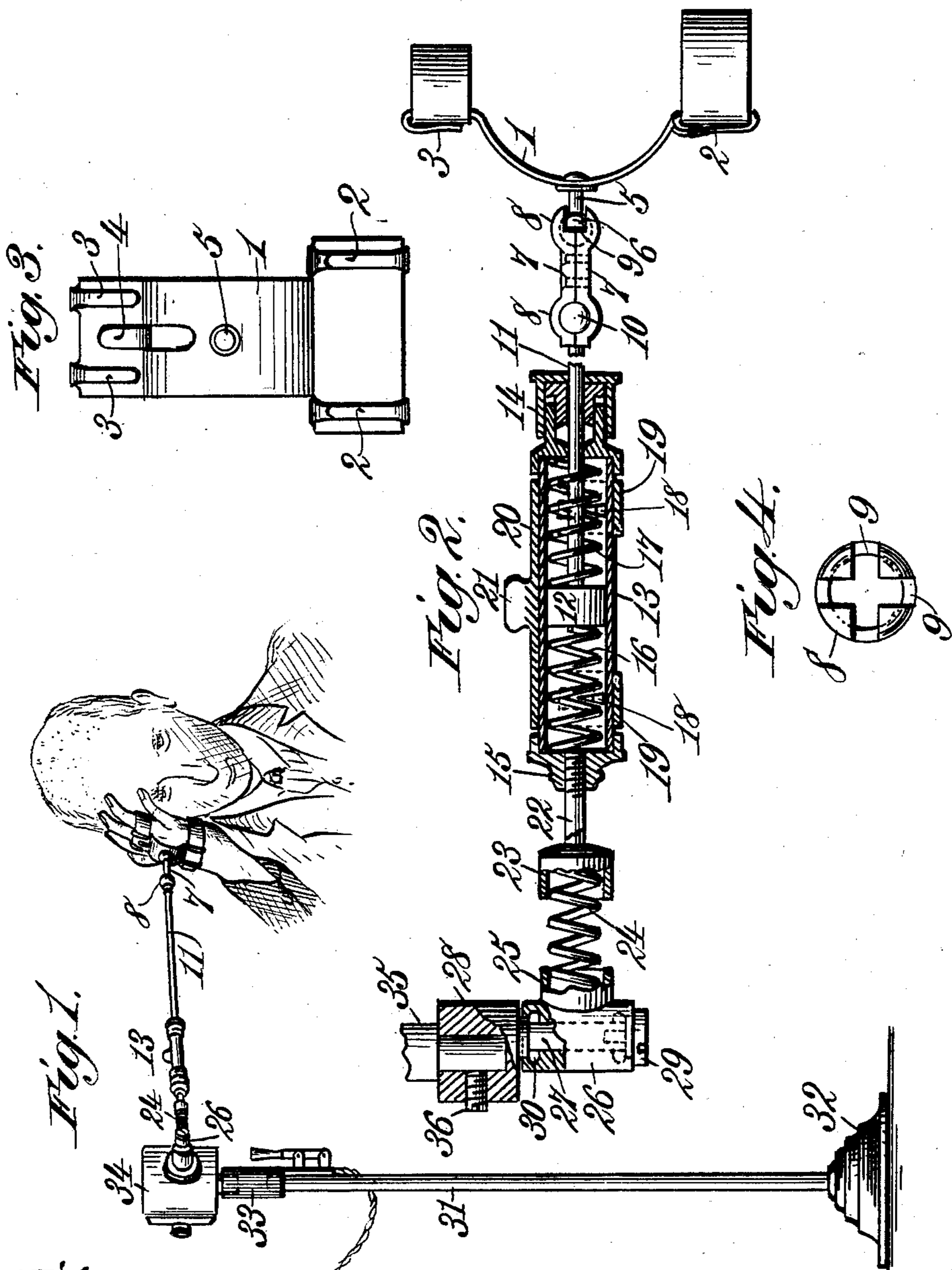


No. 756,441.

PATENTED APR. 5, 1904.

A. WARD.
MASSAGE APPARATUS.
APPLICATION FILED JULY 20, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

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MESSAGE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 756,441, dated April 5, 1904.

Application filed July 20, 1903. Serial No. 166,347. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR WARD, a subject of the King of Great Britain, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Massage Apparatus, of which the following is a specification.

This invention relates to an improved massage apparatus, and has for its object to provide an improved apparatus for imparting a variable vibratory motion to the hand of an operator for the purpose of giving a mechanical vibratory treatment to different parts of the human body.

To this end it consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a perspective view showing the apparatus in position for use. Fig. 2 is a sectional view of that part of the device for giving the vibratory motion to the hand. Fig. 3 is a detail plan view of the means for attaching the apparatus to the hand of the operator. Fig. 4 is an end view of the universal joint for connecting the hand attachment to the piston-rod.

In practice it has been found that it is not only necessary to deliver a cushioned blow, but to vary the length of the stroke of the parts for imparting the blow and to also vary the force with which the blow is struck, and it is by means of the following apparatus that such purposes are accomplished.

Referring to the drawings, the numeral 1 indicates a bowed plate of sheet metal provided at one end with an extension which projects laterally on both sides of the edges of said plate. The projecting ends of said extension are each provided with two overlapping clips 2 and the other end of the plate 1 is also provided with two bent-over clips 3 and a clip 4, which is struck up from the body of the plate and bent over in a direction opposite to the clips 3. All the clips men-

tioned are struck up integrally from the plate 1 and are designed to permit straps or elastic bands to be readily applied to and removed from the plate, so as to permit of different-sized straps being used, according to the size of the hand of the operator. In practice two straps are employed, one being slipped beneath the clips 2 and passing around the operator's hand in rear of the knuckles and the strap, which is retained by the clips 3 and 4, being passed around any suitable number of the fingers of the operator's hand.

Secured centrally to the plate 1 is a screw 5, on which is screwed the ball 6, forming a part of the universal joint, which will now be described. Said joint consists of two metallic plates 7, each provided at its opposite ends with semicircular sockets 8, and the two parts of the joint are secured together face to face, thus forming a joint having two spherical cavities at its opposite ends. In one of said cavities or sockets is arranged the ball 6, and formed in the end of said socket are two intersecting and diametrically arranged slots 9, whereby the screw 5 may be turned to any one of four angles formed by the slots 9. Arranged in the other socket 8 is a ball 10, into which is screwed a rod 11. The rod and ball have only a circular or rotative movement in the socket 8, and the rod and joint are incapable of being turned at an angle relative one to the other. Fixed on the opposite end of the rod 11 is a piston 12, which is arranged to reciprocate in a cylinder 13, which is closed at one end by a stuffing-box 14 of ordinary construction, through which the rod 11 passes, and at its other end by a cap 15. Arranged on opposite sides of the piston 12 are coiled springs 16 and 17, said springs being of equal power and operating to normally hold the piston centrally within the cylinder. In the opposite end portions of the cylinder 13 are formed elongated tapering ports 18. Arranged around those portions of the cylinder in which the ports are formed are slotted collars 19, said collars being connected together by a bar 20, provided with a handle 21, by means of which the slotted collars 19 may be

rotated about the cylinder to cover the ports or to uncover them to a greater or less extent. Screwed into the cap 15 of the cylinder is a rod 22, provided at its end with a cup-shaped head 23, in which is rigidly fixed—as by solder, for example—one end of a coiled spring 24, the other end of said spring being fixed in a like manner to a cup-shaped head 25, which is fixed on a sleeve 26. The sleeve 26 is rotatably mounted on a crank-pin 27, fixed eccentrically to a head 28, which is adapted to be fixed on a rotatable shaft, as will presently be explained. The sleeve 26 is rotatably held on the crank-pin 27 by a headed screw 29, and said sleeve, on the interior of its opposite ends, is provided with grooves 30, which are for the purpose of receiving a lubricant.

The numeral 31 indicates a vertical rod or standard mounted at its lower end in a movable or portable base 32, and on the upper end of said standard is fixed a stout stiff rubber tube 33. Mounted on the upper end of said rubber tube is an electric motor 34 of ordinary construction, the shaft 35 of which fits within the head 28, and said head is held fixed on said shaft by means of a set-screw 36.

The operation of my improved device is as follows: The operator passes a suitable elastic band or strap around his hand in rear of the knuckles and another strap or band around two or three of his fingers. The straps are then slipped beneath the clips 2 and 3 and 4 of the plate 1, before referred to, when the apparatus will be in position for use. When the electric motor is set in operation, the head 28 will be rotated and the crank-pin 27 will impart a reciprocatory movement to the flexible shaft 24 and through the medium of the latter to the other parts of the device. The operator holds his hand upon the particular muscles to be massaged, and as the parts are reciprocated back and forth his hand will be caused to pat the muscle or impart to said muscle a rapid series of blows of more or less force. By means of the flexible shaft 24 the operator is enabled to move his hand freely about in all directions, and by means of the ball-and-socket joint 6 he is enabled to move the device which carries the straps that attach his hand to the apparatus in any desired angular position, while at the same time the said hand-holding attachment can be rotated or turned axially in any desired position. The springs 16 and 17 within the cylinder, and which are arranged on opposite sides of the piston 12, give a cushioned effect to the blows, absorbing a portion of the impact of the movement. If the slotted collars 19 be turned into such position that the ports will be entirely closed, the relative movement between the piston and the cylinder will be but slight, for in addition to the tendency of the springs 16 and 17 to prevent such movement the piston will also have to compress air ahead of it and form a partial vacuum behind it. If the collars 19 be

now turned so as to open the ports 18 but slightly, as the cylinder moves on the piston the air will be permitted to escape slowly and the relative movement between the piston and the cylinder will be slightly greater than that before described. If the said collars be turned so as to entirely open said ports, the air will be permitted to escape freely and the piston will then be permitted to have its maximum movement relatively to the cylinder. It will be obvious that as the resistance to the movement of the piston is decreased the stroke of the piston will be increased, and it will also be manifest that as said stroke is increased the force of the springs will decrease, and hence the blow imparted by the hand will be lessened. By the means described the length of the stroke may be varied within certain limits at will while the apparatus is in motion. Without altering the stroke the operator is also enabled to move the hand-piece and with it his hand at any desired angle.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus of the class described, the combination with a motor, of a flexible connection connected to said motor and arranged to be reciprocated thereby, means carried by the end of the flexible connection for attaching the latter to the hand of the operator, whereby a vibratory movement is imparted to the hand, and an adjustable resistance arranged between the flexible connection and hand-holding device for regulating the length of the stroke and the impact of the blow, substantially as described.

2. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, and means for reciprocating said cylinder, for the purpose specified.

3. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means universally connected to the end of the piston-rod for attaching thereto the hand of the operator, and means for reciprocating said cylinder, for the purpose specified.

4. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means universally and rotatively connected to the end of the piston-rod for attaching thereto the hand of the operator, and means for reciprocating said cylinder, for the purpose specified.

5. In an apparatus of the character described, the combination of a cylinder, a pis-

ton arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, means for reciprocating said cylinder, and means for altering the stroke of the piston at will, for the purpose specified.

6. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, means for reciprocating said cylinder, and means for admitting air to and discharging it from the opposite ends of the cylinder, for the purpose specified.

7. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, means for reciprocating said cylinder, means for admitting air to and discharging it from the opposite ends of the cylinder, and means for regulating the quantity of air so admitted and discharged, for the purpose specified.

8. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, elongated tapered ports being formed circumferentially in the opposite end portions of the cylinder, means for covering and uncovering said ports to any desired extent, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, and means for reciprocating said cylinder, for the purpose specified.

9. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, elongated tapered ports being formed circumferentially in the opposite end portions of the cylinder, slotted collars rotatively arranged on the ends of the cylinder for covering and uncovering said ports to any desired extent, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, and means for reciprocating said cylinder, for the purpose specified.

10. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, elongated tapered ports being formed circumferentially in the opposite end portions of the cylinder, slotted collars rotatively arranged on the ends of the cylinder for covering and uncovering said ports to any desired extent, a bar connecting said collars to cause them to move in unison, coiled springs arranged in the cylinder on each side of the piston, means con-

nected to the end of the piston-rod for attaching thereto the hand of the operator, and means for reciprocating said cylinder, for the purpose specified.

11. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs disposed in the cylinder on each side of the piston, a universal joint on the end of the piston-rod comprising two half-sections rigidly secured together and provided with spherical sockets at the opposite ends, a ball fixed on one end of the piston-rod and rotatively fitted in one of said sockets, a ball rotatively fitted in the other socket, a plate, a screw passing through said plate and into said ball, means carried by the plate for attaching the latter to the hand of the operator, and means for reciprocating the cylinder, for the purpose specified.

12. In an apparatus of the class described, a plate, clips bent up from the opposite ends of the plate in parallelism therewith, bands removably confined between the clips and plate and constructed to pass around the hand and fingers of the operator, and means for imparting a reciprocating movement to said plate, for the purpose specified.

13. In an apparatus of the class described, a bowed plate, clips bent up from the opposite ends of the plate in parallelism therewith, bands removably confined between the clips and plate and constructed to pass around the hand and fingers of the operator, and means for imparting a reciprocating movement to said plate, for the purpose specified.

14. In an apparatus of the class described, a plate bowed intermediate its ends and provided with lateral extensions at one of its ends, clips struck up from the sides of said extensions and bent over said extensions in parallelism with the latter, said clips overlapping one another at their ends, clips formed on the other end of the plate and bent over the latter into parallelism therewith, a clip struck up from the plate between the two last-named clips and bent in an opposite direction thereto, bands removably confined between said plate and clips and constructed to pass around the hand and fingers of the operator, and means for imparting a reciprocating movement to said plate, for the purpose specified.

15. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, a rotatable shaft, a head fixed on said shaft and provided with an eccentric wrist-pin, a sleeve rotatively mounted on said wrist-pin, and a flexible shaft connected at one end with said sleeve and at the other end with the end of the cylinder, for the purpose specified.

16. In an apparatus of the character de-

scribed, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, a cup-shaped head attached to the end of the cylinder, a rotary shaft, a head fixed on said shaft, an eccentric wrist-pin on said head, a rotatable sleeve on the wrist-pin, a cup-shaped head fixed on said sleeve, and a coiled spring fixed at its opposite ends in said cup-shaped head, for the purpose specified.

17. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, a vertical support, an electric motor arranged on the upper end of said support, a head fixed on the end of the motor-shaft, an eccentric wrist-pin on said head, a sleeve on the wrist-pin, and a flexible shaft

connecting said sleeve to the end of the cylinder, for the purpose specified.

18. In an apparatus of the character described, the combination of a cylinder, a piston arranged centrally therein, coiled springs arranged in the cylinder on each side of the piston, means connected to the end of the piston-rod for attaching thereto the hand of the operator, a vertical support, a flexible tube mounted on the upper end of said support, an electric motor mounted on the upper end of said flexible tube, a head fixed on the end of the motor-shaft, an eccentric wrist-pin on said head, a sleeve on the wrist-pin, and a flexible shaft connecting said sleeve to the end of the cylinder, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR WARD.

Witnesses:

S. E. PATTERSON,
E. WRATZMAN.