

W. F. LAY.  
 MASSAGE VIBRATOR.  
 APPLICATION FILED OCT. 19, 1912.

1,094,663.

Patented Apr. 28, 1914.

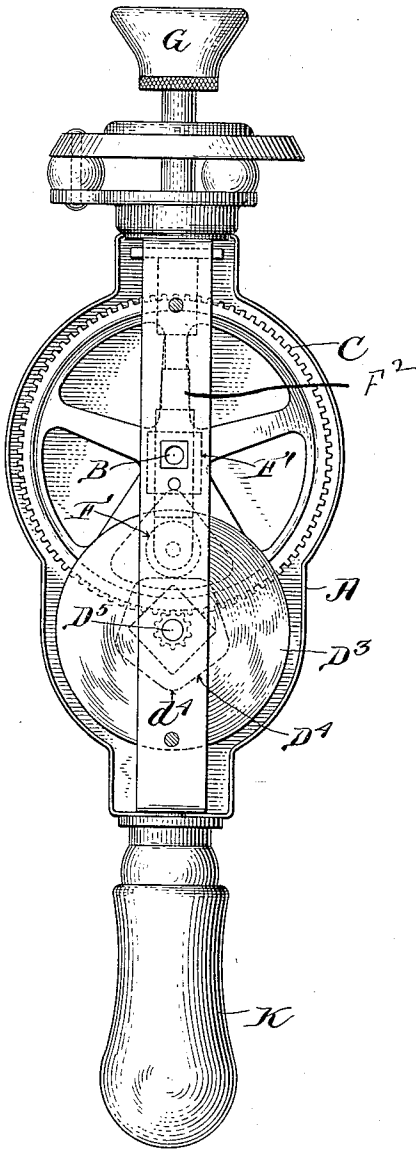


Fig. 1.

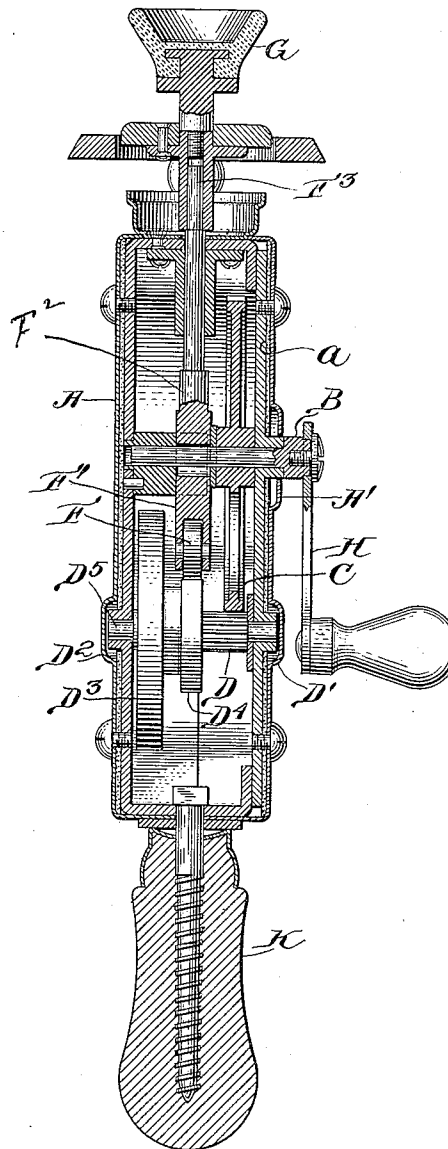


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## MESSAGE-VIBRATOR.

1,094,663.

Specification of Letters Patent.

Patented Apr. 28, 1914.

Application filed October 19, 1912. Serial No. 726,635.

*To all whom it may concern:*

Be it known that I, WILLIAM FRANCIS LAY, a citizen of the United States, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Massage-Vibrators, of which the following is a specification.

My invention relates to massage vibrators and consists in improvements whereby an instrument of this character may be made nearly silent, easy to operate and susceptible of instant adjustment of variation in the amplitude and force of its vibratory movements.

In particular the object of these improvements is to provide a massage vibrator easily operated by hand.

In the drawings hereto annexed, which illustrate my improvements, Figure 1 is a plan view of the interior of a massage vibrator, one side of the casing being removed; and Fig. 2 is a side view of the interior mechanism.

The mechanism is inclosed in a casing A which is of such size and proportion that it may be grasped by one hand, and which is provided with an operating handle K which may be used to hold and guide the instrument if preferred.

Power may be furnished to the working parts in various modes; by preference, a crank handle H is provided, since the instrument requires comparatively little effort to operate it, and variations in frequency of vibrations can most readily be made when the instrument is worked by hand. The crank handle H is secured to the short shaft B which is journaled in the case at A' and which carries the large spur gear C, within the case. The pinion D, fast to the shaft D<sup>5</sup>, (journaled in the case at D' and D<sup>2</sup>) meshes with the gear C. The fly wheel D<sup>3</sup> and cam D<sup>4</sup> are also fast to the shaft D<sup>5</sup>. The cam D<sup>4</sup> is provided with a plurality of salient portions  $d^4$  and coöperates with a follower which, in the specific example herein shown comprises a follower roll F, rotatably mounted in the fork F' on the bar F<sup>2</sup> which is mounted to reciprocate in guides and projects through the end of the case to allow massaging instruments such as the rubber cup G to be removably attached to the shaft, said instruments being made of soft rubber or have soft rubber connections between their active surfaces and their at-

tachment to the follower to form in each instance an elastic cushion to transform the sharp blow or impact of the cam on the follower into a pushing movement which gradually increases or decreases in intensity due to the elasticity of said cushion.

The details and proportions of the above described mechanism can of course, be varied; suitable specifications are as follows: The gear ratio between the gear C and pinion D is about ten to one, the fly wheel D<sup>3</sup> is made of metal, with as heavy a rim as can conveniently be provided, and the cam D<sup>4</sup> has five salient portions  $d^4$ . With this specific arrangement a single full rotation of the handle H may impart about fifty vibrations to the instrument G. As the massage vibrator will usually be employed to treat persons in poor health or of nervous disposition, it is highly advisable to render its operations as noiseless as possible. To this end the parts subjected to impacts are constructed in part at least of non-metallic, sound-deadening material. The parts referred to are, the cam D, follower roll F, and shaft F<sup>2</sup>. All of these may be of hard wood, or compressed fiber, or other sound-deadening material; or the cam may be of metal, and the follower roll and bar of sound-deadening material. In order to avoid grooving the cam or follower roll the two are made of the same thickness. When the handle H is being turned at normal speed, if there is no pressure on the implement to force the follower toward the cam, the follower, being freely mounted in relation to the cam, and not urged toward the cam by springs or otherwise held in operative contact therewith, stands inoperative, since the cam salients  $d^4$  will at once throw the follower out of operative relation with the cam. Thus, while there is no work to be done by the vibrator implement G, there is no wear on the follower or any of its parts, nor even the slight noise occasioned by contact between the cam and follower. But the instant the implement G is pressed against the body of a person to be treated, it is vibrated by the cam D<sup>4</sup>, the follower roll F being brought into operative relation with the cam by the act of pressing the implement G against the body of the patient. Vibration is imparted to the implement G only when it is required. The vigor or violence of the treatment may be increased or diminished simply by increasing

or diminishing the pressure of the implement G against the body; the adjustment of the instrument to the conditions required is instant and responsive to simple variations in pressure. In order further to deaden the sound emitted from the working parts it is advisable to line the casing with some sound-absorbing material, such as felt, rubber cloth, or the like, as shown at *a*.

The mode of operation of my invention will now be understood; as above indicated, it involves merely the application of the massage implement G to the body of the patient, and rotation of the handle H. To increase speed, increase the effort on the handle H, to increase vigor of vibration, press more heavily against the patient's body with the massaging implement. Penetration of vibratory effect is accomplished by increased vigor of vibration, which is usually desirable.

What I claim and desire to secure by Letters Patent is:

1. In a massage vibrator, the combination with a cam, and means for rotating the cam, of a cam-operated floating follower adapted to carry a massage tool upon its outer end, the follower being freely mounted whereby the same may be applied to the body without pressure and whereby the amplitude and force of the vibratory movements of the follower may be regulated by

the movement of the vibrator toward and from the body.

2. In a massage vibrator, a casing, a cam in the casing, means for rotating the cam, a cam-operated follower mounted to slide longitudinally and freely through the casing and adapted to carry a massage tool upon its outer end, and a handle on said casing whereby to manually support the latter in proximity to the body and hold said massage tool near the body without exerting pressure thereon, said casing being advanced toward and receded from the body to the desired degree whereby to move the inner end of the follower toward and from the axis of the cam to thus increase and decrease the vibratory impulses imparted by the cam.

3. In a massage vibrator, a rotating cam, and a cam actuated floating follower adapted to carry a massage tool, the follower being freely mounted whereby the amplitude and force of the vibratory movements of the follower and said tool are regulated and determined solely by the pressure of the tool against the body.

Signed by me at Boston, Massachusetts, this 8th day of October, 1912.

WILLIAM FRANCIS LAY.

Witnesses:

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