

W. C. J. GUILFORD.

POWER OPERATED MASSAGING APPARATUS.

APPLICATION FILED MAY 18, 1916. RENEWED JUNE 30, 1917.

1,253,232.

Patented Jan. 15, 1918.

2 SHEETS—SHEET 1.

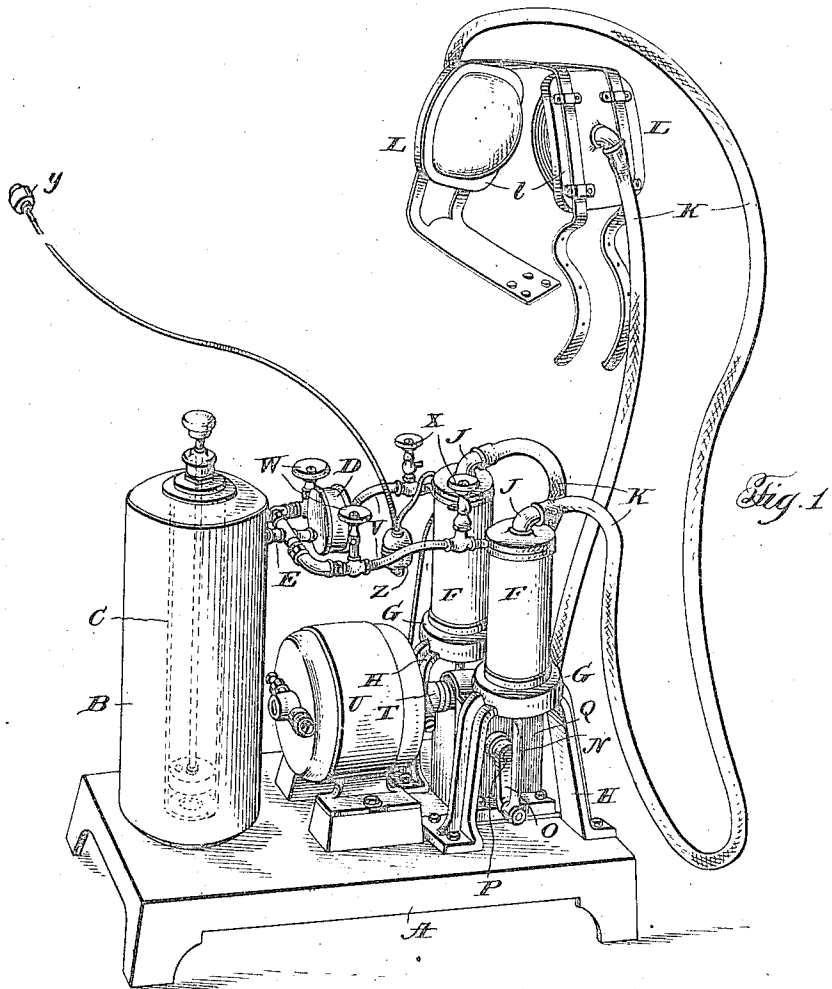


Fig. 1.

Witness:

Jasper Hutchinson
Robert J. Miland

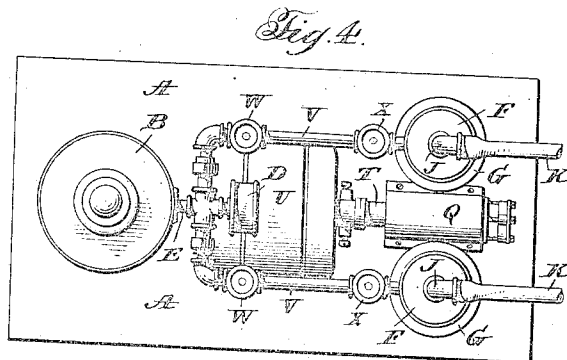
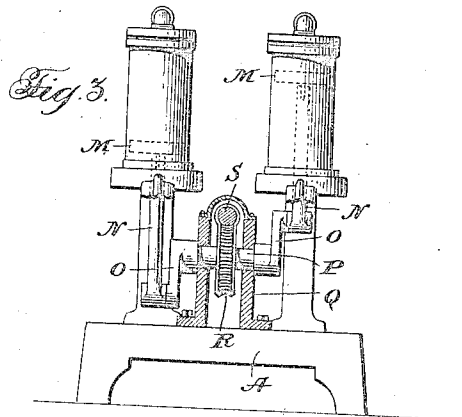
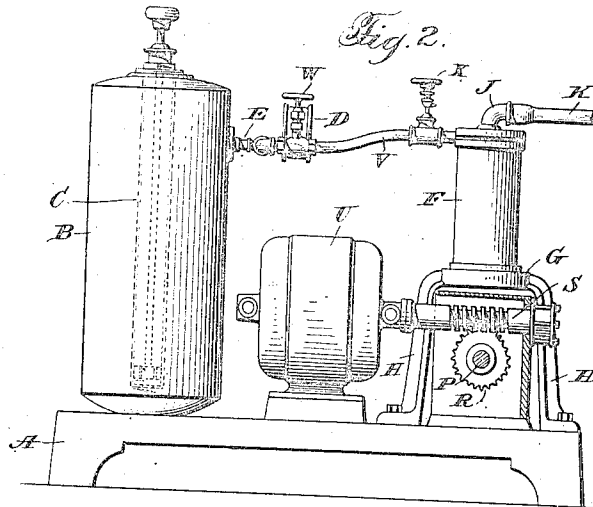
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Witness:

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UNITED STATES PATENT OFFICE.

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POWER-OPERATED MASSAGING APPARATUS.

1,253,232.

Specification of Letters Patent.

Patented Jan. 15, 1918.

Application filed May 18, 1916, Serial No. 98,352. Renewed June 30, 1917. Serial No. 177,964.

To all whom it may concern:

Be it known that I, WILLIAM C. J. GUILFORD, citizen of the United States, residing at Harrison, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Power-Operated Massaging Apparatus, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in massage implements and has for its primary object the provision of a motor driven actuator designed to have air communication in order to control the manipulation of expansible massage elements, for example, the device illustrated and claimed in my companion application executed of even date herewith Serial No. 98353, and wherein said device is specifically defined.

The actuator forming the special subject matter in the present instance, embraces the characteristics of compartments, portability, simplicity, and efficiency. In its general aspects the same comprises a common supporting base having thereon and rigidly secured thereto an air storage tank, a pair of cylinders in communication with the massage implements,—preferably by flexible pipe connections,—and motor driven pistons for the cylinders. More specifically the relation of the operating connections between the pistons and the motor are such that the massage elements will be alternately expanded and contracted; and the expansion and contraction of the massage elements being preferably attained through the instrumentality of movable columns of air displaced,—that is moved back and forth,—in consonance with the reciprocating movements of the pistons.

The improved details in the construction and association of parts will be readily appreciated from the specific description hereinafter contained when read in connection with the accompanying drawings forming part hereof, and wherein the preferred embodiment of the actuator is illustrated.

In the drawing:

Figure 1 is a perspective view of the actuator in its desired combination with the massage device;

Fig. 2 is a side view with part in vertical section;

Fig. 3 is an end view with part in section, and

Fig. 4 is a plan view of the actuator.

Referring more specifically to the drawings wherein like reference letters designate the same parts in the several views, A represents a supporting platform or base of a readily transportable nature capable of being shifted from place to place by the operator or user, it being understood that the present device is susceptible of use without the necessity of an attendant by the patient, or other person subjected to the massage treatment. Upon the base I support in an upright position an air tank B within which is an air compressor or pump C the handle of which extends upwardly through the top of the tank within convenient access for use when the tank is to be filled, which can be ascertained at will by mere inspection of a pressure gage D connected by pipe E with the tank B. F are a pair of cylinders arranged in upright position and parallel relation at that end of the base A opposite to the end on which the tank B is mounted, these cylinders being seated in and secured to rings or cups G conforming in shape and size to the open lower ends of the cylinders, and integrally formed with brackets H secured to the base A near the opposite side edges of the latter. The tops or heads of the cylinders are fashioned to constitute outwardly projecting nipples J to which flexible,—conveniently rubber,—air conducting pipes or tubes K are secured, the pipes at their opposite ends being connected to a pair of massage elements or devices L, and adapted to discharge air into the sealed spaces between the base members I of these devices and the expansible sheets or diaphragms on the inner faces thereof, which diaphragms, considering them in their complementary relation and intended operation effecting the passive massage of the same element or part of the body to be treated. The special construction of the massage elements, here generally represented is defined in my previously mentioned companion application, entitled abdominal massage implement, but said massage elements may be of still other type or types for example as specially defined in my other companion application entitled passive massage implement Serial No. 98351.

Within the cylinders F are pistons M having piston rods N depending therefrom through the lower open ends of the cylinders F and through the open interior of the

supporting rings or cups G, the lower ends of the pistons being in turn connected to oppositely disposed cranks O on a single shaft P mounted in and passing transversely through a housing Q on the base, the cranks, as intimated, extending in opposite directions to alternate the strokes of the pistons in the cylinders, and effect correspondingly alternate actuation of the massage elements or devices.

On the shaft P and confined within the housing Q is a worm wheel R adapted to receive rotation through the medium of a worm S on a power shaft T driven from an electric motor or equivalent device U here shown as being also mounted on the base A in the space between the tank B and cylinders F.

From the outlet pipe E of the tank B branch pipes V lead respectively to the upper ends of the cylinders F above the pistons therein, valves W controlling the feed from the tank to the cylinders, the other valves X interposed between said valves W and the cylinders affording exhaust from the cylinders and massage devices when any given operation of the apparatus is completed and it being desired to relieve the pressure against the expansible elements.

The motor carries a flexibly connected plug Y adapted to engage a lamp or wall socket to electrically connect the motor with a source of supply, and interposed in the flexible connection for the plug Y is a hand switch Z for cutting the motor in and out of operation as desired, the hand switch being designed to be held in the hand of the patient or operator as the case may be. In use the air pipes and cylinders are filled with air from the tank B when the respective pistons are in their withdrawn or lowermost positions, the controlling valves W being then off, thereby constituting in effect an air piston or column behind an expansible diaphragm or sheets which air piston or column in its reciprocating movement effected by the like movement of the piston will secure the alternate expansion and contraction of the massage element, and the close association of the power of massage elements with their alternate expansion and contraction with respect to each other obtaining the passive massage which the device is intended to accomplish.

While I have herein disclosed one particular embodiment of the invention it will be apparent to persons skilled in the art that said invention is capable of embodiment in still other forms and devices as may be in keeping with the hereto appended claims.

What I claim is:

1. The combination with massage elements and air conducting means communicating therewith, of an actuator comprising a pair of cylinders in communication with

said air conducting means, pistons in said cylinders, an air tank with connections for supplying air to said cylinders, and means for actuating the pistons comprising a motor interposed between the tank and cylinders, and gear and crank connections between the motor and pistons, substantially as described.

2. The combination with massage elements and air conducting means therefor, of an actuator including a pair of cylinders in communication with said air conducting means, said cylinders being supported in an upright position, oppositely disposed brackets for supporting the cylinders, an air supply for the cylinders, pistons in the cylinders, cranks for reciprocating the pistons, and means for rotating the cranks including a common shaft, a worm wheel on said shaft located between the cylinders, a worm engaging said worm wheel, and means for rotating the worm.

3. The combination with massage elements and air conducting means leading thereto, of a pair of cylinders in communication with said air conducting means, an air supply for said cylinders, pistons in said cylinders, piston rods for the pistons, and means for reciprocating the pistons, comprising a common shaft, cranks thereon, and means for rotating said shaft including a motor and gear connections between the motor and the shaft interposed between the cylinders.

4. The combination with massage elements and air conducting means leading thereto, of an actuator including a pair of cylinders having nipples on their heads communicating with said air conducting means, pistons in said cylinders, and an air supply for the cylinders, and means for alternately actuating the pistons, substantially as described.

5. The combination with expansible massage elements and air conducting means leading thereto, of an actuator comprising a support, and air supply, cylinders on said support receiving air from said supply, said cylinders being connected to said air conducting means leading to the massage elements, pistons in the cylinders, and means for actuating the pistons also carried by said support, substantially as described.

6. The combination with expansible massage elements and air conducting means leading thereto, of an actuator comprising a support, and air supply, cylinders on said support receiving air from said supply, said cylinders being connected with said air conducting means leading to the massage elements, pistons in the cylinders, and means for actuating the pistons also carried by said support, said last mentioned means comprising a motor, substantially as described.

7. The combination with expansible mas-

sage elements and air conducting means leading thereto, of an actuator comprising a support, an air supply, cylinders on said support receiving air from said supply, said
 5 cylinders being connected with said air conducting means leading to the massage elements, pistons in the cylinders, and means for actuating the pistons also carried by said support, said last mentioned means
 10 comprising a motor, and a flexibly connected controlling device adapted to be manually operated, substantially as and for the purpose described.

8. The combination with expansible massage elements having air conducting means leading thereto, of an actuator comprising a support, an air supply on said support, a
 15 pair of cylinders on said support communicating with the air conducting means and receiving air from said tank, valve connections between the tank and cylinders for
 20 controlling the supply of air to the cylinders, and air conducting means leading therefrom, valve means permitting exhaust
 25 of the air from the cylinders and air conducting means, pistons in the cylinders, and a motor on the support having gear and crank connections with the pistons, substantially as and for the purpose described.

9. The combination with expansible massage elements and air conducting means leading thereto, of an actuator comprising
 30 a support, air supply means, and means adapted to cooperate with air received from said air supply for alternately operating the
 35 massage elements, and controlling means flexibly connected to the operating means, substantially as described.

10. The combination with expansible mas-

sage elements and air conducting means 40 leading thereto and flexibly connected therewith enabling application as desired to the patient, of an actuator including a support, air supply means thereon, air operating
 45 means receiving air from said supply also mounted on said support and including a motor, and a flexibly connected controlling device adapted to be manually operated by the patient, substantially as described.

11. The combination with expansible massage elements and air conducting means leading thereto and flexibly connected there-
 50 with enabling application as desired to the patient, of an actuator including a support, air supply means thereon, air operating
 55 means receiving air from said supply also mounted on said support and including a motor, and a flexibly connected controlling device adapted to be manually operated by
 60 the patient, said operating means being applied to alternately expand and contract the expansible massage elements to passively
 massage or exercise the part to be treated.

12. The combination with massage elements and flexible air conducting means
 65 leading thereto, of an actuator including adjacent cylinders having coupling means thereon communicating with said air conducting means, pistons in said cylinders, an
 70 air supply for the cylinders, and means for alternately actuating the pistons, substantially as described.

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

WILLIAM C. J. GUILFORD.

Witnesses:

JOHN W. SHIELDS,

CHARLES A. LEAVITT.