No. 778,896. PATENTED JAN. 3, 1905.

I. RHODES.

PNEUMATIC MASSAGE APPARATUS.

APPLICATION FILED NOV. 20, 1903.

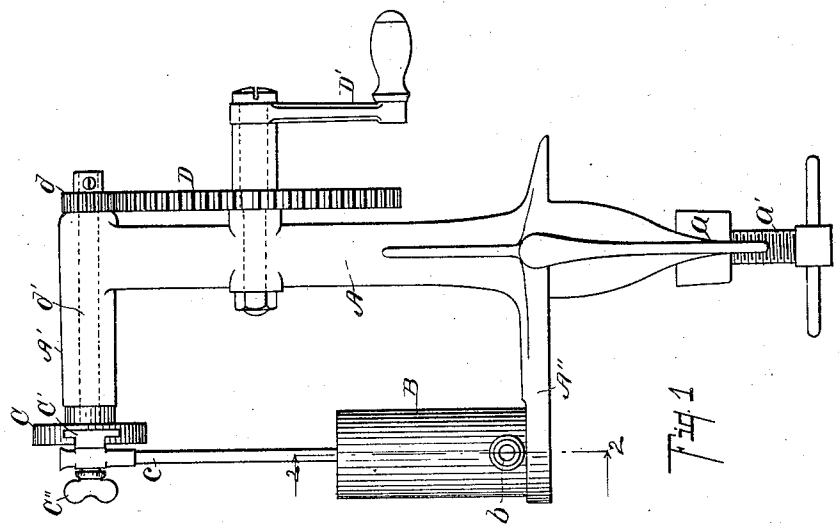

Fig. 1

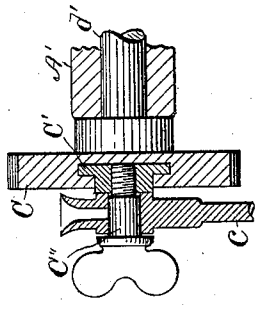

Fig. 5

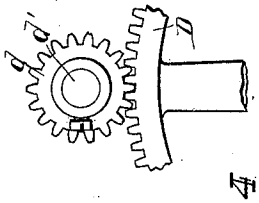

Fig. 4

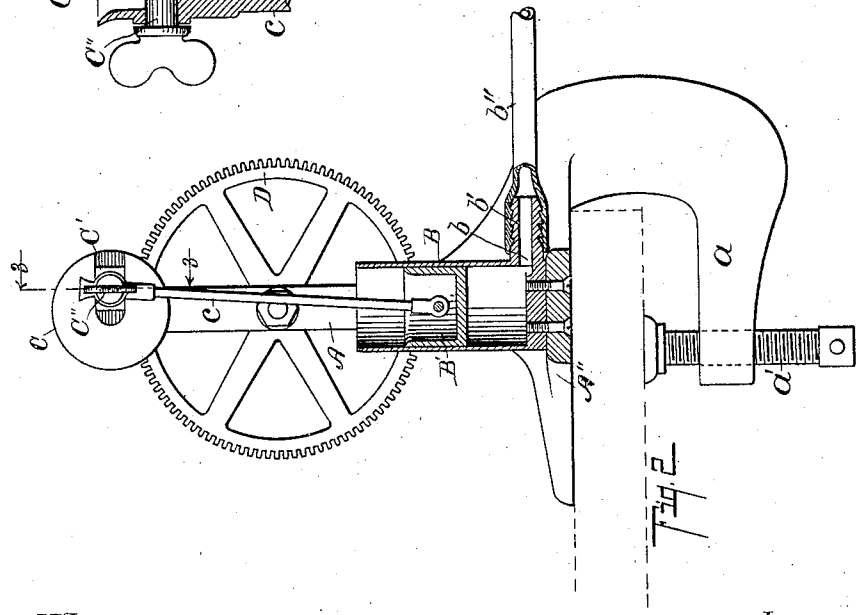

Fig. 2

Witnesses:

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Att'y.

No. 778,896. Patented January 3, 1905.

UNITED STATES PATENT OFFICE.

IRVIN RHODES, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO OLIVER A. LA CRONE, OF KALAMAZOO, MICHIGAN.

PNEUMATIC MASSAGE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 778,896, dated January 3, 1905.

Application filed November 20, 1903. Serial No. 181,946.

To all whom it may concern:

Be it known that I, IRVIN RHODES, a citizen of the United States, residing at the city of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented certain new and useful Improvements in Pneumatic Massage Apparatus, of which the following is a specification.

The invention relates to improvements in pneumatic massage apparatus.

The objects of this invention are, first, to provide an improved massage apparatus by which air-pressure and vacuum treatment may be given in an effective and convenient manner; second, to provide an improved pneumatic massage apparatus in which the force and the rapidity of the pulsations are under perfect control; third, to provide an improved pneumatic massage apparatus which is simple in structure, economical to produce, and durable, easy, and convenient to use.

Further objects and objects relating to structural details will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation view of my improved pneumatic massage apparatus. Fig. 2 is an end elevation view looking from the left of Fig. 1, partially in section, on a line corresponding to line 2 2 of Fig. 1, showing structural details. Fig. 3 is an enlarged detail sectional view taken on line 3 3 of Fig. 1, showing the details of the adjusting means. Fig. 4 is an enlarged detail view of the driving-gear.

Referring to the lettered parts of the drawings, the frame or standard A is provided with a clamp *a*, having the usual clamping-screw *a'*, so that the structure may be readily secured to a table or other suitable support. The standard A is provided with a laterally-projecting arm A' at the top and a laterally-projecting base A'' at the bottom, arranged one above the other.

Mounted in an upright position on the base A'' is an open-ended cylinder B, having a delivery-port *b* at the bottom. Within the cylinder B is a cup-shaped plunger B', preferably of metal, to which the pitman *c* is pivotally secured. The pitman *c* is adjustably secured to the head or wheel C, so that the length of the stroke of the plunger may be regulated.

The wheel or head C is provided with a radial dovetailed slot adapted to receive the block C', to which the pitman C is secured. The bearing-pivot C'' for the pitman is screw-threaded at the inner end to clamp the block C' in its adjusted position in the slot. The pivot-bolt C'' is provided with a suitable thumb-piece on its outer end.

The wheel or head C is mounted on the shaft *d* of the driven gear *d*. The shaft *d'* is arranged through the arm A', which forms a suitable bearing and a support therefor. The gear *d* is driven by the gear D, which is considerably larger than the gear *d*, so that the gear *d* may be driven rapidly with little movement by the operator.

When in use, a suitable tip-piece is secured to the conducting-tube *b''*, which is attached to the delivery-nozzle *b'* of the cylinder. The operation of the apparatus produces a succession of alternate compressions and rarefactions of the air. The force of the pulsations is regulated by the adjustment of the stroke of the plunger. This is of great advantage, as the particular requirements of the case in hand may be suited. The rapidity of the pulsations is also under the control of the operator.

While my improved apparatus is particularly valuable for the treatment of diseases of the ear, it is evident to those skilled in the treatment of diseases that it is desirable for use in the treatment of all diseases where a massage or vibrating action is desirable.

I have illustrated and described my improved pneumatic massage apparatus in the form preferred by me on account of economy in manufacture and simplicity and conven-

ience in use. I am aware, however, that it is capable of very great structural variation without departing from my invention.

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

1. In a pneumatic massage apparatus, the combination of a frame; an open-ended cylinder B, having a delivery-nozzle b' at the base thereof; a plunger B′ therein; a pitman c pivotally secured to said plunger; a shaft d'; a head C on said shaft, having a radial, dovetailed slot therein; a block C′ in said slot; a pivot-pin for said plunger, carried by said block, and adapted to secure said block in its adjusted position; a pinion d on said shaft; a driving-gear D; and a suitable crank, all coacting for the purpose specified.

2. In a pneumatic massage apparatus, the combination of a frame; an open-ended cylinder B, having a delivery-nozzle b' at the base thereof; a plunger B′ therein; a pitman c pivotally secured to said plunger; a shaft d'; a head C on said shaft, having a radial, dovetailed slot therein; a block C′ in said slot; a pivot-pin for said plunger, carried by said block, and adapted to secure said block in its adjusted position; and means for driving said shaft, all coacting for the purpose specified.

3. In a pneumatic massage apparatus, the combination of a suitable frame; a cylinder; a plunger therein; a pitman c pivotally secured to said plunger; a shaft d'; a head C on said shaft, having a radial, dovetailed slot therein; a block C′ in said slot; a pivot-pin for said plunger, carried by said block, and adapted to secure said block in its adjusted position; and means for driving said shaft, for the purpose specified.

4. In a pneumatic massage apparatus, the combination of a suitable frame; a cylinder; a plunger; a pitman; a shaft; a head on said shaft having a radial slot therein; a block arranged in said slot; a pivot-pin for said plunger, carried by said block and adapted to secure said block in its adjusted position, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

IRVIN RHODES. [L. S.]

Witnesses:

A. IRENE ADAMS,

OTIS A. EARL.