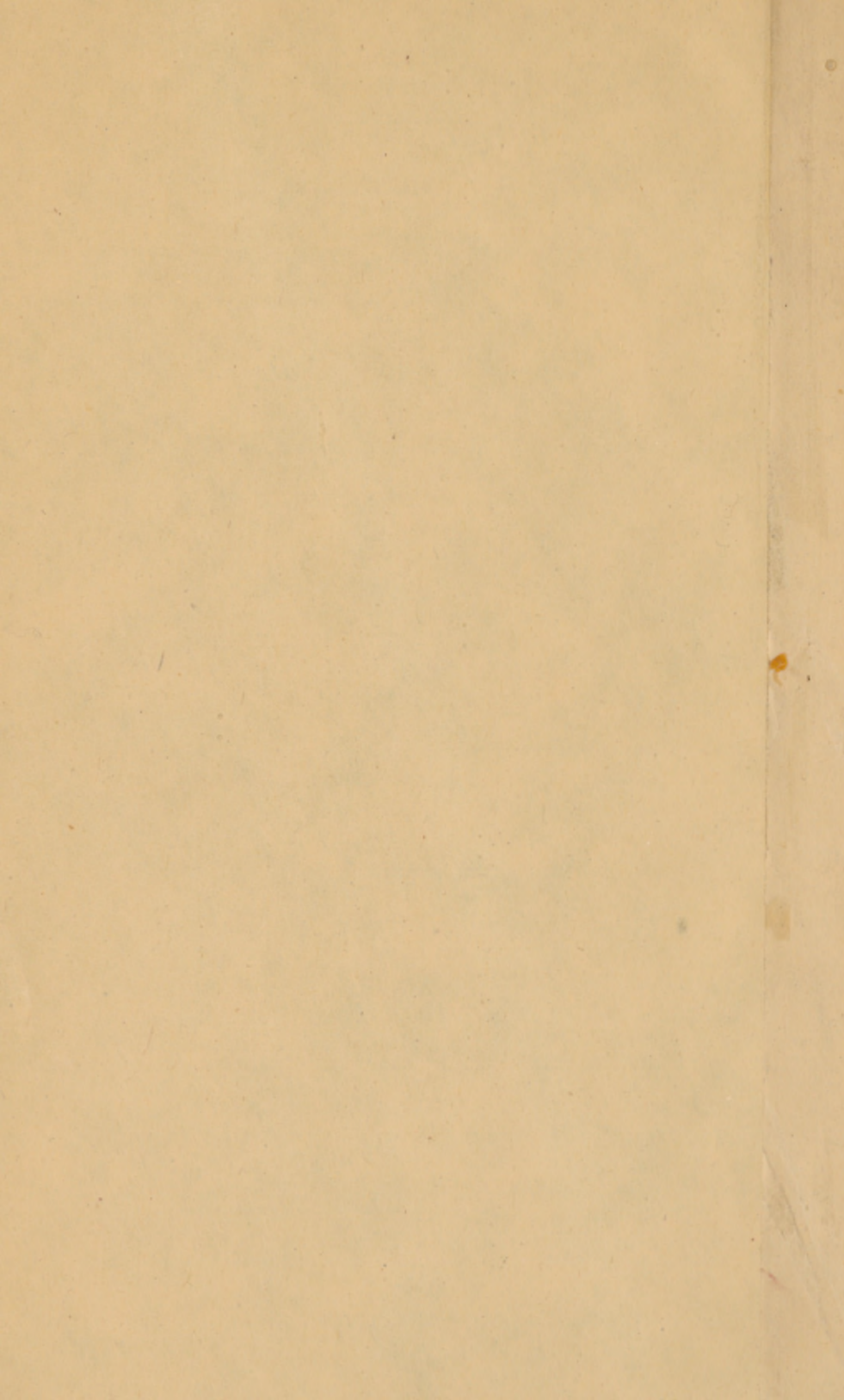


FILLEBROWN (THOS.)

A new apparatus for
Continuing anesthesia +++++

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A NEW APPARATUS FOR CONTINUING ANESTHESIA WHILE OPERATING ON OR IN THE MOUTH.

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AT the Columbian Dental Congress, in 1893, I exhibited an apparatus for maintaining anesthesia without a face-piece, which I described as consisting of "a bellows, connected by rubber tubing with the long tube of a twelve-ounce wash-bottle, with a stop-cock intervening to regulate the flow of air. From the bottle extends a half-inch rubber tube to the patient. The bottle is filled one-third full of ether. The bellows is inflated and the stop-cock opened, so as to allow the air to bubble up freely through the ether and become saturated with ether vapor. The etherized air is discharged through the second tube, a few inches from the patient's face."

I have since found it unnecessary to pass the air through the anesthetic, but obtain equally good results by simply passing the air over the ether or chloroform. I have also found that if the administration of the anesthetic is somewhat prolonged, the evaporation reduces the temperature so low as to prevent saturation of the air; when this obtains, the hand of an assistant or a cloth wet with warm water should be applied to the bottle to raise the temperature to at least 60° F.

In cases of children I have found no difficulty in from the first maintaining a perfect anesthesia, but my experience with adults proves that they must be first thoroughly anesthetized by ordinary methods, as many adult patients require an almost entire exclusion of air for a time, to become fully anesthetized. I encountered two partial failures before I realized the cause. But with these patients, this method proved more than sufficient after the anesthesia was made complete by the ordinary administration. I have lately added a bent metallic delivery-tube, which enables the assistant to stand behind the patient while administering the anesthetic, and thus be entirely out of the way of the operator. The mouth-gag I believe to be essential to success, and I never omit its use. Perhaps infants might not need it.

I have thus far been intent on establishing the complete success of the anesthesia, and have made no effort to economize the ether. As I now use it, four ounces of ether will maintain complete anesthesia for one hour; further experience may make less sufficient.

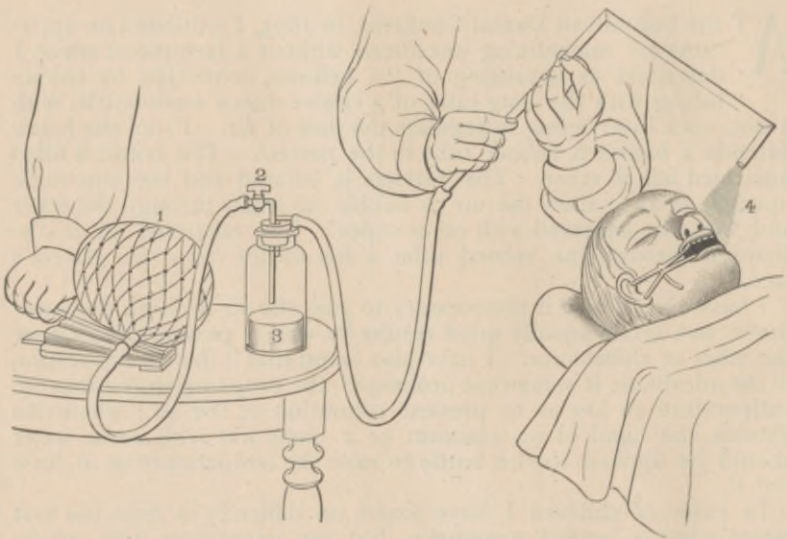
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With this apparatus, simple as it is, complete anesthesia may be maintained for any length of time, and any operation on the face or within the mouth of the patient be performed, and the operator will not be interfered with any more than during an operation on any other part of the body. An assistant can use the sponge freely and keep the throat clear of blood and mucus, so that only very seldom will it be necessary to use any other means to free the mouth of accumulations. The cut shows all the parts, and will make the preceding explanation clear.

The bellows is one of the ordinary dentist's foot-bellows. The bottle, with rubber stopper, is one taken from an oxygen apparatus found at the dental depots. The stop-cock is not absolutely essential, and some glass tubing will answer to pass the air through the wash-bottle. A tin-worker can furnish the delivery-tube at short notice, and rubber tubing is always at hand, so no one need be deprived of the benefits of this method for lack of an apparatus.



1, Bellows; 2, Stop-cock to control air-current; 3, Ether over which air passes; 4, Anesthetic atmosphere discharged from tube.

The following twenty-three cases show, I think, sufficient experience with the apparatus to establish the fact of its efficiency and usefulness. Eighteen of these were cases in my own private and hospital practice.

Case 1.—May, 1893. A student in the Harvard Dental School, who kindly consented to be an experimental subject. He was anesthetized to complete insensibility in ten minutes, without a mouth-gag. He was both willing and able to keep his mouth open.

The mouth-gag was used in all the following cases, after the patient was etherized by the ordinary method.

Case 2.—Male, age twenty-five years. Removal of non-erupted third molar. Complete anesthesia maintained twenty minutes.

Case 3.—Male, age twenty-six years. Operation on lip. Anesthesia maintained twenty-five minutes.

Case 4.—Male, age twenty-two years. Removal of necrosis of inferior maxilla. Anesthesia maintained twenty minutes.

Case 5.—Female, age six years. Operation, uranoplasty. Anesthesia maintained one hour and three-quarters.

Case 6.—Male, age eleven years. Operation, uranoplasty. Anesthesia maintained forty-five minutes.

Case 7.—Male, age ten years. Operation, uranoplasty. Anesthesia maintained one and one-half hours.

Case 8.—Male, age eleven years. Operation, staphylorrhaphy. Anesthesia maintained one and three-quarter hours.

Case 9.—Male, age twenty-nine years. Operation, reshaping flat nostril. Anesthesia maintained thirty minutes.

Case 10.—Male, age twenty-four years. Operation, staphylorrhaphy. Anesthesia maintained one hour.

Case 11.—Female, age seven years. Operation, staphylorrhaphy. Anesthesia maintained one hour and twenty minutes.

Case 12.—Female, age six years. Operation, closure of hard and soft palate. Anesthesia maintained one hour and ten minutes.

Case 13.—Female, age sixty years. Operation, removal of encysted cuspid. Anesthesia maintained eighteen minutes.

Case 14.—Female, age six years. Operation, uranoplasty. Anesthesia maintained thirty-two minutes.

Case 15.—Female, age six and one-half years. Operation, staphylorrhaphy. Anesthesia maintained fifty-five minutes.

Case 16.—Female, age forty years. Operation, exsection of right inferior maxillary nerve. Clinic before the New England Dental Society, at the Boston Dental College Hospital. Anesthesia maintained twenty-two minutes.

Case 17.—Male, age forty years. Operation, staphylorrhaphy, at the Maine General Hospital, by Professor Weeks. Anesthesia maintained one and one-quarter hours.

This patient was not fully anesthetized when the operation was begun, and at first the apparatus was insufficient to maintain the insensibility; but after the patient was fully etherized it was more than equal to the work, and several times the tube had to be removed on account of too deep narcosis.

In one other case I attempted its use when the patient was only partially narcotized, and I had the same trouble; consequently I am led to doubt if it is practical to use the apparatus until the narcosis is complete.

Case 18.—Male, age ten years. Operation, removal of tonsils by means of the cold wire snare. A clinic before the New England Dental Society, at the Oral Hospital of the Boston Dental College, by Professor George F. Eames. Anesthesia maintained fifteen minutes.

Case 19.—At same clinic, a male, age ten years. Operation, removal of adenoid growths, by Professor Eames. Anesthesia maintained ten minutes.

The following cases, Nos. 20, 21, 22, 23, were operated on at the Lynn Hospital, Dr. C. M. Smith directing the maintaining of the anesthesia.

Case 20.—Male, age forty-five years. Sarcoma of antrum. Operated on by Drs. Stevens and Smith. Anesthesia maintained fifty minutes. "Anesthesia complete during the whole time."

Case 21.—Necrosis of the ramus; including the angle of the under jaw. Operation by Drs. Pinkham and Smith. Anesthesia maintained one hour.

Case 22.—Female, age eleven years. Removal of adenoids. Operation by Dr. Stevens. Anesthesia maintained fifteen minutes.

Case 23.—Male, age forty-five years. Sarcoma of antrum. Secondary operation by Dr. Stevens on Case 20. Anesthesia maintained twenty minutes.

Many conceive the idea that it is a spray which is furnished the patient to breathe, but nothing is farther from the truth. If a patient inhales from a sponge or towel saturated with ether, he does not breathe ether as such, but ether vapor. It is just the same if air is forced through or over liquid ether. The air simply takes up the ether vapor, and the patients breathe etherized air, the same as is breathed through sponge or other inhaler.

The essential merit of my invention is that the etherized air is discharged toward the patient from a point far enough from the face so the apparatus will not interfere with the operation going on in the mouth, and in sufficient quantity and with sufficient force to furnish an anesthetic atmosphere for the patient to breathe without taking in air from outside the current. I will add here that the surplus anesthetic discharged into the atmosphere will not sensibly affect either the operator or assistant.

Air containing ether or chloroform vapor has long been used for inducing anesthesia, but always with an inhaler that covered the face and rendered any operation about the mouth impossible while the anesthetic was being inhaled. Dr. Snow, in 1849, mixed chloroform vapor with air in the definite proportion of three and one-half per cent., and found it very safe, successful, and economical. Clover, in 1862, used the same mixture as Snow, and devised an apparatus for administering it, the principal feature of which was a large reservoir bag hung over the operator's shoulder. Snow, about the same time, devised an inhaler lined with lint. The lint was wet with chloroform, and through this the air was drawn by inhalation, which, while passing over the surface of the lint, took up a portion of the vapor.

Dr. Horace Packard, of Boston, a few years since devised a very convenient and compact apparatus for administering etherized air, which was suggested to him by the Junker system for giving chloroform, and it was the use of this that suggested to me the apparatus which I have described. My object in writing this article is to record the success which has attended its use in my own practice and that of others, and to further and more completely illustrate its mechanism, that its simplicity and usefulness may be better understood.

