indicate the measure around the limb in inches opposite the dotted lines on the cut.

For stockings to cover the entire limb, measure at A, B, C, D, E, F, G, H.

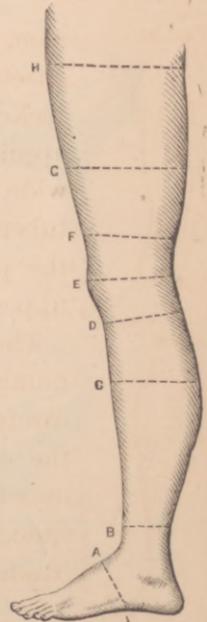
For stockings to reach to G, measure at A, B, C, D, E, F, G.

For stockings to reach to D, measure at A, B, C, D.

For knee-caps, measure at D, E, F.

For anklets, measure at A, B.

FIG. 101.



Cotton and silk elastic abdominal belts, stockings, wristlets and armlets made to order.

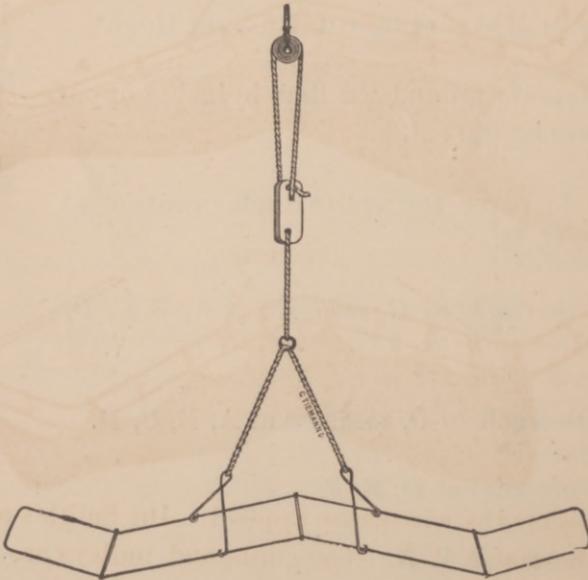
Best silk, fine silk, and cotton-elastic at low rates.

Fracture Apparatus.

Apparatus for Fractures of the Femur.

Fig. 102. NATHAN R. SMITH'S ANTERIOR SPLINT
AND SUSPENDING APPARATUS FOR FRAC-
TURES OF THE LEG AND THIGH.

FIG. 102.



This splint is simply a frame composed of stout wire which, being suspended, allows the limb, fastened to it by rollers, to be suspended in turn. The rollers passing around both limb and splint, from the foot to the groin. The splint should extend from above the anterior superior spinous process of the ilium to a point beyond the toes. The lateral bars of the splint are separated about three inches. One of the spring double hooks fastened to the short cord for suspension ought to be nearly over the seat of fracture, the other a little above the middle of the leg.

Fig. 103. NATHAN R. SMITH'S ANTERIOR SPLINT
AND WIRE-GAUZE SUPPORTER.

For the Treatment of Fractures, Luxations, &c., of the Lower
Extremities.

FIG. 103a.

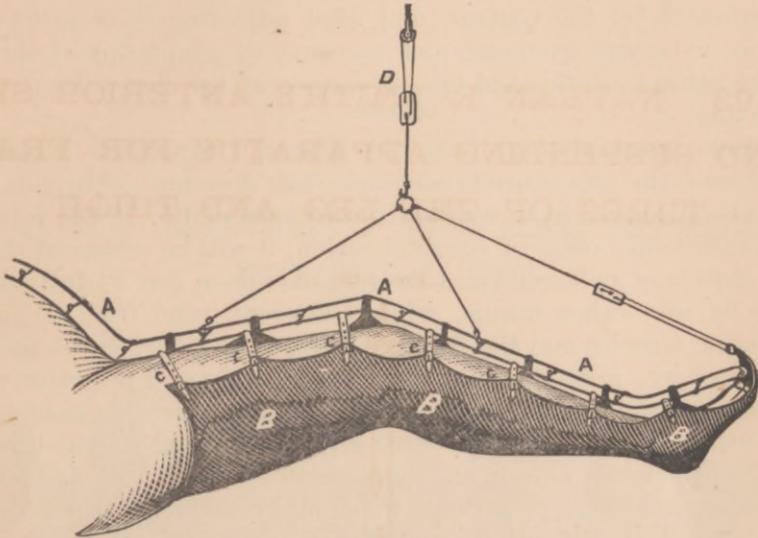
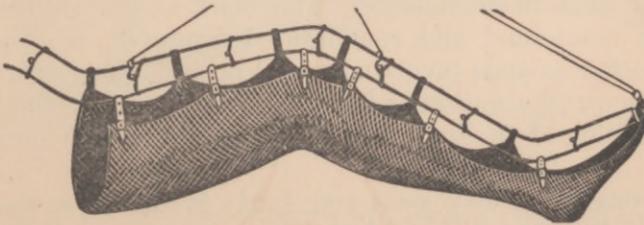


FIG. 103b.



B B B represents the wire-gauze applied. Dr. Smith's anterior splint is clearly seen above at A A A. The cords and pulleys are sufficiently well defined to be readily recognized at D.

Extract from a paper read before the Medico-Chirurgical Society of Maryland at its Annual Meeting in Baltimore, April 2d, 1872.

BY HARVEY L. BYRD, M. D.

“After taking proper dimensions of the thigh, popliteal region, leg and heel, the gauze is cut so as to adapt it to the posterior and lateral surface of the limb, and then bound around with stout cloth (thin, fine leather has been found from experience to answer a better purpose), with buckles and

straps attached at suitable intervals. The limb is then made nude by the removal of the bandage that sustains the splint, and the wire-gauze, as about prepared, placed in position under it. When this is accomplished, the "anterior splint," receiving proper shape, is placed over the front of the extremity, the wire-gauze secured by the buckles and straps to its longitudinal bars, and the hooks for the suspensory apparatus above having been passed into the rings or eyelets of the transverse bars of the 'splints,' the limb is swung from the bed. The greatest comfort is immediately experienced by the patient, and after adjusting the lengths of the straps so as to secure evenness and accuracy of adaptation of the wire-gauze to the entire posterior and lateral surface of the limb, the patient is left for the day.

"The whole manipulation, from the time the wire-gauze is ready for application until the procedure is accomplished, does not occupy as much time as has been consumed in writing this account of it. If the foregoing details are sufficiently clear of comprehension, it will be observed that the important objects of extension and counter-extension are as fully accomplished as by any other means, while the great relief from all anterior compression of muscles and the free exposure of the surface of the limb to the atmosphere, not only anteriorly, but latterly and posteriorly also, is sufficient to impart the greatest comfort. But the scientific surgeon will readily perceive other, and if possible greater advantages, which may be obtained from the wire-gauze in the management of fractures and wounds of the lower extremities; or perhaps we should rather say great additional advantages, for it is difficult to conceive of any much greater advantage than free ventilation in such cases. The chief of these alluded to, for example, as in compound and comminuted fractures, sabre and bullet wounds, or in other wounds involving the skin and subjacent structures, and requiring frequent ablution or dressing, without disturbing the general position or condition of the limb, will be sought for in vain outside of the wire-gauze.

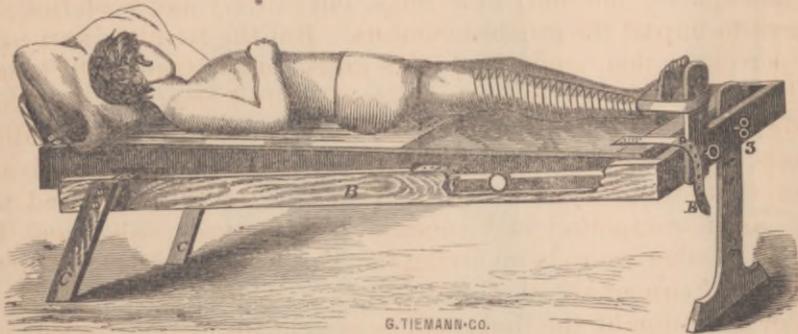
"A wound may be clearly seen and freely syringed or sponged, and receive other local treatment through the wire gauze, even when situated on the posterior or lateral aspect of the limb, without disturbing its position in the slightest uncomfortable degree. Again, where it is desirable to remove, at any point, undue or uncomfortable pressure, nothing is more easily accomplished, as the leather straps and buckles attached to the margin of the wire-gauze may be slackened or tightened at such points as may be necessary to secure the desired relief. By this management, undue pressure on the muscles may be almost completely obviated. The foot and heel may be turned to most important account as a lever or weight in certain fractures, by increasing or lessening the support which the anterior cord and pulley, or sling attached to the distal end of the gauze is capable of effecting.

"Besides the foregoing, there are still other advantages attainable by the

wire-gauze when properly attached to the anterior splint, or other support. But these will readily suggest themselves to the intelligent practitioner in individual cases. The writer has become satisfied from his own and the experience of friends, that the wire-gauze sufficiently fine, accurately cut, and properly adjusted to the limb, and anterior support, that less sagging takes place than under any other method of treating fractures, and consequently less deformity results from this than any other mode of treatment where bandages are used."

Fig. 104. SKINNER'S NEW AND IMPROVED
FRACTURE BED.

FIG. 104.



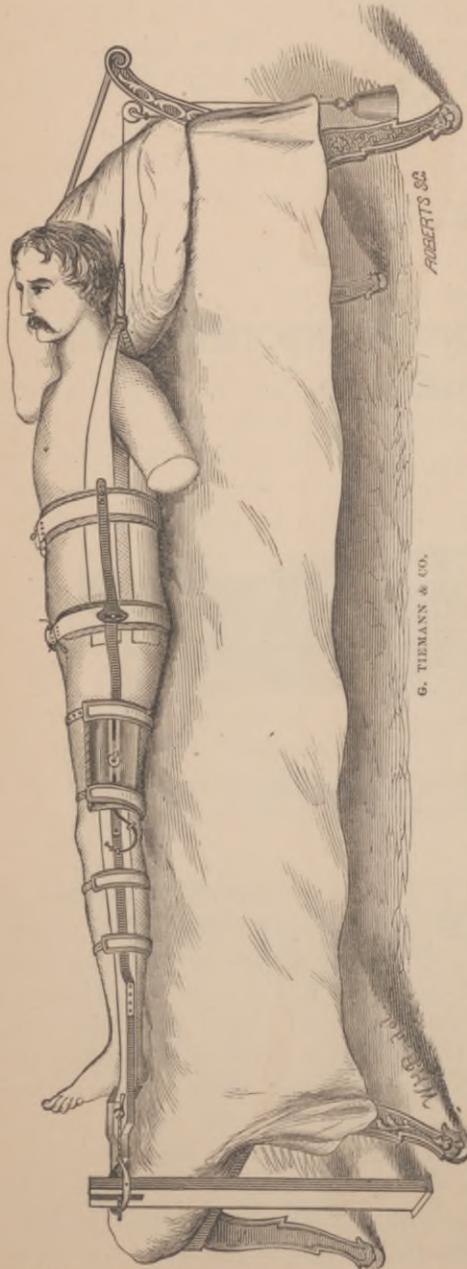
By referring to the cut, the surgeon will readily comprehend the manner of treating a fracture on this bed. In the cut, A represents the bed proper, or the sliding portion thereof, which is six feet long, two and one-half feet wide, six inches high at the head and one inch at the foot. It is covered about two-thirds of its length with zinc cut into strips and laid longitudinally to the bed. A hole is made through this covering for defecation, which hole is covered with a sheet-iron cap that can be withdrawn when required. The side rails of the bed A rest on six rolls that run in grooved ways, on each side of the frame B, and the arrangement is such that, when the top of the bed is in a horizontal position, the ends of the ways at the foot of the bed are about six inches higher than the ends at the head, thereby causing a strong tendency in the bed to roll in the latter direction: extension being caused by the weight of the patient's own body.

Directions for use accompany each bed.

Fig. 105. DR. HENRY S. HEWIT'S APPARATUS FOR FRACTURE OF THE FEMUR.

Fig. 105.

[Extracted from *Medical Record*, N. Y.,
July 18th, 1868.]



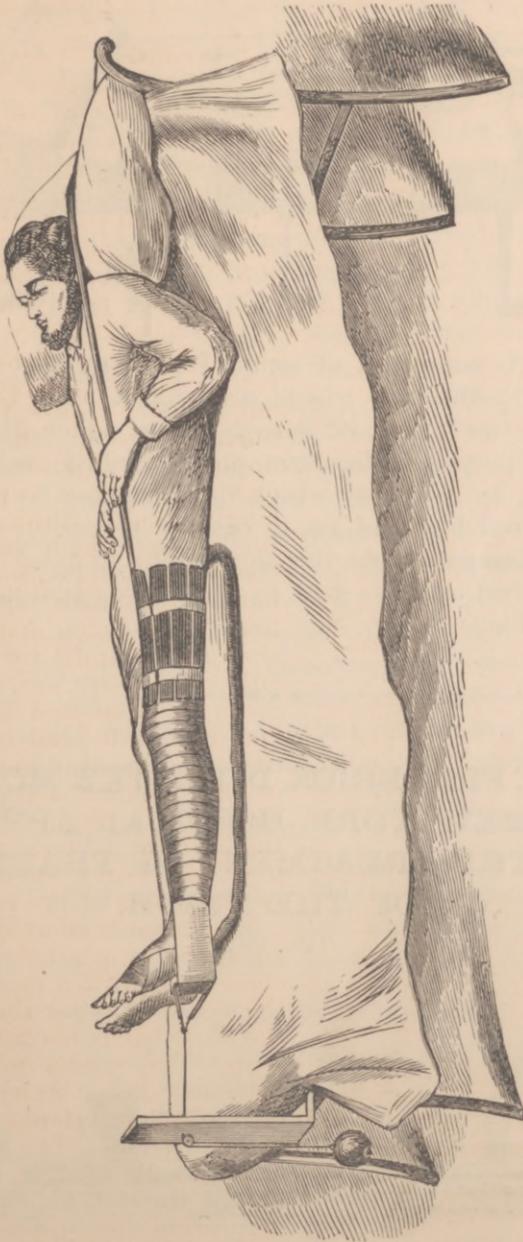
“It consists of two light flat lateral bars of steel connected by a cross-bar below the sole of the foot. The exterior bar or splint extends from its angle with the cross-bar, six or eight inches below the foot, to the side of the chest opposite the nipple. Two flat bands of steel well padded secure it to the chest and body. The inner bar reaches nearly to the perineum, but does not impinge, and the floor of the splint is of flexible metal carefully padded by a continuation of the bands which secure it to the limb and buckle in front. The two lateral bars opposite the thigh are fenestrated and nuts are inserted capable of sliding longitudinally, through which play the screws which can be used for the exact application of detached moulded metallic ‘splints of coaptation.’ Extension and counter-extension are obtained by broad straps of adhesive plaster extending from the groin in front and nates behind, secured by additional bands encircling the body, meeting in a ring at the top of the shoulder, and continued by an elastic cord running over a pulley at the head of the bed, and supporting a weight heavy enough to meet the requirements of the particular case.

Extension is effected and precisely regulated by plaster extending bands connected with a foot-piece to which the screw playing through a hole in the cross-bar is hooked by an elastic loop. The screws are moved by a detached key, which places them beyond the interference of the patient or his friends. The cross-bar is secured to an upright of wood at the foot of the bed, also by elastic straps, to prevent the upper border of the

under portion of the splint pressing against the nates when the extending force is exerted.”

Fig. 106. DR. BUCK'S APPARATUS FOR TREATING
FRACTURE OF THE THIGH, BY HIS IM-
PROVED METHOD.

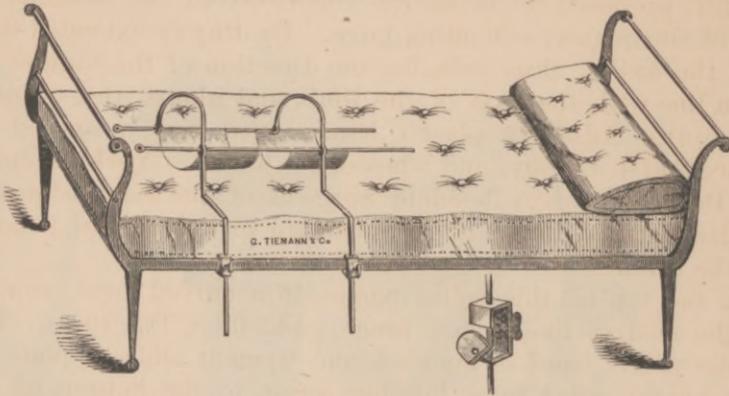
FIG. 106.



Printed directions accompany the apparatus.

Fig. 107. APPARATUS FOR GUNSHOT FRACTURES
OF THE FEMUR.

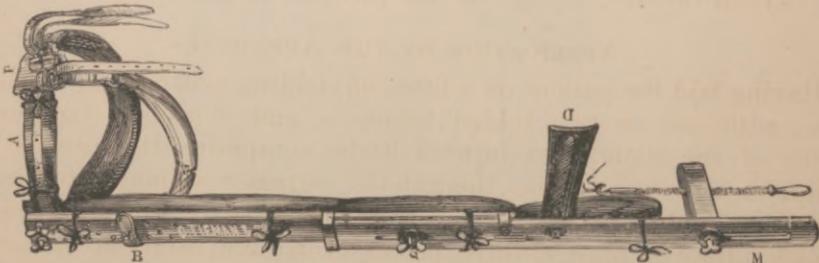
FIG. 107.



The apparatus is composed of strong iron bars, bent as in the above drawing (Fig. 107), through which are passed two horizontal sliding rods, supporting two pieces of canvas, upon which the limb may be suspended. The perpendicular bars are furnished each with a clamp and thumb-screw, by means of which the bars may be made fast to the side-rails of an iron bedstead, or, in case of necessity, to the side of a stretcher. The clamps enable the surgeon to suspend the limb at any height from the bed, and to give to the canvas bottom any degree of inclination desirable.

Fig. 108. DR. FREDERICK D. LENTE'S MODIFICATION
OF THE NEW YORK HOSPITAL APPARATUS
FOR THE TREATMENT OF FRACTURE
OF THE THIGH.

FIG. 108a.



“This apparatus is a modification of the splint originated by Desault more than half a century ago, and altered by various surgeons from time

to time, but especially by Dr. Physic, who introduced it into the Pennsylvania Hospital; and by Dr. Gurdon Buck, who introduced it into the New York Hospital in 1837.

“Desault proposed to make the tuberosity of the ischium the *point d'appui* of the counter-extending force. Dr. Physic extended the outside splint to the axilla, thus bringing the direction of the counter-extension more in a line with the axis of the limb, and almost the entire pressure on the groin. Adhesive plaster bands were first proposed by Drs. E. Wallace and J. Crosby, and adapted to the New York Hospital apparatus by Dr. Lente, when Resident Surgeon of the establishment, in 1849 or '50. He reduced the outer splint again to its original length (to the crest of the ilium).

“From the top of this splint passes, in a curved form, over the abdomen to the median line, a steel brace, padded (*A*, Fig. 108a). To the end of this the pelvic band is buckled, and upon it slides a plate (*P*), fixed at any required point by a binding screw, to the bottom of which the perineal band is buckled, as seen in the engraving. The iron brace is attached to the splint by binding-screws, so that it may be shifted, and the splint thus adapted to either side of the body. The posterior portion of the perineal band passes under the thigh just below the tuberosity of the ischium, and is buttoned to the outer splint at a point about opposite the greater trochanter, or at such a point that, when extension is being made, the band shall exactly grasp the tuberosity, and not slip under it. After all the extension has been made, by means of the screw, that the patient can bear comfortably, the bands, being elastic, continue the extension, and by a very gradual and imperceptible force—a force, however, most difficult to resist—tire out the contracted muscles of the thigh, and still further elongate the limb. A spiral spring has also been enclosed in the ferule terminating the screw to which the hook for the extending band is fastened.

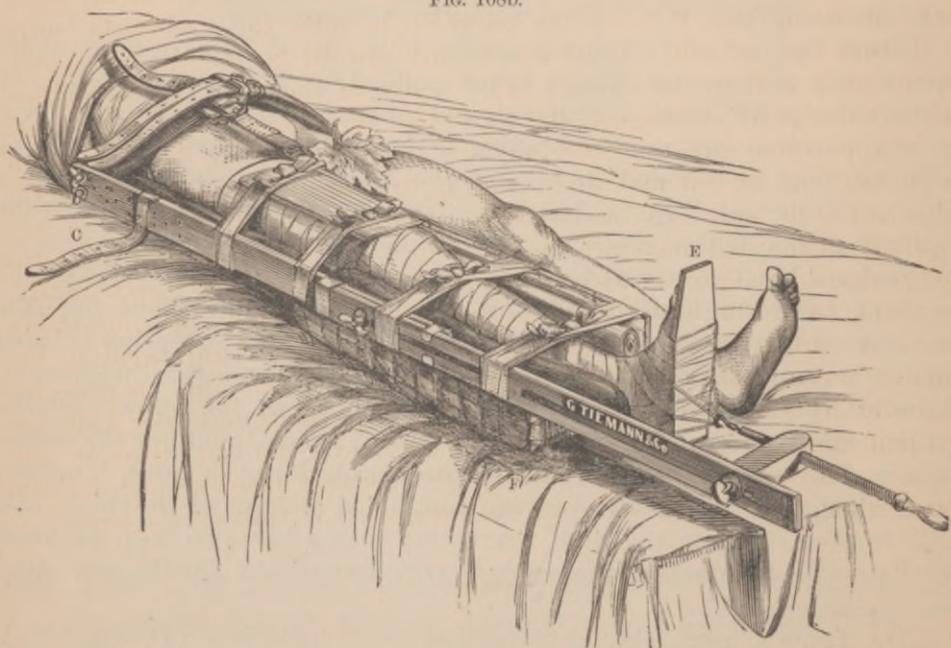
“Dr. Lente's remaining modification is a foot-piece (*D*, Fig. 108a), attached by a slide and thumb-screw to the mortise in the external splint, and capable of removal at pleasure. This is intended, first, to prevent a usual tendency to eversion of the foot; and secondly, by projecting a little beyond the toes, to take off the pressure of the bed-clothes.”

APPLICATION OF THE APPARATUS.

“Having laid the patient on a firm, unyielding mattress, covered, if you prefer, with one or two folded blankets, and measured the respective lengths of the sound and injured limbs, comparing the results of two or more measurements (from the anterior superior spinous process to the internal malleolus), shave the leg from the knee to the ankle, apply a strip of adhesive plaster, three inches broad, and well warmed, to both sides of the leg, from just below the knee, allowing them to extend some inches below the sole of the foot. These free ends are to be warmed

and smoothly stuck to a thin block a trifle wider than the ankle-joint, through holes on either side of which a strong cord is to be passed, to be attached to the hook or ring terminating the screw. A roller bandage is now to be applied from the foot to the groin, taking care to make considerable pressure over the adhesive strips. The long splint, having been adjusted to the length of the limb, and its cushion secured to it, is to be placed along the outside of the limb, its top just reaching to the crest of the ilium; then, having passed the pelvic band under the body, a guttered splint furnished with a thin cushion, long enough to extend from the tuberosity to the popliteal space, is to be passed under the thigh.

FIG. 108b.



At the same time the perineal band, previously buckled to the iron brace, is to be passed under the thigh, and adjusted in its proper place. The extending band is now to be secured to the screw, while an assistant is making moderate traction on the foot, and at the same time pushing up the long splint; the object of this being to tighten everything before commencing extension with the screw, every turn of which will then give an increase of tension. If, after this, the splint is found to have been forced up a little higher than the crista ilii, the perineal band must be buckled at either end a little tighter, in order to rectify this. The inside splint may now be applied, and the concavity between its cushion and the leg a little more than filled up with folds of old blanket, or some such elastic material; so that, when the splints come to be bound firmly together, the inner condyle of the femur may not be painfully pressed

upon, a circumstance which causes great discomfort to the patient; a guttered splint a little longer than the posterior must now be placed on the anterior aspect of the thigh, and then all the splints with the enclosed limb are to be encircled with four strips of strong muslin or linen about an inch and a half wide, and long enough to pass twice around the splints and tie in a bow-knot, two of these for the thigh and two for the leg. The arrangement of these bands is of considerable importance, as it is thus that we are enabled to dispense with the old-fashioned splint-cloth, a very troublesome contrivance, and to keep the splints from tilting forward without it. One end is to be passed under the limb, then around it in front, under again, and around in front, to be there tied to the other end. In doing this, it is seldom requisite to raise the limb sufficiently to disturb the patient. These bands are now to be loosely tied; and, having made a degree of extension, by means of the screw, corresponding to the amount of shortening, the foot-piece is to be screwed on so as to be in apposition with the outer surface of the foot. The bands are now to be firmly tightened and tied; and, if care has been taken to keep the inner condyle from undue pressure, they may be tightened to any required degree without any inconvenience to the patient. Next, the wedge-shaped cushion is to be placed under the apparatus; and, finally, the pelvic band is to be tightened as firmly as the patient can comfortably bear. A patient under treatment with this apparatus can attend to the calls of nature with very little inconvenience. He has only to raise his hips slightly with the aid of the leg and arm of the sound side, while the bed-pan is slipped under him without deranging the apparatus in any degree. The peculiar arrangement of the perineal band secures it from being soiled, as it is removed from the immediate vicinity of the anus."

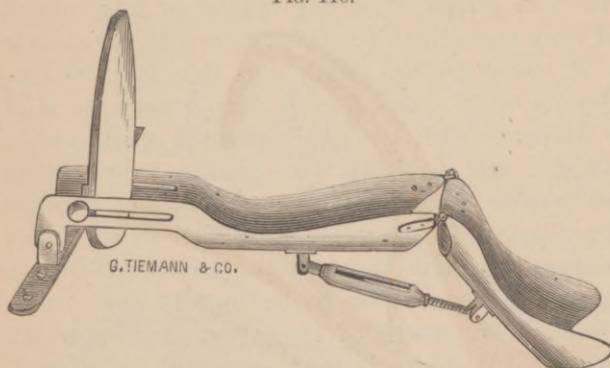
Fig. 109. DR. BURGE'S APPARATUS FOR FRACTURES OF THE FEMUR.

FIG. 109.



Fig. 110. LISTON'S IMPROVEMENT OF McINTIRE'S SPLINT.

FIG. 110.



Liston's Splint is particularly applicable to the treatment of fractures of the condyles of the femur, and of the upper extremity of this bone attended with a disposition to displacement of the lower end of the upper fragment. It may also be advantageously employed in compound frac-

tures attended with severe contusion and laceration of the integuments, as it affords an easy and comfortable position to the injured limb. It is applied to the limb by attaching the foot to the foot-board and the limb to the splint by a roller bandage. The angle of flexion is regulated by the screw. The splint is made of galvanized iron.

We have on hand also Inclined Plane Splints made of wood.

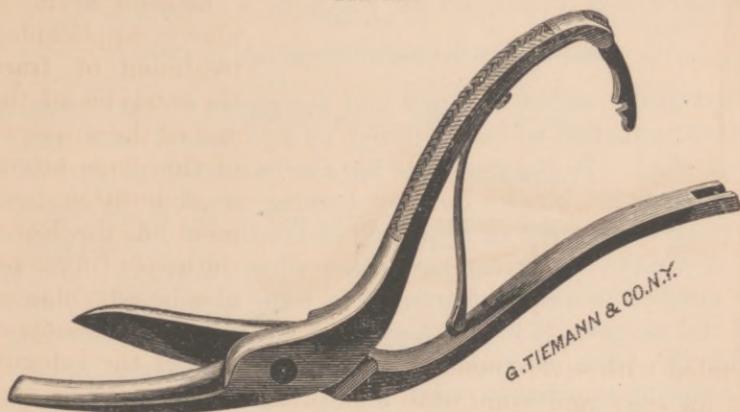
For Instruments to Operate on Fractured Bones, See our
 Catalogue, Part I.

- Bone Forceps, see Figs. 31, 39, 40, 41, 42, 43, 68, 69, 77, 79, 80, 81, 82.
- Bone Drills, Figs. 34, 35, 36, 50, 61.
- Pereosteotomes, Figs. 37, 38, 70, 71.
- Saws, Figs. 1, 2, 3, 9, 16, 51, 52, 53, 54, 55, 57, 58, 60, 65, 66, 67, 78.
- Trephines, 46, 47, 48, 49.
- Retractors, Figs. 62, 73, 74, 76.
- Mallet, Fig. 83.
- Chisels and Gouges, 84, 85, 86.

For the above see Catalogue, Part I.

Fig. 111. DR. M. H. HENRY'S SHEARS, TO FACILITATE THE REMOVAL OF PLASTER OF PARIS DRESSINGS AND STARCH BANDAGES.

FIG. 111.



“The illustration conveys a clear idea of the form and features of the instrument. The upper blade is heavy, with clean incisive power. The lower blade is longest and blunt-pointed, and made in the form of an elevator, which enables the operator to insinuate that part under the dressings, and, if necessary, press on the soft parts beneath without doing any injury. He can then cut as easily through the plaster of Paris dressings as the tailor does heavy cloth with the ordinary shears. The handle is nearly at a right angle to facilitate movement, and adds to the cutting force.”

Apparatus for Fracture of the Patella.

The object of all apparatus for fracture of the patella is to counteract the action of the extensor muscles, which have a tendency to draw the superior fragment upwards, away from the lower. Some of the most efficient contrivances for keeping the fragments in coaptation are those sketched below. They are all simple, and will readily be understood by viewing the cuts Figs. 112 to 118.

Fig. 112. DR. THOMAS TURNER'S APPARATUS FOR THE TREATMENT OF FRACTURE OF THE PATELLA.

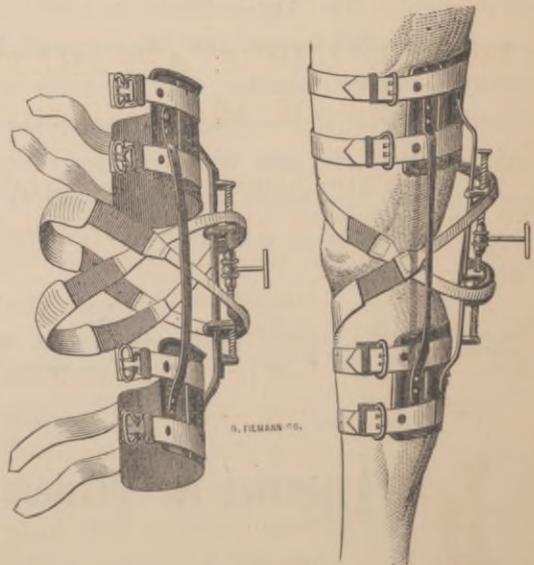
DESCRIBED AND USED BY FRANCIS V. WHITE, M. D.

(Extracted from the *Medical Record*, July 15, 1867.)

“The apparatus consists of thigh and leg-pieces of sheet-iron, with two buckled straps attached to each, united by two lateral bars and one posterior bar of steel. To the posterior bar are two troughs (part of a circle), on a double reversed screw; and, by turning the key in opposite directions, the troughs separate or approach each other. The apparatus, being japanned, is always ready for new cases when cleaned. The apparatus should be applied in simple fractures as soon as possible; but if, in the opinion of the surgeon, it would aggravate existing inflammation, thereby jeopardizing the joint, it could be applied as a posterior splint, without using the coapting appliances, until anti-phlogistic measures make it safe. The apparatus, to be applied properly, should be well padded with flannel or other material, for protecting thigh and leg from the splint and straps; quadriceps femoris should be relaxed, the limb held by the thigh portion, and buckled; also buckle the leg portion. Use an anæsthetic if necessary. First fix the lower fragment, by drawing it up, smoothing the integuments down; this being held by an assistant, the surgeon applies a strip of adhesive plaster, of sufficient width to hold the fragment, and overlaps it sufficiently to prevent any tilting up, passes the free ends of the adhesive plaster around the upper trough, crosses them and applies them to the skin. The upper fragment being coapted, the integuments being smoothed up, a similar piece of plaster is applied around the lower trough as around the lower fragment. Interpose something where the plasters cross each other, to prevent their sticking together.

For firmness, use double strips of plaster. Snip the upper edge of the upper plaster, thus a rounded edge instead of a cutting edge will be presented to the integuments, avoiding in a degree excoriation. The apparatus should remain applied thirty or forty days. When new dressings

FIG. 112.



are applied, the patella being held, cautious passive motion may be made. After the apparatus is permanently removed, the patient, to favor consolidation, should wear something to prevent too much use of the patella, say for four or six months, viz., an elastic knee-cap with a ring arrangement over the patella, or posteriorly a piece of gutta-percha or leather strapped above or below the joint, either of which being softened by warm water can be applied, and allow of a certain flexion. Passive motion can be occasionally made, but not extreme, under six months.

DIRECTIONS FOR MEASUREMENT.

	INCHES.
1. Length from above the ankle to upper third of thigh, -	“
2. Right or left leg, - - - - -	“
3. Circumference of thigh, - - - - -	“
4. Circumference of calf, - - - - -	“

Fig. 113. LEWIS' APPARATUS FOR THE TREATMENT OF FRACTURE OF THE PATELLA.

This apparatus consists of a broad pad, resting on the popliteus, to keep the knee extended, and a narrow pad, fitting the upper border of the patella. A strap connected with the latter one is first passed through a

FIG. 113.



ring attached to the popliteal pad, then continued down the leg on each side, being finally buckled to a lined foot-pad. This makes the foot a fixed point for extension, and the ring through which the strap passes gives it also a direction backwards, maintaining a firm hold of the upper fragment of the patella, whilst the lower fragment is readily kept in place by a strip of adhesive plaster.

DIRECTIONS FOR MEASUREMENT.

	INCHES.
1. Circumference above the knee, - - -	“
2. Length from the sole of the foot to the knee, - - - - -	“

FIGS. 114a, 114b. BOISNOT'S APPARATUS FOR THE TREATMENT OF FRACTURE OF THE PATELLA.

FIG. 114a.



This apparatus is adapted to the limb at an angle natural to it, and therefore consistent with coaptation of the fragments. The splint is concave, to suit the convexity of the limb. The semi-lunar pieces are of stout leather, doubled and crimped. The cords pass over pulleys to revolving transverse pieces, which are protected from slipping by spring and ratchet. The patient is not confined to bed.

FIG. 114b.

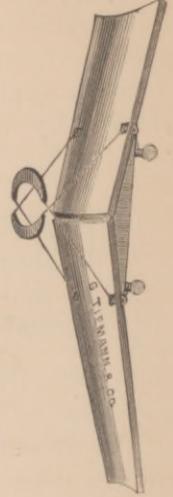
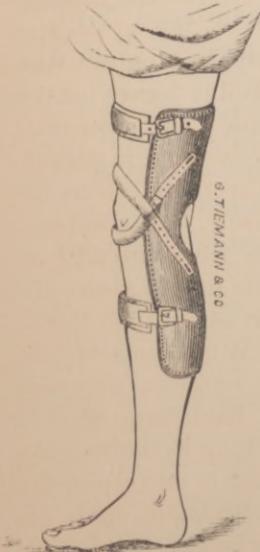


FIG. 115. HARTSHORN'S APPARATUS FOR THE TREATMENT OF FRACTURE OF THE PATELLA.

FIG. 115.



This apparatus consists of a light tin splint, fitting the posterior half of the limb. It is covered with morocco and is made to lace or to buckle in front. The coapting appliances are a pair of strong webbings or straps, well padded in the middle, which are drawn across the fragments obliquely, and tightened by means of buckles or hooks. The application is very similar to that of Turner's Splint.

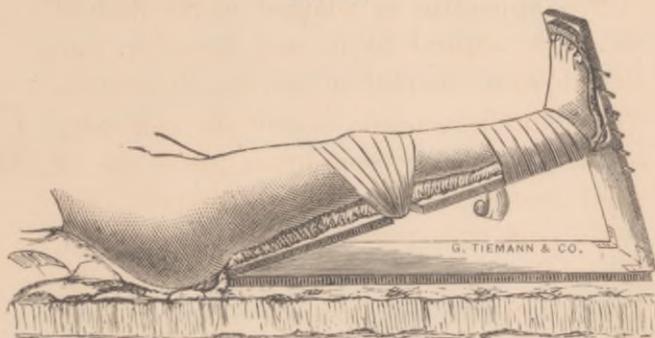
DIRECTIONS FOR MEASUREMENT.

The same as for Turner's Splint, Fig. 112.

Fig. 116. HAMILTON'S APPARATUS FOR THE TREATMENT OF FRACTURE OF THE PATELLA.

[Extracted from *Hamilton on Fractures and Dislocations.*]

FIG. 116.



“The dressing which I have usually employed in the treatment of this fracture, consists of a single inclined plane, of sufficient length to support the thigh and leg, about six inches wider than the limb at the knee. This plane rises from a horizontal floor of the same length and breadth, and is supported at its distal end by an upright piece of board, which serves both to lift the plane and to support and steady the foot. The distal end of the inclined plane may be elevated from six to eighteen inches, according to the length of the limb and other circumstances. Upon either side, about four inches below the knee, is cut a deep notch. The foot-piece stands at right angles with the inclined plane, and not at right angles with the horizontal floor. It may be perforated with holes for the passage of tapes or bandages to secure the foot. Having covered the apparatus with a soft and thick cushion carefully adapted to all the irregularities of the thigh and leg, especial care being taken to fill the space under the knee, the whole limb is now laid upon it, and the foot gently secured to the foot-board, between which and the foot another cushion is placed. The body of the patient should also be flexed upon the thigh, so as the more effectually to relax the quadriceps femoris muscle. A compress made of folded cotton cloth, wide enough to cover the whole breadth of the knee, and long enough to extend from a point four inches above the patella to the tuberosity of the tibia, and one-quarter of an inch thick, is now placed on the front of and above the knee. While an assistant presses down the upper fragment of the patella, the surgeon proceeds to secure it in place with bands of adhesive plaster. Each band should be two or two and a half inches wide, and sufficiently long to enclose the limb and splint obliquely. The centre of the first band is laid upon the compress, partly above and partly upon the upper fragment, and its extremities are brought down so as to pass through the two notches on

the side of the splint, and close upon each other underneath. The second band, imbricating the first, descends a little lower upon the patella, and is secured below in the same manner. The third, and so on successively until the whole of the compress and knee is covered, is carried more nearly at right angles around the leg and splint, the last band passing obliquely from below the ligamentum patellæ upwards and backwards. The dressing is now completed by passing a cotton roller lightly around the whole length of the splint, commencing at the toes and ending at the groin."



Fig. 117. TIEMANN & CO.'S KNEE-CAP FOR AFTER-TREATMENT OF A FRACTURED PATELLA.

Authorities on surgery say that great care must be taken not to rupture the ligaments of the newly formed union, which so often happens after recovery of the patient from fractured patella. For the purpose of guarding against such a recurrence, we make the apparatus shown

Fig. 117.

Fig. 117. It consists of a knee-cap made of buckskin or satin jean, which is adjustable to the knee by buckles or laces. It is provided with a pair of coaptation pads, to retain the newly united patella in place. These pads are arranged to approximate by drawing on laces, as shown in the upper border of the cap, represented Fig. 117. It affords the patient exercise of the knee-joint, the best guard against the danger of ankylosis, at the same time preventing any undue strain on the newly united upper fragment of the patella.

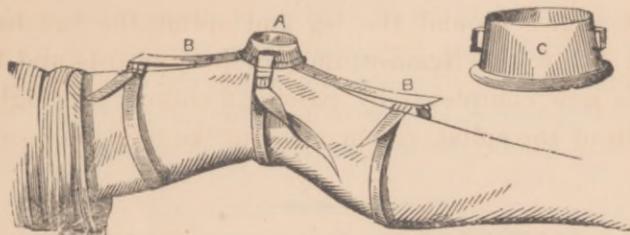


DIRECTIONS FOR MEASUREMENT.

	INCHES.
1. Circumference above the knee, - - -	“
2. Circumference of the knee, - - -	“
3. Circumference below the knee, - - -	“

Fig. 118. STEEL SPRING AND RUBBER CUP
FOR THE TREATMENT OF FRACTURED
PATELLA.

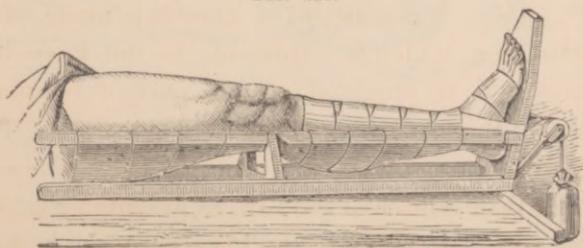
FIG. 118.



Apparatus for the Treatment of Fracture of the Tibia
and Fibula.

Fig. 119. HODGEN'S APPARATUS FOR COMPLICATED
FRACTURES OF THE LOWER
EXTREMITIES.

FIG. 119.

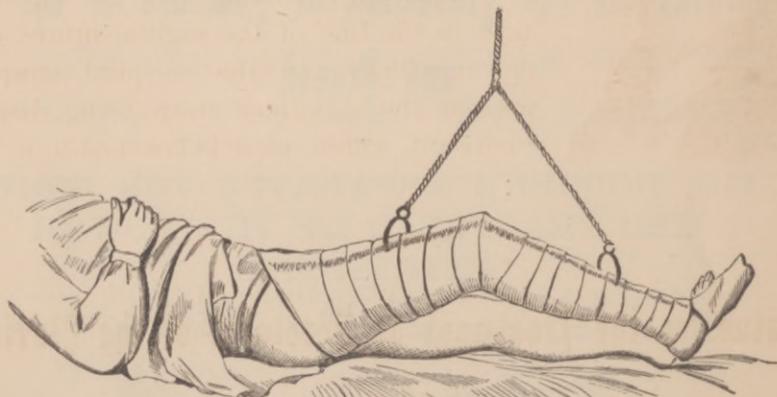


This apparatus consists of a wooden frame, formed of four square bars of the length of the lower extremity. These bars are united by a crescent-shaped piece of wood situated at the back of the knee, and by a foot-board below, two on either side of the leg. The lower two serve the purpose of holding together, and giving the apparatus an inclined plane; the upper bars serve as points of attachment for a number of linen straps or rollers to suspend the limb. They are placed side by side and fastened with pins, and constitute a perfect bed, having the advantage of adapting themselves to the differences in the conformation of the limb. The foot is retained to the foot-board by long adhesive plaster strips being passed around the foot-board and carried upwards and secured to both sides of the leg with

roller bandage, leaving a sort of loop beneath the foot-board, through which a rope is passed and attached to a little bag weighted with sand, for the purpose of keeping up extension. Counter-extension is made by a perineal band, the end of which is secured to the head of the bed. A long cross-bar under the foot-board, resting on the bed, prevents the apparatus from tilting. Bricks may be placed under the inferior legs of the bed, to give the apparatus an inclination towards the pelvis. One of the advantages of this instrument is that each of the bands of linen may be removed separately, any wound dressed and the band reapplied without displacing the others.

Fig. 120. NATHAN R. SMITH'S ANTERIOR SPLINT FOR THE TREATMENT OF GUNSHOT FRACTURES OF THE LOWER EXTREMITIES.

FIG. 120.



See also Fig. 102.

We make to order all other SUSPENDING APPARATUS, and **SALTER'S CRADLE.**

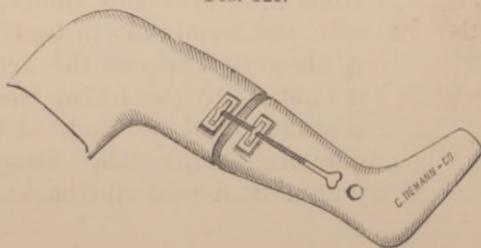
Also **CARVED WOODEN SPLINTS** for the leg and ankle.

LINING SPLINTS, made of thin boards of wood held together by a sheep-skin lining.

BAUER'S WIRE SPLINTS, a frame made of iron wire covered with gauze.

Fig. 121. RAPHAEL'S MODIFICATION of POTT'S SPLINT.

FIG. 121.



Bandage for the Treatment of Fracture of the Lower Maxillary.

Fig. 122. HAMILTON'S.

FIG. 122.

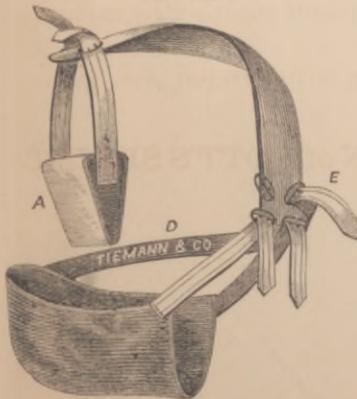


A firm leather strap passes under the chin, and is buckled over the top of the head. It is stayed by two counter-straps of linen webbing. One of these is looped upon the maxillary strap at a point just above the ears, and may be elevated or depressed to fit different heads. This strap is buckled under the occiput posteriorly, and across the forehead anteriorly. A vertical strap passing over the top of the head in the line of the sagittal suture, unites the maxillary and the occipital strap. To prevent the maxillary strap being displaced backward, a chin-piece is fastened to it.

Apparatus for the Treatment of Fractures of the Clavicle.

Fig. 123. LEVIS' APPARATUS FOR THE TREATMENT OF FRACTURE OF THE CLAVICLE.

FIG. 123.



(A) is a wedge-shaped pad for the axilla, which is put in place thick side up. Two straps fastened to this pad pass directly upwards, and buckle to the broad supporting band on the acromion of the afflicted arm. This band is then passed across the back and over the shoulder of the sound side, and terminates in front of the chest (E). A sling to support the arm, elbow flexed, is buckled to the broad band. A strap (D) is attached to the back of the sling a short distance above the elbow, and passed obliquely across the back and buckled to

the supporting band in front. The extra buckle comes in play when the apparatus is to be reversed, in using it for the other side. The shoulder is kept out by the wedge, up by the sling, and back by the strap (*D*).

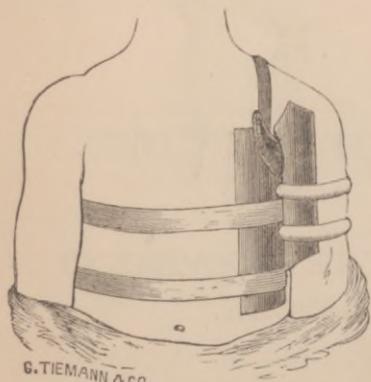
These apparatus are made of four sizes: two sizes for adults, two sizes for children.

FOX'S CLAVICLE BANDAGE

Is very similar, in principle, to the one described above.

Fig. 124. RICHARDSON'S SPLINT FOR FRACTURES OF THE CLAVICLE, SCAPULA AND HUMERUS.

FIG. 124.



“It is composed of three parts, and has three points of attachment, viz., to the side, axilla, and arm.

“The arm and body pieces are semi-cylindrical in shape, made of hard rubber, and fastened together by means of rivets, with sufficient space left between them to allow the passage of straps of adhesive plaster. The crescentic pad is received as a crutch in the axilla.

“For fracture of the clavicle, the crutch is crowded firmly in the axilla, and the arm-piece secured to the arm by circles of adhesive straps; the shoulder is then raised, and the arm carried backwards until the fragments are brought into position, when the body-splint and crutch are secured alike by straps of plaster. If thought desirable, one strap may be passed over the opposite shoulder.

“For fracture of the scapula, the arm is carried forward instead of backward, before the splint is secured to the side.

“For fracture of the humerus, the arm is secured in its most natural and easy position. In all other respects the splint is adjusted the same as for fracture of either of the above-mentioned bones.

“After the splint has been applied, the arm may or not be flexed at a right angle on the chest, and supported by a sling from the neck.”

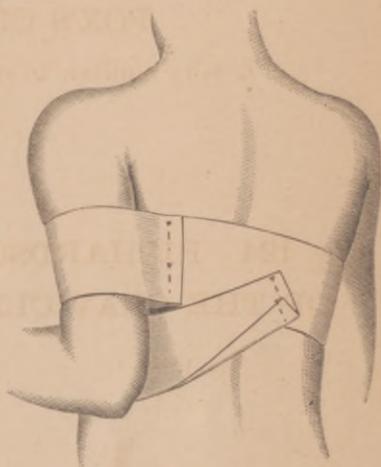
Four sizes of this splint are made: two for adults, and two for children.

Figs. 125, 126 and 127. A SIMPLE DRESSING FOR FRACTURE OF THE CLAVICLE, BY LEWIS A. SAYRE, M. D.

(Extracted from the *American Practitioner* for July, 1871.)

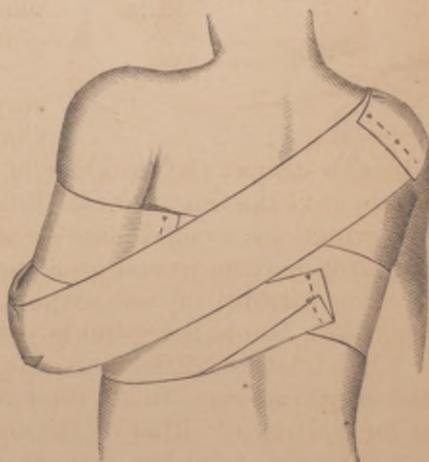
“After drawing the arm backward and retaining it there by a strip of adhesive plaster, pass another piece of plaster from the well shoulder across the back, and by pressing the elbow well forward and inward the first plaster around the middle of the arm is made to act as a fulcrum, and the shoulder is necessarily carried upward, outward, and backward; and the plaster, being carried over the elbow and fore-arm (which is flexed across the chest) to the opposite shoulder, the place of starting, and then secured by pins or stitches, permanently retains the parts in position. Strong and good adhesive plaster (Maw’s moleskin is the best) is cut into two strips, three to four inches wide (narrower for children); one piece long enough to surround the arm and go completely around the body, the other to reach from the sound shoulder around the elbow of the fractured side and back to the place of starting. The first piece is passed around the arm just below the axillary margin, and pinned or stitched in the form of a loop sufficiently large to prevent strangulation, leaving a portion on the back of the arm uncased by the plaster. The arm is then drawn downward and backward until the clavicular portion of the pectoralis major muscle is put sufficiently on the stretch to overcome the sterno-cleido-mastoid, and thus pull the inner portion of the clavicle down to its level. The plaster is then carried smoothly and completely around the body, and pinned to itself on the back to prevent slipping, as seen in Fig. 125. This first strip of plaster fulfills a double purpose: first, by putting the clavicular portion of the pectoralis major muscle on the stretch, it prevents the clavicle from riding upward; and, sec-

FIG. 125.



Sayre's first bandage for Fractured Clavicle. Back view.

FIG. 126.



Sayre's second bandage for Fractured Clavicle. Back view.

only, acting as a fulcrum at the center of the arm, when the elbow is pressed downward, forward, and inward, it necessarily forces the other extremity of the humerus (and with it the shoulder) upward, outward, and backward; and it is kept in this position by the second strip of plaster, which is applied as follows: commencing on the front of the shoulder of the sound side, drawing it smoothly and diagonally across the back to the elbow of the fractured side, where a slit is made in its middle to receive the projecting olecranon. Before applying this plaster to the elbow an assistant should press the elbow well forward and inward (figure 126), and retain it

FIG. 127.

Sayre's Dressing for Fractured Clavicle
Front view.

there, while the plaster is continued over the elbow and fore-arm (pressing the latter close to the chest, and securing the hand near the opposite nipple); crossing the shoulder at the place of beginning, it is there secured by two or three pins, as seen in figures 126 and 127.

When this has been done the deformity will have entirely disappeared, the fractured bones will be accurately adjusted, and as long as the strips of plaster maintain their position no amount of force can displace them. I have repeatedly tested this fact before my class by seizing the patient by the arm of the fractured side and whirling him like a top on his feet, without ever causing the slightest displacement or giving the slightest pain. By this plan of treatment the patient is only detained from his daily avocation a sufficient length of time to properly adjust the strips of adhesive plaster."

Fig. 128. DR. HENRY S. HEWIT'S SPLINT FOR COLLES' FRACTURE.

FIG. 128.



This splint is designed, in addition to its function as a retentive splint, to promote passive motion in the fingers and wrist-joint, as well as to give support to the hand. It accomplishes these objects, as will be seen by the cut, by means of the rod which is

connected with the ball grasped by the hand which is joined to the sliding-bar on the face of the splint by ball and socket joint. This joint enables the hand to make limited motions of flexion and extension, and also of pronation and supination. The natural tendency to relax and contract the fingers promotes this intention.

Fig. 129. DR. GEO. F. SHRADY'S SPLINT FOR COLLES' FRACTURE.

This apparatus was devised by Dr. Shrady for the purpose of correcting extreme deformity in cases of Colles' fracture of the radius. It is calculated to keep the hand in the double relation to the forearm of flexion, and of deflection towards the ulnar margin.

Some of these splints are made with a short hand-piece adapting itself to the palm proper, or with a long hand-piece extending from the wrist to the tips of the fingers. For the employment of either of these forms the surgeon must of course be governed by the peculiar indications of the case. We also make the splints with adjustable flexion and deflexion.

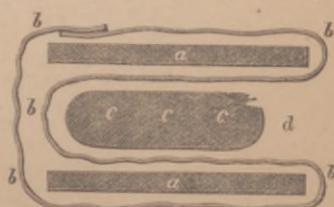
The fragments being placed as near as possible in apposition by flexing the wrist and deflecting the hand, the splint is applied to the palmar surface of the forearm. By means of a strip of adhesive plaster three inches in width, which is made to form a sort of lateral sling or loop for the ulnar portion of the wrist, the tendency to lateral displacement of the ulna is in a great measure overcome. This loop, as seen in the cut, embraces the wrist and splints (the usual dorsal splint being always used). The ulnar margin of the wrist is thus in a sling formed by the splints and the plaster, the radial margin of the wrist being free.

The ulnar margin of the wrist is thus made a very efficient fulcrum.

In cases of extreme lateral displacement, a suitable margin of wood is tacked to the ulnar margin of the palmar splint to give additional purchase.



Fig. 129.



TIEMANN & CO. N.Y.

- a a.*—Splints.
- b b b.*—Plaster.
- c c c.*—Wrist.
- d.*—Radial margin of wrist.

The splints are kept parallel to each other by suitable strips of plaster, and the hand, by the same means, is secured to the hand-piece. The radius and ulnar are kept in their proper relations to each other by the usual precaution of directing the palmar surface of the forearm and hand upwards and inwards looking towards the face, the whole apparatus being suspended at a right angle with the arm by a sling.

In order to prevent undue stiffness of the wrist and fingers by too long confinement, Dr. Shrady advises that passive motion be resorted to early, and persisted in every two or three days. This is done, without disturbing the fragments, by grasping the apparatus firmly at the wrist and freeing the hand.

Miscellaneous Splints.

DOUBLE INCLINED PLANES OF WOOD. See Fig. 116.

Fig. 130. HODGEN'S SUSPENDING APPARATUS.

FIG. 130.

This is a modification of
 Nathan R. Smith's Anterior
 Splint.

See Fig. 102.



We have on hand CARVED WOODEN SPLINTS made to fit the legs, arms, and hands. Hamstring Splints for fracture of the patella, in sets or by the pair or piece. Elbow Splints, plain and jointed. Bond's Splints, Fracture Boxes, Gutta Percha and Hatters' Board, for splinting. Detmold's Suspension Splints. Cane Splints, united with copper wire. And make to order any other Fracture Apparatus desired.

APPARATUS FOR REDUCING DISLOCATIONS AND FOR EXTENSION AND COUNTER-EXTENSION.

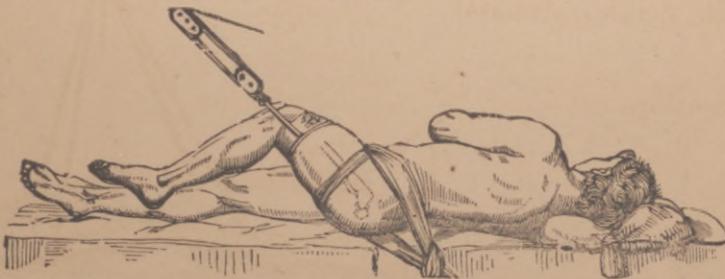
FIG. 132.



FIG. 131.



FIG. 133.



Figs. 131, 132, 133. Dislocation Pulleys made of brass, with three rollers, a strong steel hook, and sufficient cord.

Fig. 134. LEVIS' SPLINT FOR REDUCING DISLOCATION OF THE PHALANGES.

FIG. 134.



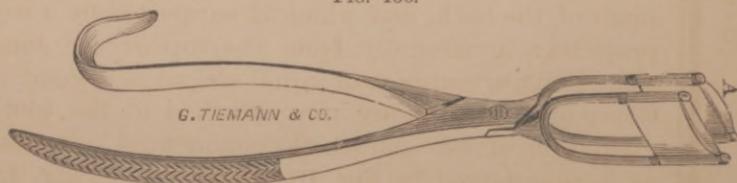
FIG. 135.



To apply this instrument: The finger is passed through the loops, and, by drawing on the tapes and then winding them around the projecting stem in opposite directions, and finally tying them together, a firm grip is obtained. This enables the operator to apply both extension and flexion, or leverage in any direction. The proximal end of the phalanx may be lifted, or even rotated, so as to allow one side of the bone to approach the socket before the other. It is a simple and cheap instrument, but one that every surgeon ought to possess. Fig. 135 represents it applied.

Fig. 136. LUER'S FORCEPS FOR LUXATION OF FINGERS OR TOES.

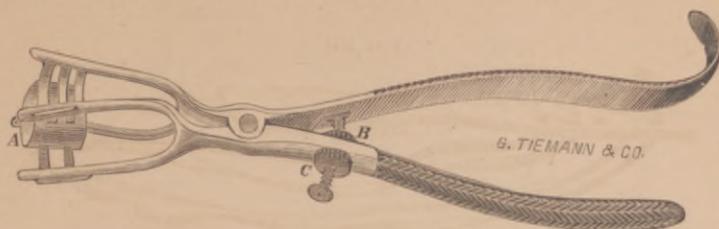
FIG. 136.



This instrument is made in the shape of a pair of forceps, the strong jaws of which, in place of being concaved, are bifurcated, and carry between their rods straps of strong webbing, doubled and drawn over them; A, the spaces, being filled up by slices of cork or india rubber. This construction and the length of the arms of the lever, exercise sufficient power to seize and hold the luxated member without contusing the soft parts.

Fig. 137. CHARRIERE'S LUXATION FORCEPS.

FIG. 137.



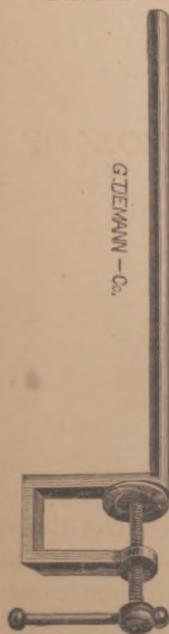
This pair of forceps is jointed like a compass. The jaws consist of forks of two stems each, equidistant, to which four leather straps are fastened, intercrossing each other in such a manner as to form a double floating knot, A, that opens or shuts as the handles of the forceps are approached or separated. The action of this double knot is regulated by a screw and two nuts, C B, enabling the operator to diminish, augment, or fix the amount of pressure at will.

◆◆◆

**Fig. 138. STANCHION FOR COUNTER-EXTENSION
IN THE APPLICATION OF PLASTER PARIS
DRESSINGS.**

(Extracted from *The Principles and Practice of Surgery*, by F. H. HAMILTON.)

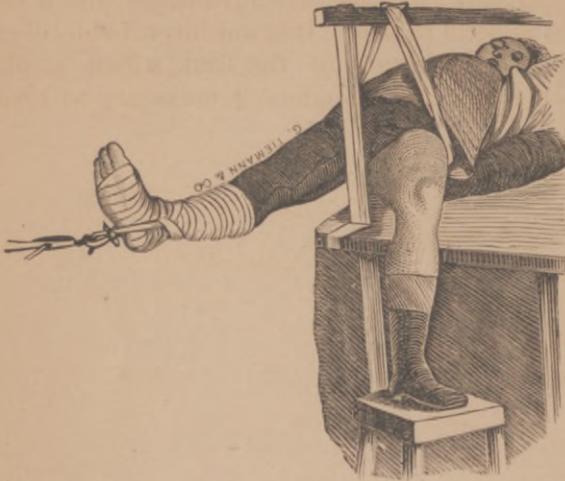
FIG. 138.



“The following is the usual mode of applying this dressing at Bellevue: The patient is placed with his nates overhanging one corner of a table, or with his body, shoulders and head resting upon a mattress elevated by blankets about one foot from the table, but terminating about two feet from its lower end. The perinæum is pressed against an iron stanchion, which is firmly screwed upon the lower end of the table, and wound with heavy flannel cloth. The nates are then suspended by a sling which passes under the small of the back, and which is supported by a wooden bar projecting horizontally from the top of the stanchion to some point of support of equal elevation beyond the head. Compound pulleys are now attached to the foot, and the exhibition of the anæsthetic commenced. In some cases, as is represented in Fig. 139, a plaster-of-Paris bandage is first applied to the foot and lower portion of the leg, an hour or two before the fracture is reduced, and when this has become hard, the extension is applied. The patient being fully under the influence of the anæsthetic, traction is made upon the pulleys until the shortening is supposed to be overcome and the fracture reduced. The direction of

the extension must be in the line of the axis of the body, it having been observed that when the plaster is applied with the limb abducted, too much

FIG. 139.



pressure is brought upon the perinaeum when the limb is again dropped into line; and if the limb is adducted when the plaster is applied, the dressing will be too loose about the groin in the straight position. The bandages, saturated with plaster, are applied over the whole limb, from below upwards, including the pelvis. Occasionally the successive turns of the roller are re-enforced by broad pieces of flannel or of patent lint, dipped in

the fluid plaster. The number and thickness of the successive layers must be determined by the apparent necessities of the case, generally four or five layers of roller being required, at least upon the thigh. I have omitted to state that excoriations caused by the dressings have been noticed most frequently in the groin and gluteal fold; this may, however, be avoided by placing a heavy piece of dry flannel over these parts previous to the application of the plaster. The dressing being completed, the extension is continued fifteen or twenty minutes until the plaster has become hard.

FIG. 140.



“In case the plaster was not applied to the foot and lower portion of the leg prior to the dressing of the fracture, this may now be done; or the patient may be laid in bed and permitted to recover from the influence of the anæsthetic before completing the dressing. On the second or third

day, after the reduction of the fracture, most of our patients have been permitted to go about on crutches; a practice which, although it seems to be attended with certain hazards, possesses at least this advantage, that it enables the patient to preserve his general health. It is not improbable, also, that it prevents that atrophy and shrinkage of the limb which would otherwise ensue, and which, when it occurs, renders it necessary to open and re-adjust the dressings."

Crutches.

FIG. 141.



We have for sale CRUTCHES of all kinds, with Elastic Arm-pieces and Rubber Bottoms, made of LANCEWOOD, MAPLE and HICKORY. Also, PLAIN CRUTCHES for adults and children. See specified Price List.

Also, STRAIGHT JACKETS of Canvas, with Locks to confine Insane persons.

Fig. 142. FOLDING LITTER FOR CARRYING WOUNDED PERSONS.

FIG. 142.

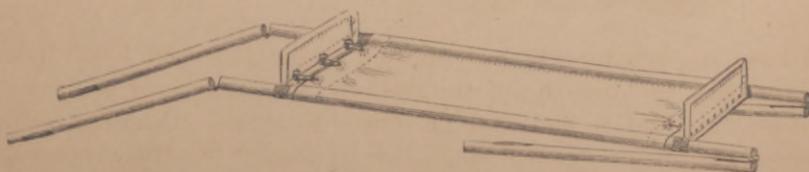
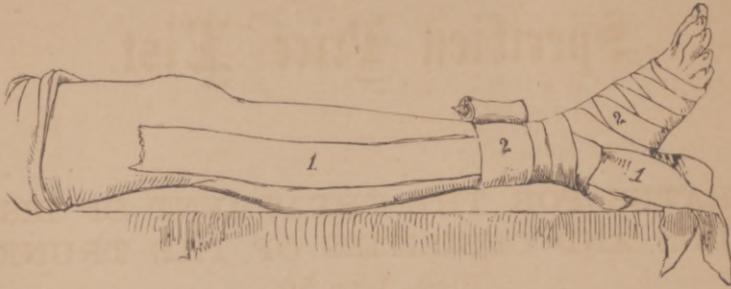


Fig. 143. ROLLER BANDAGE OF COTTON CLOTH.

FIG. 143.



And Adhesive Plaster, MOLESKIN PLASTER, spread on heavy flannel, and ADHESIVE PLASTER, spread on twilled goods; also, plain Adhesive Plaster. See specified Price List.

In these pages we have enumerated and described some of the most useful apparatus in common use in America and Europe. There are many other appliances resorted to in hospitals and private practice, which we shall be happy to furnish on application. New devices are carried out according to the views of surgeons favoring us with their orders; and we shall endeavor to have on hand as soon as published patterns of the best apparatus originating abroad.

End of Part IV.



Specified Price List.

APPARATUS FOR THE TREATMENT OF DISTORTIONS AND DEBILITIES OF THE TRUNK.

Figs. 1 to 50.

Shoulder Braces and Spinal Braces. Figs. 1 to 15.

FIG.

1. Elastic Shoulder Brace, for Gentlemen and Ladies,	\$2.00 to \$3.50
2. Elastic Shoulder Brace, for Gentlemen,	2.00 to 3.50
3. Steel-back Shoulder Brace,	4.00 to 5.00
4. (5, 6) Tiemann & Co.'s Brace for Potts' Curvature of the Spine,	35.00
7. (8) Tiemann & Co.'s Brace for Lateral Curvature of the Spine,	35.00
9. (10) Washburn's Spine Brace,	15.00 to 20.00
11. (12) Markoe's Torticollis Brace,	35.00 to 45.00
13. Tiemann & Co.'s Wry Neck Brace,	5.00
4. Davis' Apparatus for Caries of the Spine,	20.00
15. (16) Taylor's Apparatus for Caries of the Spine,	24.00

Abdominal Supporters and Trusses. Figs. 17 to 45.

17. Umbilical Bandage,	\$6.00 to \$8.00
18. Chase's Umbilical Truss, hard pad,	4.00
19. Bow-spring Umbilical Truss, soft or hard pad,	4.00
20. Bow-spring Umbilical Truss, for children,	1.50 to 3.00
21. Children's Umbilical Truss, crescent spring, soft or hard pads,	1.50 to 3.00
Children's Umbilical Bandages,	2.00 to 3.00
22. Bow Truss, right or left, hard pad,	3.50
23. Ratchet Truss, hard or soft pad,	4.50
24. Best French Truss, right or left, soft pad,	2.50 to 4.00
25. Best French Double Truss,	6.00
26. Chase's Truss, cedar pad,	3.50
27. French Adjustable Truss, soft pad,	4.50

FIG.

28.	German Truss, soft pad, single,	-	-	-	\$2.50
	German Truss, soft pad, double,	-	-	-	4.50
29.	Best Common Double Truss, soft pads,	-	-	-	4.00
30.	Hull's Truss, soft pad,	-	-	-	2.00
31.	Self-adjusting or Ball and Socket Truss, single,	-	-	-	3.00
32.	Self-adjusting or Ball and Socket Truss, double,	-	-	-	6.00
33.	French Adjustable Double Truss, soft pads,	-	-	-	6.00
34.	Tiemann & Co.'s Finger-pad Truss,	-	-	-	5.00
35.	Folsom's New Truss,	-	-	-	20.00
36.	Schuppert's Galvanic Truss,	-	-	-	15.00 to 25.00
37.	Bow-spring Abdominal Supporter,	-	-	-	4.00
38.	Fitch's Abdominal Supporter,	-	-	-	4.00
39.	Eugenie Abdominal Supporter,	-	-	-	6.00
40.	London Abdominal Supporter,	-	-	-	4.00
41.	Abdominal Bandage,	-	-	-	4.00
42.	Noeggerath's Abdominal Supporter,	-	-	-	6.00
43.	Thomas' Abdominal Supporter,	-	-	-	8.00
	Thomas' Abdominal Supporter, cedar pad,	-	-	-	2.50
44.	Silk Elastic Abdominal Belt,	-	-	-	12.00
	Cotton Elastic Abdominal Belt,	-	-	-	8.00
	Braun's Abdominal Supporters,	-	-	-	6.00
	Phelps' Abdominal Supporter,	-	-	-	5.00
	Duga's Abdominal Supporter,	-	-	-	5.00
	Boston Abdominal Supporter,	-	-	-	4.00
	Riding Belts, with stays, lined with chamois,	-	-	-	5.00
	Canvas Abdominal Belts,	-	-	-	4.00
	Satin-jean Abdominal Belt,	-	-	-	4.00
45.	Prolapsus Ani and Pile Supporter,	-	-	-	8.00

Suspensory Bandages. Fig. 46.

46.	Miliano's Compressor for Varicocele, etc.,	-	-	-	2.00
	Cotton Suspensory Bandage,	-	-	-	.50 to .75
	Linen Suspensory Bandage,	-	-	-	.75 to 1.25
	Silk Suspensory Bandage,	-	-	-	1.50 to 5.00
	Elastic Suspensory Bandages,	-	-	-	2.00 to 5.00

Urinals for Incontinence of Urine. Figs. 47 to 50.

47.	Tiemann & Co.'s Instrument for Extrophy of the Bladder,	-	-	-	25.00 to 75.00
48.	India Rubber Urinal, male, plain,	-	-	-	2.50
	The same, male, best,	-	-	-	4.00
49.	India Rubber Urinal, male or female,	-	-	-	4.50 to 9.00
50.	India Rubber Urinal, male,	-	-	-	2.50 to 5.00

APPARATUS FOR THE TREATMENT OF DEFORMITIES, DEBILITIES AND DEFICIENCIES OF THE UPPER EXTREMITIES. Figs. 51 to 56.

FIG.		
51.	Pfarrer's Apparatus for Ununited Fracture or Resection of the Humerus, - - - - -	\$35.00 to \$70.00
52.	Prince's Substitute for the Hand, - - - - -	40.00 to 60.00
53.	Apparatus for Anchylosis of the Elbow-joint, - - - - -	18.00
54.	Tiemann & Co.'s Glove for Paralysis of the Extensors of the Hand and Fingers, - - - - -	20.00 to 30.00
55.	Apparatus to prevent Dislocation of the Shoulder Joint, - - - - -	6.00 to 9.00
56.	Cooper's Apparatus for Dislocated Clavicle, - - - - -	5.00

APPARATUS FOR THE TREATMENT OF DEFORMITIES, DEBILITIES AND DEFICIENCIES OF THE LOWER EXTREMITIES. Figs. 57 to 80.

 SHOES ARE CHARGED EXTRA!

57.	Extension for a Short Leg, - - - - -	\$9.00
58.	Extension for a Short Leg and Ankle Brace, - - - - -	18.00
59.	Bigg's Extension for a Short Leg, - - - - -	35.00
60.	Weak Ankle Brace, - - - - -	\$ 8.00 to 10.00
61.	(62) Weak Ankle and Tendo Achillis Brace, - - - - -	8.00 to 10.50
63.	Tiemann & Co.'s Clubfoot Shoe, each, - - - - -	10.00 to 14.00
64.	Sayre's Clubfoot Shoe, - - - - -	10.00 to 14.00
67.	Apparatus for Talipe's Calcaneus, - - - - -	10.00 to 12.00
68.	Apparatus for Talipe's Calcaneus, - - - - -	10.00 to 12.00
69.	Apparatus for the Support of Weak Legs, - - - - -	25.00 to 35.00
70.	Apparatus for Partial Paralysis of the Leg and Thigh, - - - - -	12.00 to 25.00
71.	Apparatus for Hemiplegia, - - - - -	30.00 to 40.00
72.	Apparatus for Paraplegia, - - - - -	35.00 to 70.00
73.	Bow-leg Braces, pair, - - - - -	25.00 to 30.00
74.	Genu-valgum, or Knock-knee Brace, - - - - -	30.00 to 40.00
75.	Brace for Correcting Anterior Curvature of the Tibia, - - - - -	12.00 to 15.00
76.	Barwell's Artificial Muscles and Attachments :	
	Eyes or Hooks, each, - - - - -	.10
	Tin Plates, with Loops, each, - - - - -	.20
	Rubber Tubing, for muscles, per foot, - - - - -	.12
77.	Apparatus to evert the Feet, - - - - -	5.00 to 10.00
	Steel Soles for the relief of Flat Feet, each, - - - - -	2.50
78.	Bigg's Apparatus for Bunions, - - - - -	8.00 to 12.00
79.	Apparatus for Overriding, or Hammer Toes, - - - - -	7.00 to 15.00
80.	Apparatus for Ununited Fracture, or False Joints, in the Leg or Thigh, - - - - -	25.00 to 75.00

APPARATUS FOR THE TREATMENT OF JOINT DISEASES.

Apparatus for Hip-Joint Disease. Figs. 81 to 89.

FIG.		
81.	Davis' Hip-joint Splint,	\$15.00
82.	Sayre's Hip-joint Splint,	15.00
84.	Hamilton's Wire-gauze Splint,	15.00
85.	Bauer's Hip-joint Splint,	25.00
86.	Bauer's Wire Breeches,	\$15.00 to 18.00
87.	Taylor's Hip-joint Splint,	25.00
88.	Washburn's Hip-joint Splint,	7.00
89.	Hutchinson's Hip-joint Apparatus,	\$25.00 to 38.00

Apparatus for the Knee and Ankle-Joint. Figs. 90 to 98.

90.	Apparatus for overcoming Muscular Contraction of the Knee-joint and for Anchylosis,	-\$35.00 to \$40.00
91.	Short Anchylosis Apparatus for the Knee-joint,	25.00 to 30.00
92.	Anchylosis Apparatus, with a Screw for the Knee-joint,	18.00 to 22.00
93 (94, 95, 96, 97).	Sayre's Apparatus for Extension of the Knee-joint,	20.00
98 (99, 100).	Sayre's Apparatus for Extension of the Ankle-joint,	22.00
	Boisnot's Apparatus for Extension of the Ankle-joint,	18.00

Elastic Silk and Cotton Hose. Fig. 101.

Silk Elastic Leg and Thigh Hose to H, best, each,	\$11.00
Silk Elastic Knee Hose to G, best, each,	8.00
Silk Elastic three-quarter Hose to D, best, each,	4.50
Fine Silk Elastic Knee Hose to G, each,	6.00
Fine Silk Elastic three-quarter Hose to D, each,	3.50
Cotton Elastic Leg and Thigh Hose to H, each,	5.50
Cotton Elastic Knee Hose to G, each,	3.50
Cotton Elastic three-quarter Hose to D, each,	2.00
Knee-cap Best Silk Elastic, each,	3.50
Knee-cap Fine Silk Elastic, each,	3.00
Knee-cap Cotton Elastic, each,	1.75
Anklets, each,	\$1.75 to 3.00
Wristlets and Armlets made to order.	

FRACTURE APPARATUS.

Apparatus for Fracture of the Femur. Figs. 102 to 110.

FIG.		
102.	Nathan R. Smith's Anterior Splint, - - - - -	\$3.00
103a, b.	Byrd's Wire Gauze Suspending Apparatus, - - - - -	5.00
104.	Skinner's Fracture Bed, - - - - -	25.00
105.	Hewitt's Apparatus for Fracture of the Femur, - - - - -	40.00
106.	Buck's Apparatus, - - - - -	10.00
107.	Apparatus for Gunshot Fractures of the Femur, - - - - -	\$10.00 to 25.00
108.	Lente's Hospital Splint, - - - - -	18.00
109.	Burge's Apparatus, - - - - -	50.00
110.	Liston's McIntire's Splint, - - - - -	16.00
	Apparatus for Ununited Fracture, see Fig. 80.	

FOR BONE INSTRUMENTS, Drills, Scrapers, Sequestrum Forceps, Trephines,
Saws, etc., see Part I. of our Catalogue.

111. Henry's Starch Bandage Shears, - - - - -	\$5.00 to 7.50
---	----------------

Apparatus for the Treatment of Fracture of the Patella. Figs. 112 to 118.

112. Turner's Apparatus, - - - - -	\$12.00
113. Lewis' Apparatus, - - - - -	6.00
114a, b. Boisnot's Apparatus, - - - - -	\$8.00 to 12.00
115. Hartshorn's Apparatus, - - - - -	7.00
116. Hamilton's Apparatus, - - - - -	\$8.00 to 10.00
117. Tiemann & Co.'s Knee-Cap for after treatment, - - - - -	5.50
118. Rubber Cup and Steel Spring, - - - - -	6.00

Apparatus for the Treatment of Fracture of the Tibia and Fibula. Figs. 119 to 121.

119. Hodgen's Apparatus, - - - - -	\$6.00
120. Nathan R. Smith's Anterior Splint, - - - - -	3.00
Salter's Cradle, - - - - -	20.00
Carved Wooden Splints for the Leg and Ankle, - - - - -	2.50
Lining Splints, per pair, - - - - -	.50 to .75
Bauer's Wire Splints, - - - - -	3.00
121. Raphael's Pott's Splint, - - - - -	5.00
122. Hamilton's Bandage for Fracture of the Lower Maxillary, - - - - -	5.00

Apparatus for the Treatment of Fractures of the Clavicle.

FIG.		
123.	Levi's Clavicle Bandage, - - - - -	\$5.00
124.	Richardson's Splint for Fracture of the Clavicle, etc., - - - - -	6.00
	Wooden Yokes for Fracture of the Clavicle, - - - - -	3.50
125, 126, 127.	Sayre's Dressings for Fractured Clavicle, - - - - -	
	Boisnot's Clavicle Bandage, - - - - -	5.00

Apparatus for Colle's Fracture.

128.	Hewit's Splint for Colle's Fracture, - - - - -	\$7.00
129.	Shrady's Splint for Colle's Fracture, - - - - -	2.00

MISCELLANEOUS SPLINTS, of which there are no cuts.

	Double Inclined Planes of Wood, - - - - -	\$7.00, \$8.00, \$9.00.
130.	Hodgen's Suspending Apparatus, - - - - -	5.00
	Lining Splints, Sets of 20, - - - - -	5.00
	Carved Wooden Splints for the Leg and Ankle, - - - - -	2.50
	Gutta Percha for Splints, per lb., - - - - -	3.00
	Hatter's Board for Splints, per yard, - - - - -	3.00
	Carved Wooden Arm- and Hand-Splints, - - - - -	1.50
	Splints for the Forearm, Fracture of Radius, - - - - -	1.50
	Elbow Splints, wood, plain, - - - - -	1.50
	Elbow Splints, wood, jointed, - - - - -	2.50
	Bond's Splints, - - - - -	2.50

APPARATUS FOR REDUCING DISLOCATIONS.

131, 132, 133.	Dislocation Pulleys and Cord, per pair, - - - - -	\$7.00
134 (135).	Levi's Splint for Reducing Dislocation of the Phalanges, - - - - -	1.50
136.	Luer's Forceps for Reducing Dislocation of the Phalanges, - - - - -	8.00
137.	Charrierre's Luxation Forceps, - - - - -	9.00
138, 139, 140.	Stanchion for Counter-extension, - - - - -	\$5.00 to 10.00

CRUTCHES.

141.	Whittemore's Patent, Lancewood, rubber bottoms, per pair, - - - - -	12.00
	Whittemore's Patent, Maple wood, rubber bottoms, per pair, - - - - -	11.00
	Plain Maple Crutches, per pair, - - - - -	7.00
	Plain Hickory Crutches, per pair, - - - - -	4.00
	Hickory Crutches, rubber bottoms, per pair, - - - - -	5.00
	Children's Crutches, plain, per pair, - - - - -	\$3.00 to 5.00

142.	Litters, made to order, all kinds, various prices.	
143.	Roller Bandage of Cotton Cloth, per lb., - - - - -	1.25
	Moleskin Adhesive Plaster, per yard, - - - - -	2.25
	Adhesive Plaster, plain, per yard, - - - - -	1.00
	Adhesive Plaster, on twilled goods, per yard, - - - - -	1.25

Stohlmann

JUN 5 1946

