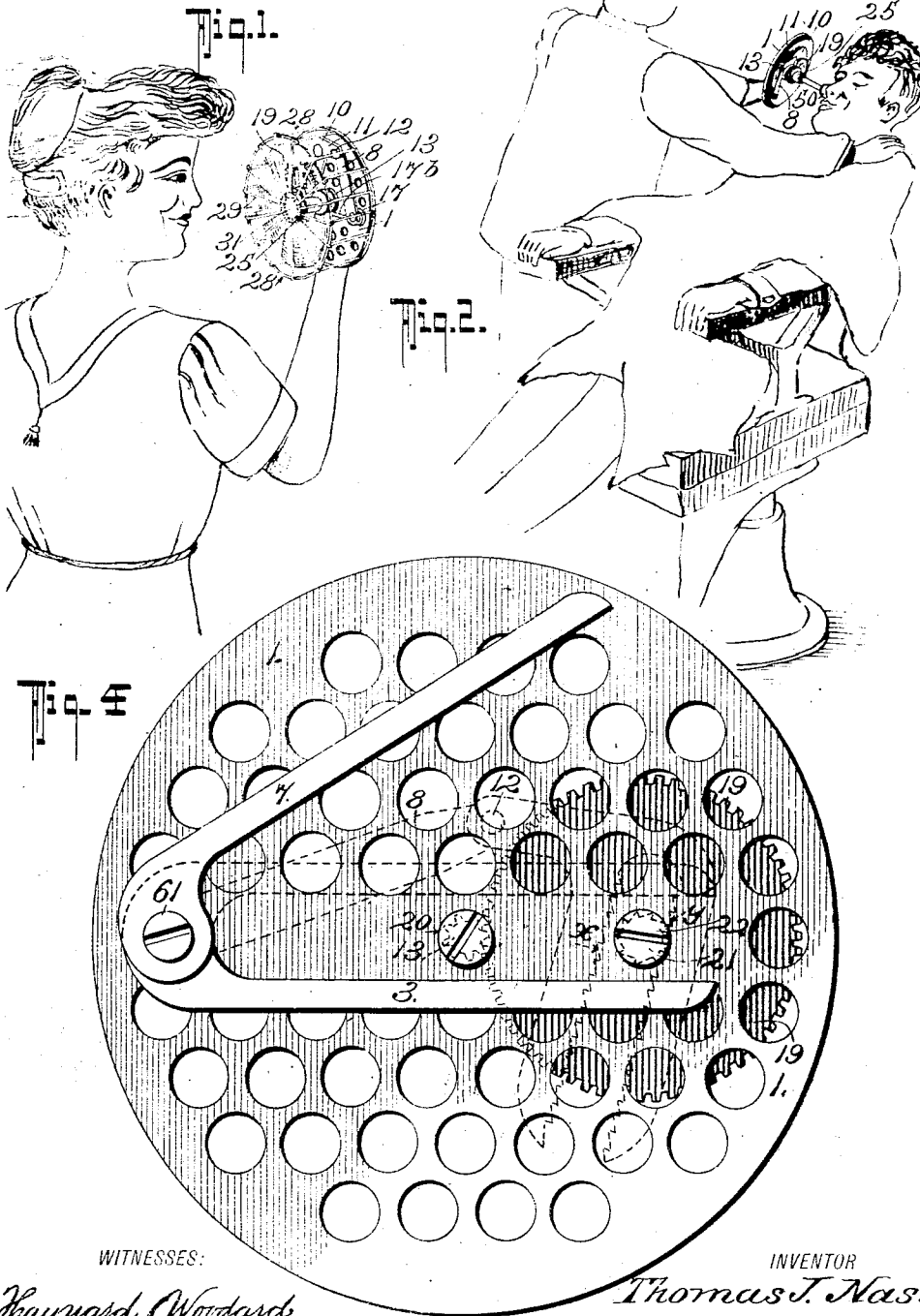


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 COMBINED FAN AND VIBRATOR ACTUATING MEANS.
 APPLICATION FILED NOV. 27, 1911

1,059,750.

Patented Apr. 22, 1913.

2 SHEETS—SHEET 1.



WITNESSES:

Hayward Woodard

Robert M. Greenwell

INVENTOR

Thomas J. Nash

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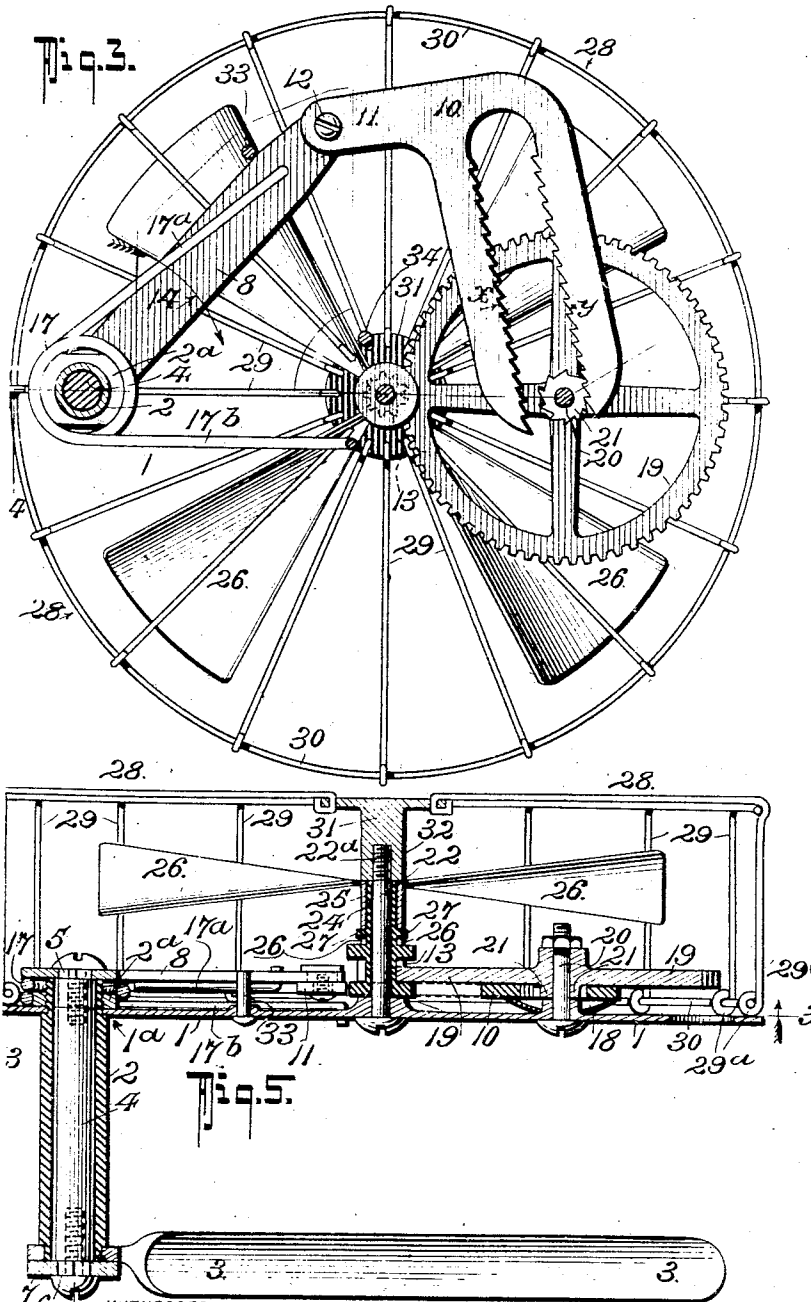
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UNITED STATES PATENT OFFICE.

THOMAS J. NASH, OF LINCOLN, NEBRASKA.

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Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed November 27, 1911. Serial No. 662,594.

To all whom it may concern:

Be it known that I, THOMAS J. NASH, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and Improved Combined Fan and Vibrator Actuating Means, of which the following is a specification.

My invention is an improved means operable by hand for actuating a fan, a vibrator, or other device, and it primarily has for its object to provide an appliance of the general character stated that can be easily and conveniently operated, that can be quickly changed from a fan to a vibrator, for medical, or other purposes.

This invention further has for its object to provide an appliance as stated, of a simple and inexpensive character in which the several coöperative parts are so designed that they can be readily assembled for use and for being conveniently handled and effectively applied for the intended purposes.

With other objects in view, my invention comprises generally a rotary shaft adapted for carrying a fan, a vibrator, or other device, a hand pressed lever, a reversely rotatable shaft, rotatable in one direction under action of the hand lever, and reversely rotatable under spring action, and means including an automatically shiftable gear mechanism for imparting a continuous high speed rotation in one direction to the fan or vibrator carrying shaft.

In its more subordinate features my invention embodies the peculiar construction and novel arrangement of the parts herein-after fully described, specifically pointed out in the appended claims, and illustrated in the accompanying drawings, in which:

Figure 1, is a perspective view of my invention, the same being adjusted for operating a fan. Fig. 2, is a similar view showing it adjusted as a vibrator. Fig. 3, is a longitudinal section of the appliance shown in Fig. 1. Fig. 4, is a front view thereof, the hand lever being shown to its closed-in position in dotted lines. Fig. 5, is a horizontal section of the actuating mechanism taken substantially on the line 4—4 on Fig. 3, the fan guard being omitted.

In the practical arrangement my invention embodies a suitable supporting frame including a front plate 1, preferably of circular shape and provided with a large num-

ber of perforations for lightness and a free circulation.

2 designates a tubular member that projects from one edge of the front plate, it having a tenon that fits in an aperture 1^a in the plate 1 and is secured by the threaded washer 2^a. The tubular member is stationary with respect to the front plate and on the outer end thereof is fixedly held a handle 3 that extends at right angles from the tubular member 2 and in a plane parallel with the front plate 1.

4 designates a solid shaft that is rockably mounted on the tubular member 2 and the opposite ends 5 and 6 are square to respectively receive an oscillatory lever 8, and an operating lever 7, the latter being held on the outer end 6 of the shaft 4 by the screw bolt 61, as is clearly shown in the drawing.

By reason of mounting the lever 7 and the stationary handle 3 in the manner shown and described, the operator by closing the lever 7, under hand pressure, toward the handle 3, rocks the shaft 4 in one direction, see arrow 14, for actuating the power transmitting means, in one direction.

The power transmitting means, the construction of which is best shown in Fig. 3, includes the lever arm 8 fixedly mounted on the inner end of the shaft 4 to rock with the said shaft in the direction indicated by the arrow 14, under the hand lever action before stated, and to be rocked with the said shaft 4 in the opposite direction under the action of the spring 17 that coils about the inner end of the tube 2, one arm 17^a of which is secured to the member 8 and the other arm 17^b of which is made fast to the inside of the front plate 1.

19 designates a main drive gear journaled upon a stud axle 20 mounted in the front plate and formed with a ratchet hub 21 to which a continuous rotary motion in one direction is imparted by the double ratchet rack member 10 which includes a bifurcated portion having the oppositely faced ratchet teeth *x—y* on their adjacent inner faces, which alternately are brought into engagement with the ratchet hub 21. Member 10 also has an angle arm 11 that is pivotally connected to the outer end of the oscillatory arm 8, by the screw pivot 12.

13 designates a lantern pinion that loosely revolves on a long stud bolt 22, and which meshes with the drive gear 19.

18 designates a thin spring washer mounted on the stud axle 20 that bears upon and exerts a slight pressure on that bifurcated rack member to hold it against the wheel 19 and in position for properly engaging with the ratchet hub 21.

Pinion 13, has a tubular extension that forms an arbor 24 for receiving the bushing 25 of the fan 26 when the device is intended for driving a fan, the bushing having oppositely disposed notches 26 for receiving the lugs 27 that lock the gear arbor and the fan to move together.

When the device is used as a fan drive a wire cage 28 is detachably mounted over the fan and the operating parts back of the front plate, the said cage consisting of radially disposed guard wires 29 having the ends bent inwardly and terminating in eyes 29^a for receiving a stiffener rod 30, which provides a rim for bearing solid against the front plate 1. The wires 29 join with a central disk 31 formed with a threaded hub 32 for receiving the threaded end 22^a of the long bolt 22, which securely holds the cage in position, the said disk 31 also forming a convenient surface for designating the name of the article or owner thereof.

33 and 34 are stops on the front plate for limiting the throw of the arm 8 in either direction.

When my invention is arranged as a vibrator the fan and its cage are removed and a vibrator substituted therefor, see Fig. 2 of the drawings.

50 designates the applicator which is used when the device is to be employed as a vibrator.

By reason of the peculiar construction and combination of parts, as shown and described, it will be apparent, by referring to the drawing, that when the operator presses the lever 7 toward the hand-hold 3, the shaft 4 is rocked and member 8 is oscillated in the direction of the arrow 14, until it strikes stop 33, and in doing so, by reason of the pivotal connection of the rack member, the said member is shifted to bring the rack teeth α into engagement with the ratchet 21, as the said member, by reason of its now relatively fixed connection with the arm 8, is moved in the direction indicated.

The pivotal section 12 is in the nature of a loose pivot and assuming the parts to be in the position shown in Fig. 3, and the member 8 about to be moved in the direction of the arrow shown thereon; as the member 8 moves in such direction, the connection between the teeth γ and the member 21 will be broken by the free end of the member 10 moving or being thrown to the right in Fig. 3 due to the shape of the rack teeth, thus throwing the teeth α into engagement with the member 21 and further movement of the member 8 in the direction of

the arrow 14 will cause the gear 19 to turn in a counter-clock-wise direction. A similar action takes place on the reverse movement as will be clearly understood by reference to the drawings.

When the hand pressure is relaxed, the spring 17 instantly moves the arm 8 in the opposite direction, rocking shaft 4 and carrying handle 7 back to the first position and by reason of the pivotal connection of member 19, the toothed face α is instantly thrown out of engagement with the ratchet 21 and the other teeth γ are brought into engagement with the said ratchet, it being obvious that the connection between members 8 and 10 is now again a relatively fixed one, causing, as it were, the member 10 to swing in the up or reverse direction and thereby continuing the impulse on the ratchet 21 in the same direction.

The arrangement of the several parts shown and described is a preferred one, it being, however, understood that the details of construction shown and described may be readily modified to suit the particular device to be operated without departing from my invention under the scope of the appended claims.

What I claim is:

1. In an appliance of the character stated, a rock shaft, a lever carried by said shaft, means continuously tending to move said lever in one direction, a duplex rack device including two distinct rack sections rigidly connected together and spaced apart, and an arm projecting at right angles to said rack sections, means for pivotally connecting said lever to the end of said arm, a second shaft, a pinion on said second shaft to cooperate with said duplex rack member, the distance between the rack sections of said rack member being greater than the diameter of said pinion whereby but one rack section will engage said pinion at a time.

2. In an appliance of the character described, the combination with a driven shaft, a rock shaft, manually actuated means for rocking said shaft in one direction, a spring power for rocking the said rock shaft in the opposite direction when the manual power is relaxed, power transmission mechanism for imparting a continuous rotary motion to the driven shaft from the rock shaft, said mechanism including a ratchet driving gear, an oscillatory arm carried by the rock shaft, a duplex ratchet lever that alternately engages the ratchet gear on its opposite sides as the said oscillatory arm moves in its reverse directions, and a resilient means for holding the duplex ratchet lever and the ratchet gear in light frictional contact.

3. In an appliance of the character described, the combination with a driven shaft, a rock shaft, manually actuated means for

rocking said shaft in one direction, a spring power for rocking the said rock shaft in the opposite direction when the manual power is relaxed, power transmission mechanism
5 for imparting a continuous rotary motion to the driven shaft from the rock shaft, said mechanism including a ratchet driving gear, an oscillatory arm carried by the rock shaft, a duplex ratchet lever that alternately
10 engages the ratchet gear on its opposite sides as the said oscillatory arm moves in its reverse directions, and a spring washer on the ratchet gear shaft interposed between the ratchet lever and the framing for holding
15 the duplex ratchet lever in frictional contact with the ratchet gear.

4. In an appliance of the character stated,

a rock shaft, a lever having one end mounted on said rock shaft, means continuously tending to move said lever in one direction, 20 a pinion carrying shaft and a pinion carried thereby, a duplex rack member including two parallel rack portions for alternately coöperating with said pinion to turn the same in one direction, said rack 25 member including an arm extending at right angles to said rack sections, means for pivotally and frictionally connecting the end of said arm to the end of said lever, and means for rocking said rock shaft.

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Witnesses:

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GEO. P. ELMEN.