HUNT (Wm)

Dr D. G. Schweinitz
with regards of
Dr Hunt

HEALTH GYMNASTICS AT BADEN-BADEN.

BY

WILLIAM HUNT, M.D.,

Senior Surgeon of the Pennsylvania Hospital, Philadelphia, and one of the Surgeons to the Orthopædic Hospital, also Associate Editor of the "Annual of the Universal Medical Sciences."

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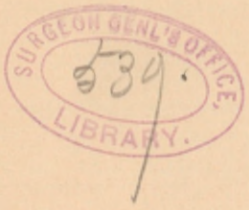

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Health Gymnastics at Baden-Baden.

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So great a place is now given to systematic gymnastics in orthopædic treatment, and also in other forms of muscular and nervous derangements, that a notice of one of the principal establishments for their application will be appropriate.

The institution alluded to is the one at Baden-Baden. The writer has recently had personal experience of its benefits. He was the subject of a severe accident in the early spring of 1887. Among other injuries, he had comminuted fractures of the right clavicle and the head of the humerus, and great contusions, if not deeper injuries, of the muscles of the neck. After partial recovery he went to Europe, and was obliged to halt on account of sickness and debility at Baden-Baden, and while there took advantage of the baths and gymnastics, though but for a short time, yet with great benefit.

The second floor of the great and beautiful hall of the Frederichsbaths (three hundred feet long, and, say, from thirty to forty wide) contains more than fifty machines adapted to the special exercise and to the massage of every part of the body. The details below are translated from a pamphlet by Dr. Heiligenthal, the director of the institute.*

The machines are mostly, if not all, those of Dr. Zander, of Stockholm, and were made there. Their cost, independent of the appliances to set them up and to run them, ranged from five hundred to fifteen hundred marks apiece. Most of them are entirely noiseless in their movements, and even those operated by steam make very little and no unpleasant sounds. They are superintended by well-trained assistants, who strictly carry out the written prescriptions given in each case.

* Die Apparate für Mechanische Heilgymnastik und deren Anwendung im Grossherzogl' Frederichsbade in Baden-Baden. Von Dr. F. Heiligenthal Grossherzogl' Hofrath und dirigender Badearzt am Frederichsbade und den Grossh. Kuranstalten.

The apparatuses are divided first into two series: First series, those moved by the patient (Bewegungsnehmer); second series, those moved by a motor, as by a steam or gas machine.

According to the conditions of their physiological operations there are three divisions:—

1st. Apparatus for active movements, *i.e.*, those which have the immediate property of exercising and developing the muscles. Of this division there are three groups:—

A. Active arm movements.

B. Active leg movements.

C. Trunk movements.

D. Balance movements.

2d. Apparatus for passive movements, *i.e.*, those which, without the help of the muscles, move the members of the body, and so stretch and soften the capsules, ligaments, and muscles.

This division contains one group:—

E. Passive movements.

3d. Apparatus exercising mechanical influence.

This division has four groups:—

F. Concussion movements (Erschütterung).

G. Hack, or tapping movements (Hackung).

H. Kneading movements (Knetbewegungen).

J. Stroking and rolling movements of muscles (Streichung and Walkung).

These last groups all comprise forms of steam or mechanical massage. The English equivalents of some of the names are hard to express.

In reference to series, it will be seen that the first series includes groups *A*, *B*, and *C*, and the second groups *D*, *E*, *F*, *G*, *H*, and *I*. The first series of instruments are the most numerous.

I.

The machines for—

A. Active Arm Movements.

A 1. Arm depression.
A 2. Arm and shoulder elevation.
A 3. Arm depression and flexion.
A 4. Arm raising and extension.
A 5. Drawing the arms together (adduction).
A 6. Carrying arms sideways (abduction).
A 7. Rotation of shoulder-joint.
A 8 *a*. Rotation of arm (pronation and supination).
A 8 *b*. Rotation and change of movement.
A 9. Forearm flexion.
A 10. Forearm extension.
A 11. Flexion and extension of hand.

B. Active Leg Movements.

B 1. Hip flexion.
B 2. Hip extension.
B 3. Hip-knee flexion, or raising of hip.
B 4. Hip-knee extension.
B 5. Closing the legs (adduction).
B 6. Spreading the legs (abduction).
B 7. Velocipede exercise.
B 8. Rotation of legs.
B 9. Knee flexion.
B 10. Knee extension.
B 11. Foot flexion and extension.
B 12. Foot rotation.

C. Active Trunk or Body Movements.

C 1. Flexion of trunk forward (sitting).
C 2. Straightening of trunk (while sitting).
C 3. Flexion of trunk (lying).
C 4. Raising of trunk (sitting).
C 5. Straightening of trunk (standing).
C 6. Bending sideways.
C 7. Rotation of trunk.
C 8. Rotating pelvis.
C 10. Neck stretching.

D. Balance Movements.

D 1. Trunk balance.
D 2. Trunk concussion in side-sitting.
D 3. Trunk concussion in straddle or riding position.

II.

E. Passive Movements.

E 2. Passive hand flexion and extension.
E 3. Passive radial and ulnar flexion of the hand.
E 6. Breast or chest expanding.
E 7. Passive trunk rotation. Pelvis side swinging.
E 8. Pelvis raising.

III.

Mechanical Influence. (Forms of Massage.)

F. Concussion movements.
F 1. Concussion or shaking movements.

G. Hack, or Tapping Movements.

G 1. Tapping.
G 3. Leg tapping.
G 4. Trunk tapping.
G 5. Head tapping.

H. Kneading Movements.

H 1. Abdominal kneading.

J. Stroking and Rolling Movements.

J 1. Arm stroking and rolling.
J 3. Leg stroking and rolling.
J 4. Foot rubbing.
J 5. Back stroking.
J 6. Rolling the abdomen.

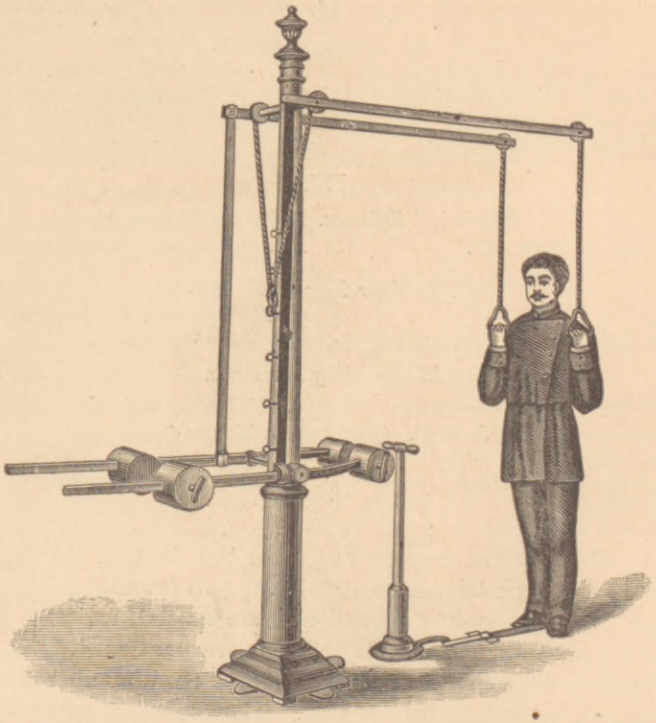
All of these instruments are described in full, the particular parts and the especial muscles and groups of muscles which they exercise, either actively or passively, are named, and the diseases or conditions to which each is applicable are mentioned. We cannot give space for all, but will describe and copy the illustrations of a few of them, and state their uses briefly. The copies are admirably well done. One can readily see the uses of the different parts, and distinguish those moved by the patient from those moved independently of him.

We will first give an abstract of general remarks, taken from Dr. Zander:—

"All movements should be taken lightly at first. The taker, although he may think them too weak, should not himself increase them on the first days of trial, for it is not only the one weak and apparently trifling movement that he has to consider, but the combination of them, which work together both upon the muscles and nerves, and he will often feel, particularly toward evening, much more tired than he would have thought.

"Remember that the gymnastics make a much deeper impression than the ordinary and mostly automatic movements of daily life.

"The balance-weight of the apparatus, the scale of which has been prescribed by the doctor, and which he has deemed sufficient, must not be altered by the instructor, excepting when it proves to be too heavy; on the contrary, it should not at once be raised should it seem too light. It may not be wise for weak persons to take all movements prescribed on the first days.



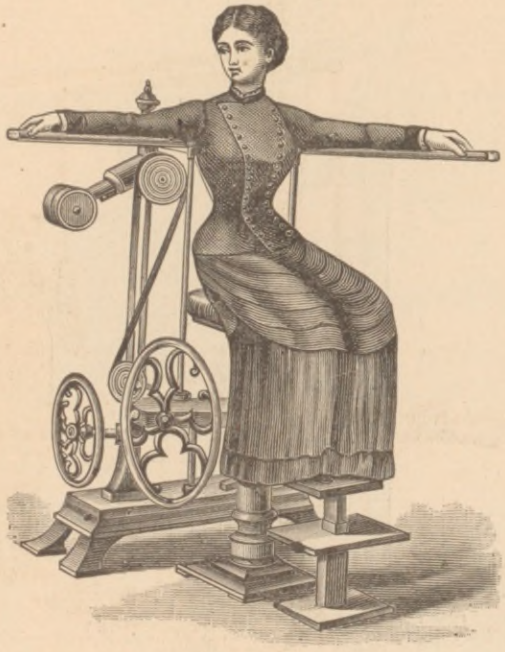
A 3.—ARM DEPRESSION AND FLEXION. (An illustration of "Active Arm Movements.")

The balance-weights having been adjusted according to the prescription, the head is held straight and the breast pressed forward. A deep inspiration is taken; then during expiration the arm is drawn downward until the hands are brought to a level with the shoulder, the elbows being carried close to the body and directed backward. This exercise develops the chest, also the muscles of the whole upper extremity, the ones most benefited being named in the text.

"A few minutes' rest is absolutely necessary for weak persons between each exercise. Stronger persons may take a group of them of the same order before resting. In this way the powers grow slowly but surely. Light exhaustion, or tiredness, need not be too carefully avoided. Labor to a certain degree of exhaustion is a necessary accompaniment of the growth of the powers. The great rule for patients is to use the movements up to the point of a light but rapidly passing fatigue.

"Sometimes there are patients who seem not to be able to over-

come fatigue, even by very slight exercise. They must not lose courage, for this phase may last for weeks, and even months, but it will pass off, to be followed often by a rapid improvement. It is not to be allowed, for it is absolutely wrong for patients to alter exercises different from those that have been prescribed. The physician only is to do this. The patient, left to himself, will leave off those which are unpleasant, and which he does not see the use of, and take others which are more agreeable, if acting through his own will. It is natural that those movements which are pleasant and easily performed should



A 5.—DRAWING THE ARMS TOGETHER (ADDUCTION). (Another illustration in the active list.)

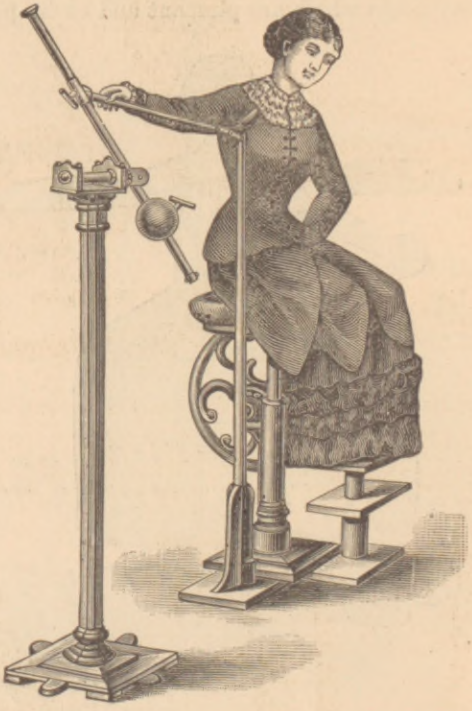
This apparatus for the horizontal flexion of the shoulder-joint acts particularly in the development of the muscles of the breast and the anterior and lateral aspects of the shoulder. The seat for the patient is so raised or depressed as to allow the arms to rest comfortably upon the levers, and other adjustments are made. A full inspiration is taken, and during expiration the arms are drawn toward each other until the levers touch at the ends, then during an inspiration the arms are carried slowly backward to the starting point, and the movements are repeated until the time is up.

be preferred, but they may be made at the cost of not developing muscles when the use of them is fatiguing and unpleasant.

"The proper management of the breathing is an absolute necessity in gymnastics. Certain muscles, particularly those connected with the arms, chest, back, and abdomen, work in such a way that definite rules as to the relations they bear to respiration may be laid down. These have been carefully studied. Every active movement has a greater and a less stringent or tension moment. The first corresponds

to that part of the movement when the resistance is overcome, as in weight raising, and is coincident with the shortening of the muscles; the last is when the resistance subsides, and the resting point is reached through a gradual lengthening or relaxation of muscle. Now, as the act of breathing also has a greater and a less tension point, there follows this general rule:—

"The point of greatest tension in movement agrees with *ex*piration, that of less tension with *in*spiration. There are a few excep-



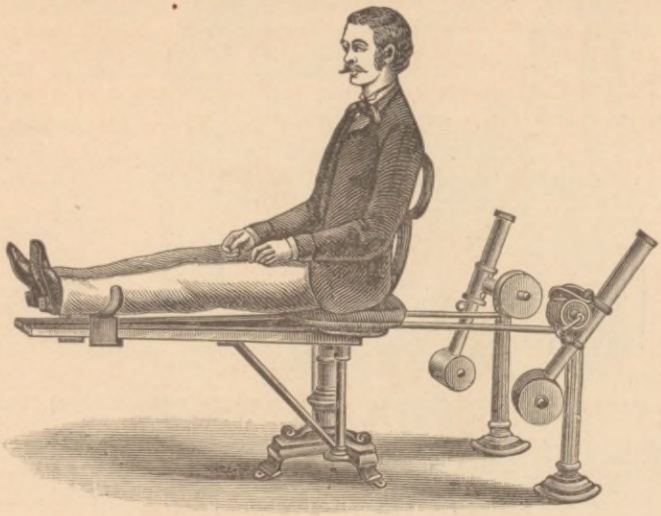
A 7.—Rotation of Shoulder-Joint. Arm Rolling (Armschlendern). ("Active Arm Movements.")

The patient sits high enough for the axillary fork of the apparatus to fit comfortably. The arm is stretched along the horizontal lever, which is grasped by the hand. With an almost insignificant application of strength, the apparatus is set in motion first in one direction and then in the other. This movement can be made with slowness and with great rapidity. The balance-weight must be kept screwed to its place. The exercise should last from one to two minutes. [This machine was of great service to the writer.]

tions, which are named, in which the chest during muscular contractions takes inspirations, as in the use of *A* 2, *A* 4, *A* 6, *C* 2, *C* 4, *C* 5, *C* 10. With these the high-tension movement corresponds with inspiration."

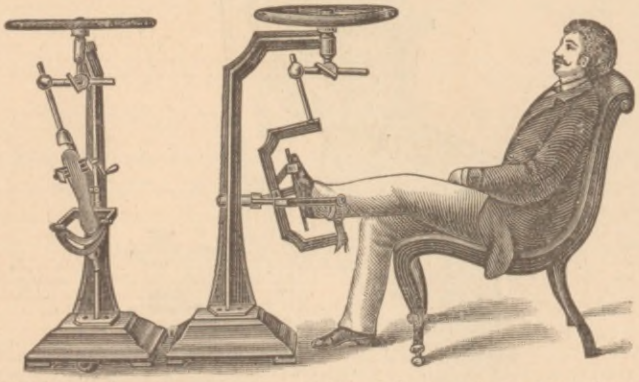
I can confirm the above interesting remarks as to breathing during the exercises. One would think that nature controlled this matter, and that one would automatically accommodate his breathing to the situation. But he does no such thing. The new man is

absolutely fresh or "green" about it. The chief (often the only) sounds one hears over the room are the different instructors in a low voice saying to their charges: "*Ein*athmen" (inspire), "*Aus-*



B 6.—Leg Spreading (Abduction). ("Active Leg Movements.")

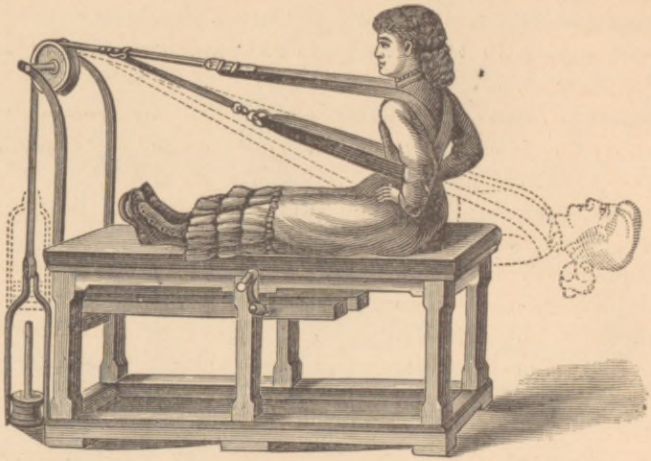
This apparatus acts upon the muscular system of the hip-joint, particularly upon those muscles which move the extremities sideways. The patient, in the sitting position, places the calves in the stirrups or rests. After a full inspiration he carries the legs outward while expiring; then during inspiration he slowly draws the limbs inward to the place of beginning. This is very useful in weakness and stiffness of the hip-joint. The muscles most worked are the posterior third of the gluteus medius and minimus; the pyriformis, obturator internus, and the gemelli.



B 12.—Foot Rotation (Fuss Rollung or Fuss Kreisen). (Another illustration of the "Active Leg Movements.")

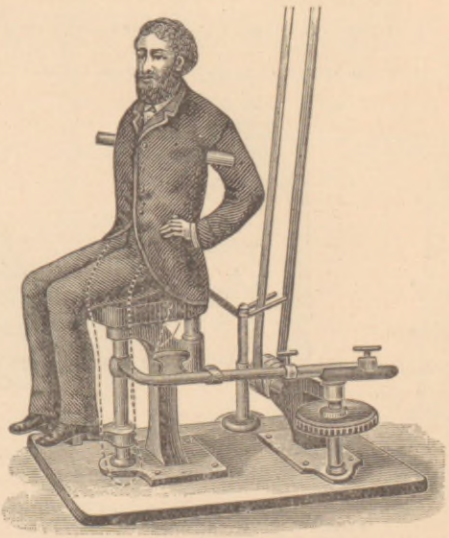
The patient sits so far from the apparatus as to have his leg extended during practice. The foot is so moved as to describe an arc with the toes or points, the centre being the heel. The foot is fastened upon the movable plate, and so rests in a stirrup that the ankles are in a line with the screw of the iron frame. A balance-wheel is set in motion with the hand, which motion is kept up by efforts at flexion and extension and rotation of the ankle-joint. For weakness and stiffness of the ankle-joint this exercise is of great use.

athmen" (expire), and it takes much practice to learn how to breathe properly. This I regard also as a great health-giving adjunct to the



C 4.—Raising of Trunk (Sitting) (Sitzende Rumpf-Streckung). (An illustration of the "Active Trunk Movements.")

The patient sits first bent forward, with legs extended, and the feet firm against a movable foot-board, and then stretches and inclines the body backward. The catches are raised on the left, and on the right by a wheel the foot-board is fixed. The straps are put in position, and the hands so placed to the sides that they hold them firmly to the back by means of the thumbs; then, during inspiration the body can be bent backward, and forward during expiration. This exercise is useful for the back, neck, popliteal space, etc.



E 7.—Pelvis Side Swinging (Becken Seitenschwingung). Passive Trunk-Rotation. (An example of "Passive Movements.")

This apparatus moves by steam or gas power, which gives a side-swinging movement to the seat. The amount of motion to the right or left is regulated by scale. The patient sits with the feet on the iron step, the thighs are held down by bands, and the shoulders are placed over the cross-bar. Swinging, side, and rotation movements are produced from right to left and from left to right. The muscles of the back are exercised, the ligaments stretched, and the viscera both of the thorax and abdomen are favorably affected. Sluggish circulation is benefited, and lumbago and constipation often relieved. The exercise should last from one to two minutes.

exercises. All the movements are to be made quietly and moderately. The following general directions are to be observed :—

"To act without hurry, and to take sufficient rest between the prescribed movements.

"Not to tire one's self before or after the exercises—a direction particularly for all weak persons, and those inclined to or having heart affections.

"Immediately to inform the doctor if a great or lasting fatigue follows the exercises.

"The movements must absorb the attention of the patient, and he must not indulge in conversation while taking them.

"Dancing and night vigils must be avoided while taking the gymnastics for general weakness, or for sickness.

"The clothing should be loose and light, the waist, neck, and arms free; collars, corsets, and garters should be taken off.

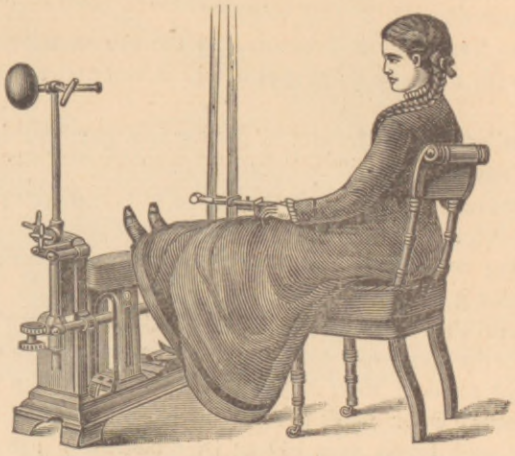
"A light meal, if any, may be allowed before the exercises. It may be necessary for weak persons to have a cup of tea or coffee. Milk-biscuit and bread and butter in moderation are harmless, but after a full breakfast an hour or two should pass before beginning the exercises."

The Baden-Baden institute has one grand advantage over most others. This is the magnificent system of baths, which are in the same building. Hot, cold, tepid, mineral, wild or gravel baths, showers, and douches of all sorts may be had.

Public or private baths may be used, all under trained assistants. The charges for advice, for the gymnastics, and for the baths are very moderate.

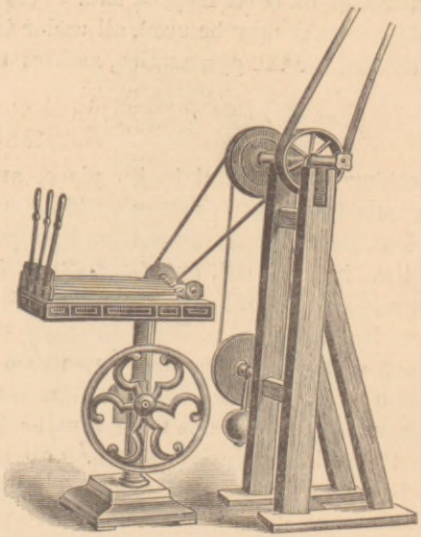
Probably nothing more useful in its place, and nothing more abused, has been introduced into practice within the last twenty years than massage. Rubbings and frictions have been practiced for remedial effects from time immemorial, but the systematic, scientific introduction of massage is a thing of late years, and owes its extensive use, in this country at least, to Dr. S. Weir Mitchell more than to any one else. In spite of the lessons, however, which Dr. Mitchell has laboriously taught as to its use, there is great ignorance on the part of most *masseurs* about it. This is not to be wondered at, since most of them have no anatomical or physiological knowledge, and very little comprehension of the power which they are wielding. The effects of massage on the different tissues, the circulation, and the organs, as demonstrated by von Mosengeil at Bonn, and others learned in the matter, are truly wonderful. It is, therefore, a great agent for good or for evil.

[The next four plates are examples of what are called mechanical influences, and are really illustrative of forms of machine or steam massage. The instruments all move by power.]



F 1. CONCUSSION MOVEMENTS OF VARIOUS PARTS OF THE BODY.

This machine when set in motion gives a peculiar concussion or shaking movement, which varies in rapidity and force according to what is required. The drawing represents the patient applying the cross-bars to her legs. The same portion of the machine may be used as a seat, in order that the trunk viscera and pelvis may be shaken up. The pad upon the upright may be regulated to varying heights, so as to be applied to the neck, shoulders, back, chest, and abdomen, and pads of different shapes, according to the part to be influenced, are used. The applications of this apparatus are very numerous, a full list of which is given in the pamphlet.



G. TAPPING MOVEMENTS.

The three little hammers to the left, in the above plate, tap alternately and with greater or less rapidity the part to which they are applied. The height may be regulated, and the patient can stand or sit. The influence on the tissues at the point of contact is very marked, and the neighboring parts also partake of it through transmission and the effect on the circulation.

Now the writer, speaking from experience in his own case, and from his knowledge about some others, abhors personal or manual massage. He has had those considered skilled operating on him, and, apart from the unpleasant contact and mauling, one and all had no comprehension as to time and exhaustion. "If you could only give me a full hour," was their talk, and then they would begin at the toes, determined to make a complete thing of it. He, therefore, took massage as he would take a dose of bad medicine, and was by no means comforted. He has known delicate women sickened by the same perverseness on the part

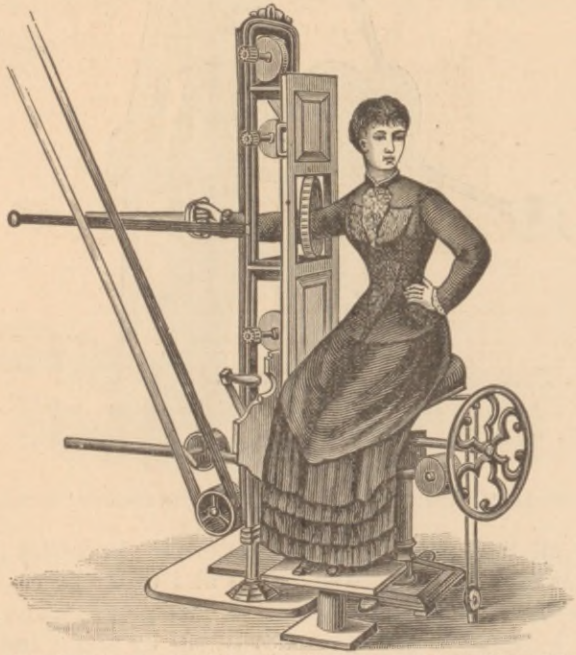
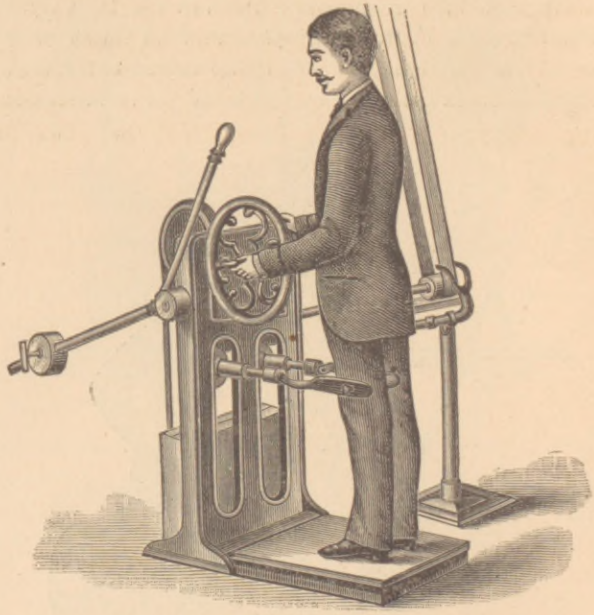


Fig. 1. Arm Stroking and Rolling (Streickung and Walkung).

It is rather difficult to express the exact meaning of these words as applied to the movements. The cut represents the arm passed through a peculiarly made elliptical band, the hand grasping a holder which allows the arm to move through the band forward and backward from wrist to shoulder. The pressure is regulated to a nicety. Its structure, also, has much to do with the peculiar effect. This, to my sensations, is that of absolutely perfect and regular massage, a combination of pinching, rolling, and rubbing of the muscles which is very agreeable when the pressure is properly adjusted.

of the masseur as to time. The mercenary equation really seems to play an important part in the matter. The hour is considered as belonging to the patient, and he or she is entitled to their money's worth. Considerations of this kind may also influence the patient, as well as the masseur, but they are all wrong. The misunderstanding, or real want of knowledge, about massage must be very general. Dr. David Grant says, in a recent lecture: "In England, in most cases, the so-called massage is protracted to an inordinate length, the poor patient being pinched and pummeled for an hour, or even more, twice

a day." He thinks a sitting should not be prolonged more than ten or fifteen minutes, and that a good masseur can accomplish all physiological and therapeutic needs in that time. Whatever is added simply fatigues. Two sittings daily are mistakes under nearly all circumstances.



The above cut is an example of a massage machine for the lower extremities (Beinwalkung).

Now, all these objections to massage were (speaking personally) obviated at Baden-Baden. While there also manual massage is used in appropriate cases, the beautiful instruments of Zander, of Stockholm, for applying it mechanically, running by steam and regulated to a nicety, were vastly more effective and comforting to the writer than the other method. They may be regulated so as to give the gentlest or the severest rubbings, frictions, kneadings, tappings, rollings, etc. (Reibung, Frottirung, Knetbewegungen, Hackung, Walkung, etc.). The numbers using them with benefit amply testified to their value. The time for each application varies from one to five minutes. In one room there is a sign of caution to the attendants and of admonition to the patients, that no machine there is to be used at one time for more than three minutes, unless otherwise ordered by the doctor.

In contrasting the two methods, the writer was convinced, in his own case at least, that "there is nothing like leather," for this material, together with rubber, steel, and caoutchouc, is largely used in the

make-up of the various pads, rubbers, and belts with which the patient comes in contact. There is no exposure of the bare skin during the applications. Separate hours are allotted to the sexes.

The writer is perfectly aware that mechanical massage has been and is used in this country, but what he has seen of it is crude compared to what is to be had abroad. Dr. George H. Taylor, of New York, has published a small volume in which he treats of it to a certain extent. Even the splendid set of machines, both for gymnastics and massage, at Baden-Baden, are not yet quite complete. When the bathing accompaniments are considered, the place, so far, is unexcelled.