No. 775,813. PATENTED NOV. 22, 1904.

A. FORNANDER.

BEATER OR MOVEMENT APPARATUS.

APPLICATION FILED APR. 12, 1904.

NO MODEL.

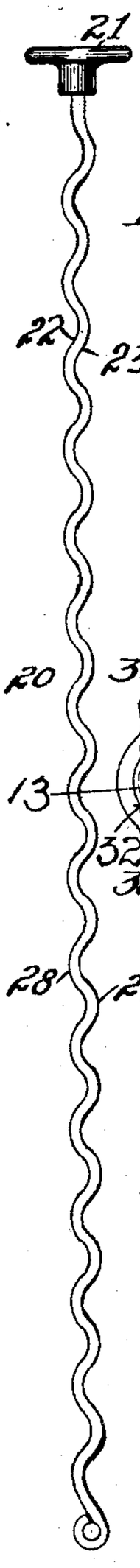

Fig. 4.

Fig. 7.

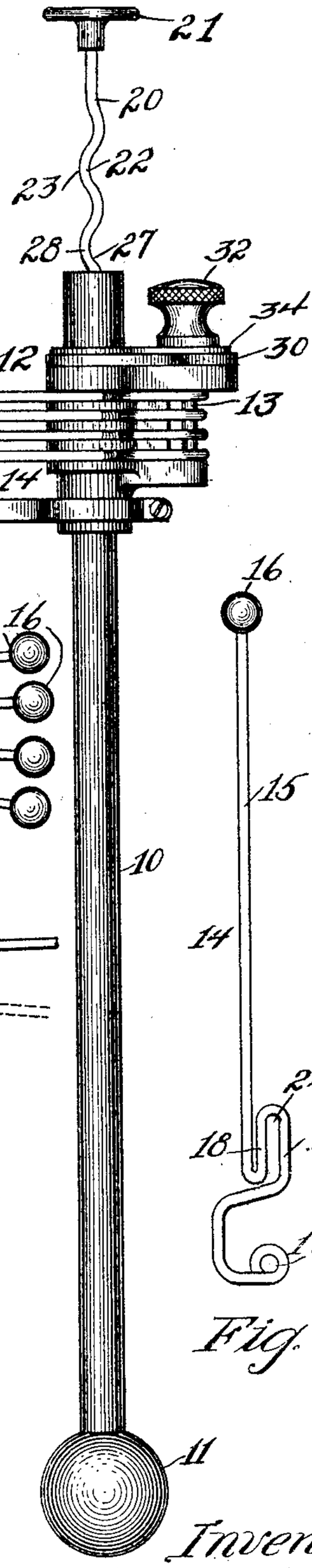

Fig. 1.

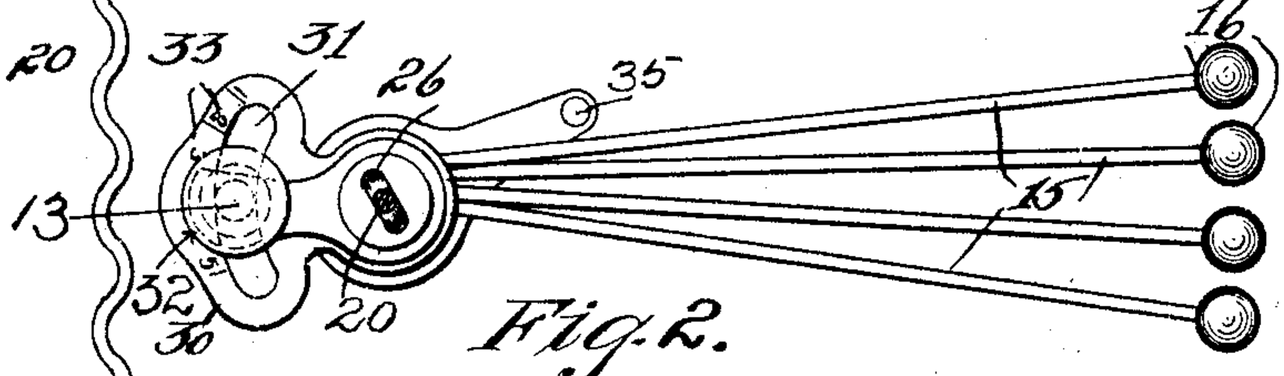

Fig. 2.

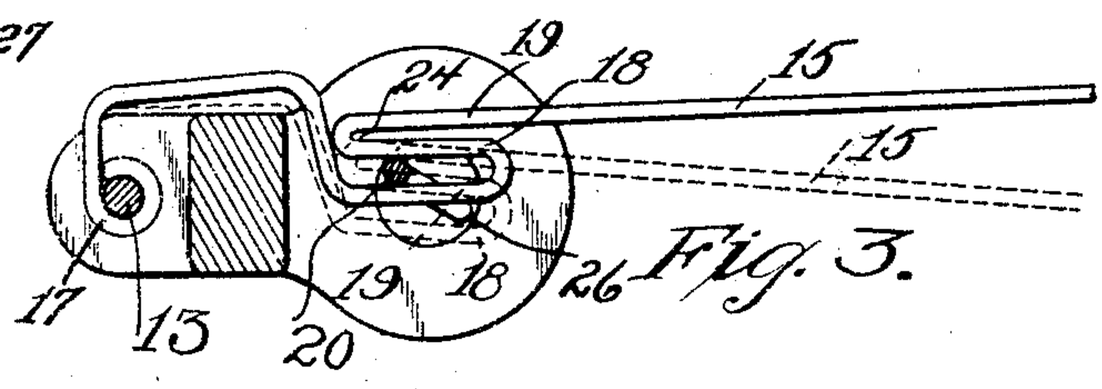

Fig. 3.

Fig. 5.

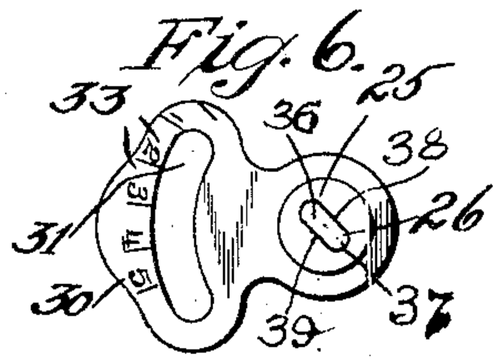

Fig. 6.

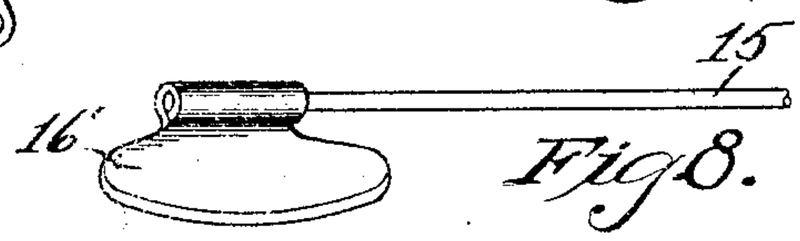

Fig 8.

Witnesses:
Fred. E. Maynard.
Robert Adt

Inventor:
Alfred Fornander;
By his Attorney,
F. A. Richards.

PHOTO LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 775,813. Patented November 22, 1904.

UNITED STATES PATENT OFFICE.

ALFRED FORNANDER, OF NEW YORK, N. Y.

BEATER OR MOVEMENT APPARATUS.

SPECIFICATION forming part of Letters Patent No. 775,813, dated November 22, 1904.

Application filed April 12, 1904. Serial No. 202,747. (No model.)

To all whom it may concern:

Be it known that I, ALFRED FORNANDER, a subject of the King of Sweden and Norway, residing in Manhattan borough, New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Beaters or Movement Apparatus, of which the following is a specification.

This invention relates to and has for an object to provide an improved beater or movement apparatus.

A device made in accordance with the present improvement will generally have a number of members carried by arms capable of actuation, whereby the same may be rapidly moved within predetermined limits. The invention may be employed for a muscle-beater or massage device, and in any instance the members carried by the arms will be constructed for the use to which they are to be put.

In the drawings accompanying and forming a part of this specification, Figure 1 is a top view of the device. Fig. 2 is an end view with the actuator shown in cross-section. Fig. 3 is a cross-section taken between two beater-arms of Fig. 1 and is on an enlarged scale. Fig. 4 is a side view of the actuator removed. Fig. 5 is a side view of one of the arms and its reaction-faces. Fig. 6 is a detail of a gage or setting device. Fig. 7 is a perspective view of an index, and Fig. 8 illustrates a form of adaptation of the invention in a food-chopper.

By this improved construction a number of members may be rapidly moved to produce a beating either upon the muscles for massaging or upon any other surface which it may be desired to subject to the action of the beaters.

As herein illustrated, the device may be carried by and partly within a suitable housing 10, which in the present instance is shown as a tube which may have an end closure 11 in the form of a sphere larger in circumference in the present instance than the circumference of the tube 10, thus affording a protector and closure. Upon the opposite end of the tube a frame (designated in a general way by 12) is illustrated and which frame in the present instance carries a pin 13, constituting a pivot upon which the beaters (designated in a general way by 14) are mounted. Such beaters may be made of wire and are each illustrated as constituting a main portion 15, which may be called an "arm" and shown as substantially straight and each of which carries a beating member or head 16. The beater at its extreme end is provided with an eye 17, surrounding the pivot.

The wire of the beater is bent back upon itself to form a pair of engaging or reaction faces 18 19, which portion of the beater enters into the chamber of the body portion 10. The actuator in the present instance (designated in a general way by 20) has a plurality of oppositely-directed cams and may be formed of a sinuous wire having an operating-handle 21 on the end. The wire is located in the portion of the beaters which is bent back to constitute the engaging faces 18 19 and will engage the same in its movement when reciprocated. The actuator when a wire may be regarded as having a plurality of cam-faces 22 23, which alternately engage the faces 18 19 and cause the beaters to rise and fall in rapid succession, both the rise and the fall being positive in the present instance. The actuator has two cam-face sides and two flat sides—that is, two sides in which the wire lies in one plane, but sinuously disposed in such plane. The movement of the arms is produced by the reciprocation of the actuator upon a straight line transverse to the plane of movement of the arms.

The limit of the angular movement of the beaters will be determined by the relative angular position of the sinuous wire—that is, assuming that the sinuosities thereof are upon the same plane. By shifting such plane relative to the opening 24 between faces 18 19 the extent of the movement of the beaters in each direction will be regulated. By turning the actuator so that it will pass through the opening 24 in the normal plane thereof there will be no movement of the vibrators or beaters, and by turning the actuator so that its plane will be transverse to the plane of such opening 24 the maximum of movement of the beaters will be had and the intermediate movements may be produced by the various inter-

mediate positions, as will be apparent. Such angular adjustment of the plane of the actuator may be had by a guide 25, mounted on the frame 12, and which guide has an opening 26, adapted to receive the actuator, and the ends 36 37 of such opening will act as bearing-surfaces for the outer edges 27 28, of the sinuous actuator, whereby the same will be held to its work. Such outer edges 27 and 28 are the summits, as it were, of the cam or reaction faces 22 23, and in the form shown such "edges" will respectively occupy two parallel lines and the sides 38 39 of the guide engage the flat sides of the actuator, so that upon rotating the guide the actuator will be rotated. A gage may be employed in connection with the guide and as a means to move and set the same and is shown as a plate 30, having a segmental opening 31 running upon the pivot 13, which pivot may be provided with a knurled head 32 for ready actuation, and also provided with a screw-thread. The plate may also be provided with a scale 33 to indicate, in connection with an index 34, the various positions of the plane of the actuator. By this means the plane of the actuator may be shifted as desired and set in its adjusted position. A back stop 35 may be provided for the arms to prevent the overthrow and to assist in returning them to their work on the return stroke.

In Figs. 1, 2, and 5 the beating members are shown as spheres, which may be readily adapted for use in treating the human body for various ailments, as is well known. If it is desired to use the principle of the invention for other beating purposes than beating the human body, heads adapted for the special employment will be applied, and in Fig. 8 a head 16′ is shown in the form of a chopper, whereby the device may be adapted for use as a culinary implement. This change in the form of beater is shown rather as a suggestion than a limitation, and it will be apparent that the apparatus may be modified to suit the requirements of practice, and the various employments in which it is capable of being placed will determine the form of head. The cams may be so disposed that but one beater will be at the extreme of its stroke at a time and that a uniform and sequential motion will be imparted to them from the actuator.

Having thus described my invention, I claim—

1. In a beater, the combination with a frame, of a number of beaters each having a head and an arm pivoted to such frame and engaging or reacting faces oppositely disposed upon each arm; and a reciprocatory actuator controlled in its movement relative to the pivot, and having oppositely-disposed sinuous faces to engage said reaction-faces in its reciprocatory movement.

2. The combination with a frame, of a sinuous wire having sinuosities projecting in opposite directions and all of such sinuosities occupying the same plane; a pivot carried by the frame; a number of beater-arms pivoted thereto and each having a pair of oppositely-disposed reaction-faces and engaged by such sinuous actuator whereby upon the reciprocation of the actuator angular movement will be imparted to the beater-arms; and means for shifting the plane of the actuator relative to the pivot whereby the length of stroke of the beater-arms will be regulated.

3. In a beater the combination with a number of pivoted beater-arms each having an opening narrower than it is long the walls of said opening upon the long sides constituting engaging or reaction faces, an actuator composing a crimped wire forming a number of cams having a thickness adapted to enter such opening in the beater-arms and the extremes of the cams one from the other being sufficient to enter the said opening lengthwise, and a handle for the actuator.

4. In a device of the character specified, the combination with a housing, of a closure at one end thereof constituting a knob; a number of beater-arms pivoted to the other end of the housing and projecting transversely therefrom, each beater-arm having an engaging face within the housing; and an actuator comprising a sinuous wire engaging such faces and entering the housing and adapted upon its reciprocation to vibrate the arms.

5. In a device of the character specified, the combination with a housing, of a number of beater-arms pivoted to one end of the housing and projecting transversely therefrom; each beater-arm having an engaging face within the housing; an actuator comprising a sinuous wire engaging such faces and entering the housing and adapted upon its reciprocation to vibrate the arms; a guide for said actuator adapted for embracing the flat faces thereof; and means to shift such guide to vary the throw of the cams.

6. In a beater, the combination with a hollow tubular housing, of a number of beaters pivoted to one end of the housing, each beater having a pair of faces within the housing; an actuator comprising a number of cams adapted to engage the respective faces of the beater-arms; a guide located within the housing and carrying said actuator; means to adjust the guide to vary the position of the actuator; an index to indicate the position thereof; means to lock the guide in its position of adjustment; and a back stop for the beater-arms.

7. In a device of the character specified, the combination with one or more pivoted beater-arms having engaging faces, of an actuator having a plurality of coöperative engaging faces and adapted to reciprocate on a line substantially transverse to the plane of movement of said arm or arms.

8. The combination of a frame; a sinuous actuator reciprocatory upon the frame; a num-

ber of arms pivoted to the frame and engaging such actuator whereby, upon the reciprocation thereof angular movement will be imparted to the arms; and means to rotate the actuator on its line of reciprocation to adjust the amount of such angular movement.

9. The combination with one or more pivoted beater-arms, of an actuator therefor comprising a bar having upon it a plurality of oppositely-disposed cams; oppositely-directed faces upon the beater-arm or arms for engagement therewith; a guide carrying such actuator; means to rotate the guide to adjust the throw of the cams; and means to lock the same in its adjusted position.

10. A beater comprising a casing; a sinuous wire within the casing, one or more beater-arms pivoted to the casing and engaging such sinuous wire whereby upon the reciprocation of the wire angular movement will be imparted to the beater-arms.

11. In a movement apparatus, the combination with a housing constituting a handle for the apparatus, of one or more vibratory arms carried by the housing, actuator-guides in said housing, an actuator reciprocatory upon said guides in substantially a straight line transverse to the plane in which said arm or arms vibrate for vibrating the same, and a handle carried by the actuator.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 9th day of April, 1904.

ALFRED FORNANDER.

Witnesses:

CHAS. LYON RUSSELL,

JOHN O. SEIFERT.