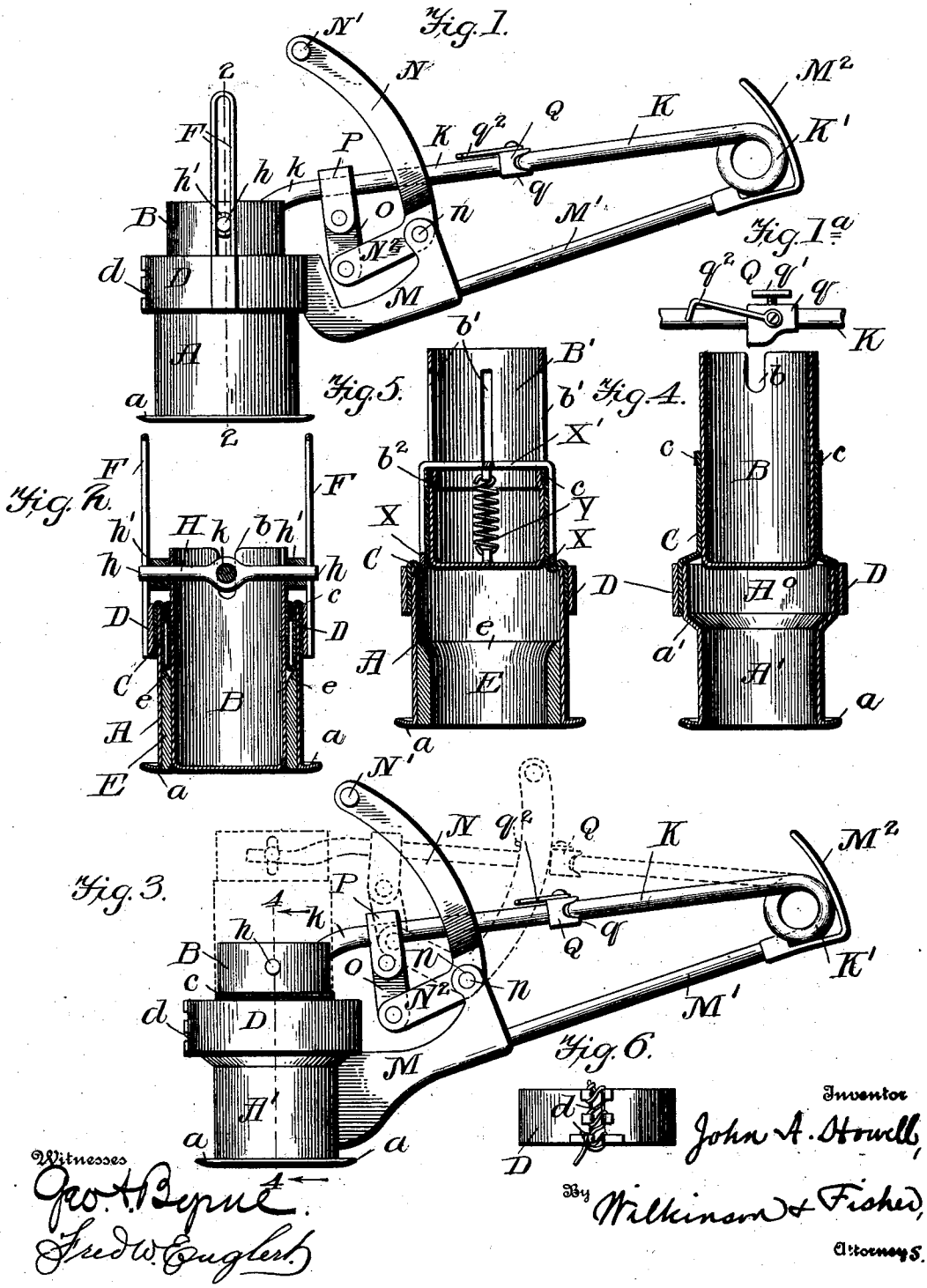
No. 758,653. PATENTED MAY 3, 1904.

J. A. HOWELL.

MASSAGE INSTRUMENT.

APPLICATION FILED SEPT. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 1.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 8.

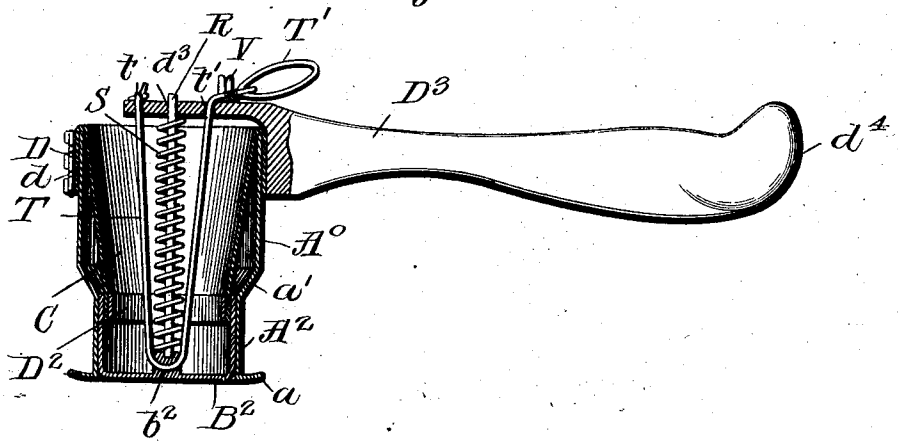
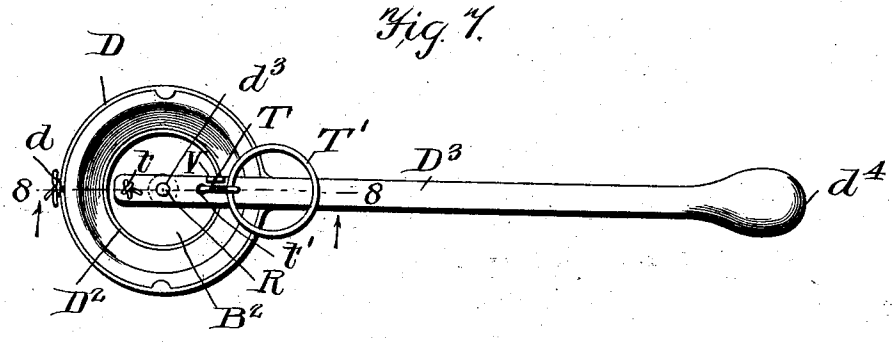


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN A. HOWELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

MASSAGE INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 758,653, dated May 3, 1904.

Application filed September 20, 1902. Serial No. 124,256. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. HOWELL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Massage Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in massage instruments, in which it is desirable to lift the particles of skin and contiguous flesh by means of a partial vacuum created in the instrument.

The instrument is especially intended to cure wrinkles and other facial imperfections.

The invention will be understood by the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 is a side elevation of the instrument with the piston in the closed or normal position. Fig. 1ª is a detail showing the stop used on the lever. Fig. 2 shows a section along the line 2 2 of Fig. 1. Fig. 3 represents a modification in which the cylinder is enlarged at its upper end for purposes that will be hereinafter described. Fig. 4 is a section along the line 4 4 of Fig. 3 looking in the direction of the arrows. Fig. 5 is a central section showing a modification. Fig. 6 is an elevation of the adjustable ring for holding the rubber sleeve in place. Fig. 7 is a plan view of the modification; and Fig. 8 is a sectional elevation of the device shown in Fig. 7, the section being along the broken line 8 8 of Fig. 7 and looking in the direction of the arrows.

Referring first to Figs. 1 and 2, A represents the cylinder, which is provided with a flanged foot *a*, in which cylinder the piston B travels. This piston is connected to the cylinder by means of the rubber sleeve C, which may be secured to the cylinder and to the piston in any convenient way, as by means of the thread wrapping *c* of the sleeve C and the ring D and lacing *d*. To make a snug fit between the cylinder and piston when the latter is in the closed position, as shown in Fig. 2, I provide a packing E, which may be of hard rubber or other suitable material and which is preferably rounded, as at *e*, to permit the easy passage downward of the piston-head. The rubber sleeve folds down into the space above this packing, as indicated in Fig. 2.

In the form of device shown in Fig. 4 the packing is omitted, the close fit being obtained by having a cylinder A′ tapered, as at *a*′, and forming an enlarged chamber A^0, in which the folds of the rubber are received. The purpose of having this close fit is to expel as much air as practicable from the apparatus, so that when the piston is raised a high degree of vacuum may be secured.

In the form of device shown in Fig. 5 the rubber sleeve is pressed down into the space provided for it by means of the ring X, which is connected to a cruciform frame X′, which frame is connected to the bottom of the piston B′ by means of the spring Y. The members of this frame X′ project through the slots D′ in the piston B′.

The operation of the device is precisely the same in all of the three modifications just referred to.

Referring now to the means for moving the piston up and down, and thus creating the vacuum, M represents a handle, which is made fast to the cylinder A and is continued into the rod M′ and the palm-piece M^2, the three portions M, M′, and M^2 constituting the handle. To this handle the lever K is connected by means of the coil-spring K′, or in place of the coil-spring a simple pivot may be provided, if desired. The end *k* of this lever K is connected to the cross-head H, which cross-head has its end *h* projecting between the guides F, which are fast to the ring R. The cross-heads have guide lugs or spacers *h*′, as shown in Fig. 2. The purpose of the ring D is to keep the folds of the sleeve extended between the cylindrical surfaces, and thus prevent wrinkles which would increase friction. The piston is indented, as at *b*, to allow the bent end *k* of the lever to project into the piston, as shown in Fig. 2.

N represents the operating-lever, which is

in the form of a bell-crank, pivoted, as at n, to the handle M. The upper end of the bell-crank carries a cross-bar N′ for the fingers. The short arm N^2 of this bell-crank is connected by the link O to the yoke P, which is fast on the lever K. Thus the bell-crank arm N^2 and the link O form a toggle-joint.

Q (shown in detail in Fig. 1ª) represents a stop and catch for limiting the rearward travel of the operating-lever. This may be adjusted on the lever K by means of the frame q and the clamp-screw q'. The pivot-hook q^2 may be made to engage the operating-lever N when the latter is in the rear position, and thus hold the piston up, as indicated in dotted lines in Fig. 3. In this way the vacuum may be kept on without the necessity for holding the operating-lever back by hand.

The operation of the device is as follows: The palm-piece M^2 being held in the palm of the hand and two of the fingers engaging the cross-bar N′, the operating-lever N is drawn backward. This will lift the piston to the position indicated in dotted lines in Fig. 3 and will create a partial vacuum in the lower end of the cylinder, thus sucking the flesh up and producing the massage. If it is desired to keep on the vacuum, the hook q^2 may be caused to engage the lever N, or the lever N may be retained in the open position by hand. If the fingers be relaxed, the atmospheric pressure will force the piston back to the initial position, and this action is supplemented by the spring K′, which tends to return the parts to the initial position, (Shown in Figs. 1 and 3.) By repeating this operation a rapid massage is effected. The same result is accomplished by the somewhat similar structure shown in Figs. 7 and 8, in which the rubber sleeve C is secured by the inner ring D^2 to the short piston B^2. The cylinder A^2 has secured thereto a handle D^3, which is either integral with or may be attached to the ring D for holding the upper end of the sleeve C fast on the enlarged portion A^0 of the cylinder. Projecting down into the piston is a piston-rod R, which engages the lug b^3 in the piston B^2. Around this rod a coil-spring S is mounted. This lug b^3 is perforated to permit the passage of the cord T, one end t of which is fast to the handle D^3, and the other end is rove through an opening d' in the said handle and terminates in a finger-ring T′. The piston-rod R passes up through an opening d^3 in the handle D^3. It will be seen that if the palm-piece D^4 of the handle be held in the palm and a finger inserted in the ring T′ the mere contraction of the finger will haul the cord out, compressing the spring S and drawing the piston up into the cylinder, thus creating a partial vacuum, as before. If the finger be relaxed, the atmospheric pressure, supplemented by the action of the spring S, will restore the parts to the initial position. Should it be desired to retain the piston in the lifted position, this may be done either by holding onto the ring or by hooking the cord in the cleat U. Thus it will be seen that I provide an instrument which may be operated by one hand and in which a high degree of vacuum is secured by simple instrumentalities and in which the tendency of the parts to restore themselves to the initial position by atmospheric pressure is supplemented by the action of a spring other than the elastic sleeve itself. The spring affords a positive action whereby the piston is invariably restored to the initial position regardless of the degree of the vacuum, and thus insures that the instrument is always in the operative position. By providing an enlarged chamber in the upper end of the cylinder, either by packing the lower end or by an actual enlargement of the upper end, a recess is secured into which the folds of the rubber sleeve fit snugly, and thus there are only small air-spaces left between the piston and the parts moving therewith and the cylinder, by which means a high degree of vacuum is secured. The broken ring (shown in Fig. 6) provides a simple and effective means of securing the rubber sleeve to the cylinder.

It will be evident that an antifriction-roller may be used in the lug b^2 of Fig. 8 for the cord to reeve over, but this is an obvious mechanical detail. In the same way the short arm N^2 of the bell-crank may have a sliding connection with the under side of the lever K instead of having the toggle-joint connection, as shown.

It will be obvious that I have provided a compact arrangement which may be conveniently operated in one hand of the user and in which by mechanical appliances the effort of using the instrument is largely reduced. Thus the instrument may readily be used by any person lacking in muscular force, such as invalids and others.

It will be obvious that various modifications might be used in the herein-described apparatus, which could be made without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a massage instrument, the combination with a cylinder, of a piston snugly fitting in said cylinder, a flexible sleeve connecting the cylinder and the piston, a spring connection between said cylinder and said piston, and mechanism operated by hand for moving said piston in said cylinder, substantially as described.

2. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a cylindrical piston snugly fitting in the lower portion of said cylinder, an annular flexible sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cyl-

inder, and means for reciprocating said cylindrical piston in said cylinder, substantially as described.

3. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting within the lower portion of said cylinder, a flexible sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, a spring connection between said piston and said cylinder and tending to force the piston to the closed position, and means for raising said piston against the action of said spring, substantially as described.

4. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, a flexible sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, a spring connection between said piston and said cylinder and tending to force the piston to the closed position, a handle connected to said cylinder, and a lever connected to said handle for lifting said piston against the action of said spring, substantially as described.

5. In a massage instrument, the combination with a cylinder, of a piston snugly fitting in said cylinder, a rubber sleeve connecting the cylinder and the piston, a spring connection between said cylinder and said piston and tending to restore the parts to the initial position, substantially as described.

6. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, a rubber sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, and a spring and system of levers for reciprocating said piston in said cylinder, substantially as described.

7. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting within the lower portion of said cylinder, a rubber sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, a spring connection between said piston and said cylinder and tending to force the piston to the closed position, and a system of levers for raising said piston against the action of said spring, substantially as described.

8. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, a rubber sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, a spring connection between said piston and said cylinder and tending to force the piston to the closed position, a handle connected to said cylinder, a lever connected to said handle for lifting said piston against the action of said spring, and a bell-crank lever for moving the first-named lever, substantially as described.

9. In a massage instrument, the combination with a cylinder, of a piston snugly fitting in said cylinder, an elastic sleeve connecting the cylinder and the piston, a spring connection between said cylinder and said piston, and a system of levers operated by hand for moving said piston in said cylinder, substantially as described.

10. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a cylindrical piston snugly fitting in the lower portion of said cylinder, an annular elastic sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, and a system of levers operated by hand for reciprocating said piston in said cylinder, substantially as described.

11. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting within the lower portion of said cylinder, an elastic sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper chamber of said cylinder, a handle fast to said sleeve, a spring connection between said handle and said piston and tending to force the piston to the closed position, and means for raising said piston against the action of said spring, substantially as described.

12. In a massage instrument, the combination with a cylinder, of a piston snugly fitting in said cylinder, an elastic sleeve connected to said piston and to said cylinder and adapted to fold down into the upper portion of said cylinder, a handle connected to said cylinder, a lever connected to said handle and to said piston, and a bell-crank lever for operating the first lever, substantially as described.

13. In a massage instrument, the combination with a cylinder, of a piston snugly fitting in said cylinder, an elastic sleeve connecting the cylinder and the piston, a handle fast to said sleeve, a lever on said handle engaging the piston, a bell-crank lever on said handle, and a link connecting the two levers, substantially as described.

14. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, an elastic sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper portion of said cylinder, a handle fast to said cylinder, a lever on said handle engaging the piston, a bell-crank lever on said handle, and a link connecting the two levers, substantially as described.

15. In a massage instrument, the combination with a cylinder, of a piston snugly fitting

in said cylinder, an elastic sleeve connecting the cylinder and the piston, a spring connection between said cylinder and said piston, mechanism operated by hand for moving said piston in said cylinder, and a stop for holding the piston in the open position, substantially as described.

16. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, an elastic sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper portion of said cylinder, means for reciprocating said piston in said cylinder, and an adjustable stop for holding the piston in the open or partly-open position, substantially as described.

17. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, a flexible sleeve connected to said piston, and adapted to fold down into the enlarged upper chamber of said cylinder, a broken ring and lacing securing said sleeve to said cylinder, and means for reciprocating said piston in said cylinder, substantially as described.

18. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting within the lower portion of said cylinder, a flexible sleeve adapted to fold down into the enlarged upper chamber of said cylinder and connected to said piston, a broken ring securing said sleeve to the cylinder, a spring connection between said piston and said cylinder and tending to force the piston to the closed position, and means for raising said piston against the action of said spring, substantially as described.

19. In a massage instrument, the combination with a cylinder, of a piston snugly fitting in said cylinder, an elastic sleeve connecting the cylinder and the piston, a handle fast to said sleeve, a palm-guard on said handle, a lever on said handle engaging the piston, a bell-crank lever on said handle, and a link connecting the two levers, substantially as described.

20. In a massage instrument, the combination with a cylinder having an enlarged upper chamber, of a piston snugly fitting in the lower portion of said cylinder, an elastic sleeve connected to said piston and to said cylinder and adapted to fold down into the enlarged upper portion of said cylinder, a handle fast to said cylinder, a palm-guard on said handle, a lever on said handle engaging the piston, a bell-crank lever on said handle, and a link connecting the two levers, substantially as described.

21. In a massage instrument, the combination with a cylinder, of a cylindrical piston, an annular rubber sleeve connecting the cylinder and the piston, and substantially filling the air-space between said piston and said cylinder, and mechanism operated by hand for moving said piston in said cylinder.

22. In a massage instrument, the combination with a cylinder, of a cylindrical piston, an annular rubber sleeve connected to said piston and to said cylinder and adapted to fold down into the space between the two, substantially filling the air-space between said piston and said cylinder, and a system of levers for reciprocating said piston in said cylinder.

23. In a massage instrument, the combination with a cylinder provided with guides, a piston mounted in said cylinder and having projections engaging said guides to maintain the alinement of said piston, a rubber sleeve connecting said piston and said cylinder, and mechanism operated by hand for rapidly reciprocating said piston in said cylinder, substantially as described.

24. In a massage instrument, the combination with a cylinder, of a piston mounted in said cylinder, a rubber sleeve connecting said piston and said cylinder, a ring attached to but spaced from said cylinder and adapted to project into the annular space between said piston and said cylinder to keep the folds of the sleeve extended between the cylindrical surfaces without wrinkles, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN A. HOWELL.

Witnesses:
FRANK D. BLACKISTONE,
FRED W. ENGLERT.