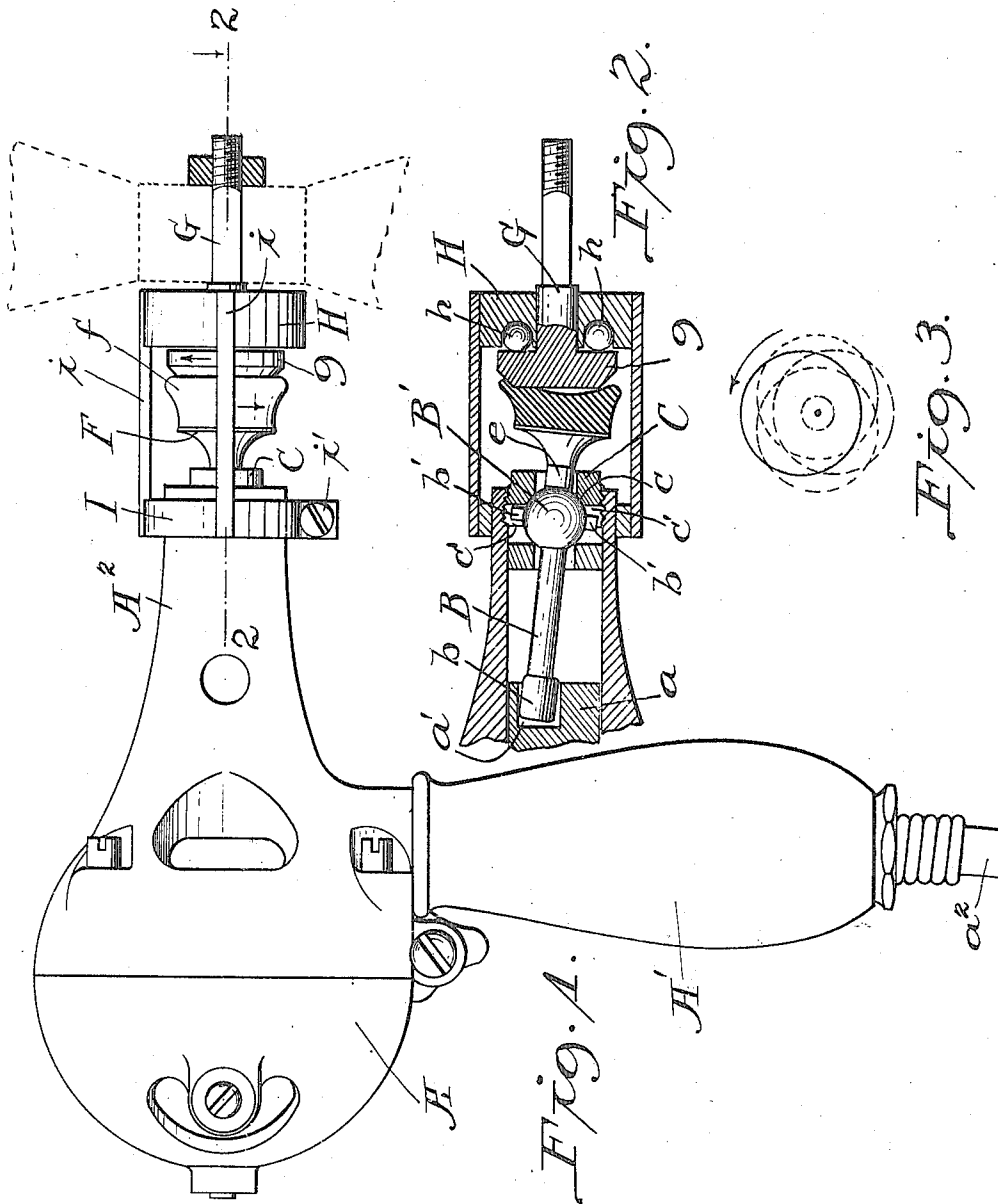


C. B. LAWLOR.
 ATTACHMENT FOR ELECTRIC VIBRATORS.
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WITNESSES:

Cornelius Gabriskie
 Agnes C. Carney

INVENTOR
 Charles B. Lawlor.

BY

Jas. H. Griffin

Attorneys

UNITED STATES PATENT OFFICE

CHARLES B. LAWLOR, OF NEW YORK, N. Y.

ATTACHMENT FOR ELECTRIC VIBRATORS.

1,232,937.

Specification of Letters Patent.

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Application filed November 7, 1913, Serial No. 799,746. Renewed June 5, 1917. Serial No. 173,056.

To all whom it may concern:

Be it known that I, CHARLES B. LAWLOR, a citizen of the United States, residing in the city of New York, borough of Manhattan, county of New York, and State of New York, have invented a certain new and useful Attachment for Electric Vibrators, of which the following is a specification.

This invention is an attachment and the object of the invention is to provide an attachment whereby a vibrator of the style now in general use may be utilized to operate a fan, blower, rotary mixer, or for that matter to transmit rotary motion to any desired tool or implement attached thereto.

With the foregoing objects in view, a salient feature of the present invention consists in the provision of means for transforming the vibratory motion transmitted by the vibrator into a simple revolving action.

Figure 1 is an elevation of a vibrator illustrating one form of the attachment of the present invention secured in coöperative position thereon.

Fig. 2 is a central section taken on line 2—2 of Fig. 1.

Fig. 3 is a diagrammatic view showing the path traversed by the operating cap of the vibrator, illustrated in Fig. 1, it being desired in this figure to show that said cap operates with an eccentric movement without revolving on a longitudinal axis.

Referring to the drawings, A indicates a vibrator of any well-known form, shown as one of the type operated by an electric motor positioned within the casing of the vibrator, and to which motor the energizing wires, a^2 , are led by way of a handle, A' , of the vibrator.

The vibrator has a reduced shank, A^2 , into which extends the armature shaft, a , of the motor. The end of the armature shaft, a , is provided with a seat or pocket, a' , in which is adapted to be positioned the butt, b , of a liner, B, the opposite end of which is provided with a ball, B' , having oppositely placed laterally extending trunnions, b' . The interior of the reduced shank, A^2 , of the vibrator is interiorly threaded near its outer end for the purpose of receiving a plug, C, which plug is provided with a bearing surface, c , adapted to be engaged by the ball, B' , on the liner, B, and has, moreover, a pair of oppositely positioned slots, c' , for the reception of the trunnions, b' .

Formed integral with the ball, B' , and diametrically opposite from the point thereon wherein the liner, B, joins said ball, is a lug, e , which is secured to the base plate, F, of the cap, f . In most vibrators now in use, this cap is of some resilient material such as rubber or the like, so that it will have a cushioning effect when used for face or body massage.

It will be noted from an inspection of Fig. 2 of the drawing that the pocket, a' , in the end of the armature shaft is positioned off center, with the result that, as the motor operates under the influence of the current passing through the wires, a^2 , the butt, b , of the pitman will be caused to travel in a circular path. It will be manifest, however, that since the trunnions, b' , are positioned in the slots, c' , of the stationary plug, C, all rotation of the pitman is precluded and the path of travel of the resilient cap, f , will be of corresponding nature to the path of the butt, b , of the pitman, *i. e.*, it will travel or gyrate in a circular path, but will be precluded from revolving by the trunnion, b' .

To transform this circular movement into one of axial rotation, I mount a spindle, G, in alined relation with the armature shaft, a , and position upon the end adjacent to the cap, f , the knob, g . The spindle, G, is mounted in a bearing member, H, which is fixedly secured to a split ring, I, by means of tie members, i , and the whole may be securely mounted in fixed relation to the vibrator by passing the split ring, I, over the shank, A^2 , until the knob, g , comes into engagement with the resilient cap, f , whereupon, the screw, i' , may be tightened to draw the split ring, I, tightly about the shank, A^2 , of the vibrator. When properly positioned, the knob, g , should engage the cap, f , under slight pressure so that no matter what position said cap may take during its operation, the knob will always be in engagement therewith, see Fig. 2. The end-thrust on the spindle occasioned by this pressure is properly taken care of by positioning a plurality of ball-bearings, h , in a ball race provided in the interior face of the bearing member, H, in such position that said balls will engage with the face of the knob, g .

When the parts hereinbefore described are properly positioned, relative to one another, as aforesaid, the operation of the motor will cause the armature shaft to revolve;

the butt, *b*, of the pitman will be given an eccentric movement, which movement will be transmitted from the pitman to the resilient cap; and this eccentric movement of the cap, *f*, will cause the knob, *g*, to be rotated, and thus rotate the spindle, *g*. Manifestly, by properly securing a fan, drill, or other implement requiring rotary motion on the spindle, *G*, such rotation of such spindle may be utilized to operate said devices or implements.

It has been demonstrated, through numerous experiments that the motion transmitted to the spindle by the cap is opposite in its nature from that of the cap, *i. e.*, if the cap is traveling in a circular path in a counter-clockwise direction, the resulting rotation of the spindle will be clockwise.

I have shown in dotted lines in Fig. 1 the manner in which a fan may be positioned on the spindle, *G*, yet, when I employ the present invention to operate a drill, I screw a chuck upon the threaded portion of said spindle. It will thus be seen that any number of devices may be employed in combination with the present invention. For example, I have found that in combining my improved attachment with the several forms of vibrators now in use, I get very good results from revolving fans for drying the hair, or other substances, or for cooling rooms. Moreover, revolving mixers or egg beaters for bar rooms, etc., may be constructed in a few moments from a stock vibrator by the application of my attachment.

The invention has been shown in the drawings as adapted to a specific form of vibrator. It will be understood that the

attachment coöperates with said vibrator to produce a new mechanical result, viz., the transmitting gyrating motion in one shaft to rotation of a second shaft, in substantial alinement with the first mentioned shaft by friction means, which rotation will be in an opposite direction to the direction of gyration of the first mentioned shaft.

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

1. In an attachment of the class described, a bearing plug, a shaft mounted for rotation therein and provided at one of its ends with a rigid knob, in combination with a casing, a resilient cap mounted for gyrating movement upon the casing, and means secured to the bearing plug and coöperating with the casing for maintaining the rigid knob in engagement with the resilient cap.

2. In an attachment of the class described, a bearing plug, a shaft mounted for rotation therein, and a driving element at one end of said shaft, in combination with an attaching member positioned in substantial alinement with the bearing plug and its shaft, which attaching member is adapted to rigidly engage with a support, and spacing means secured at its opposite ends to the bearing plug and attaching member respectively for maintaining said parts in rigid spaced relation.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES B. LAWLOR.

Witnesses:

JAS. H. GRIFFIN,
CORNELIUS ZABRISKIE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."