

(No Model.)

W. SWEET.
MOTOR.

No. 506,382.

Patented Oct. 10, 1893.

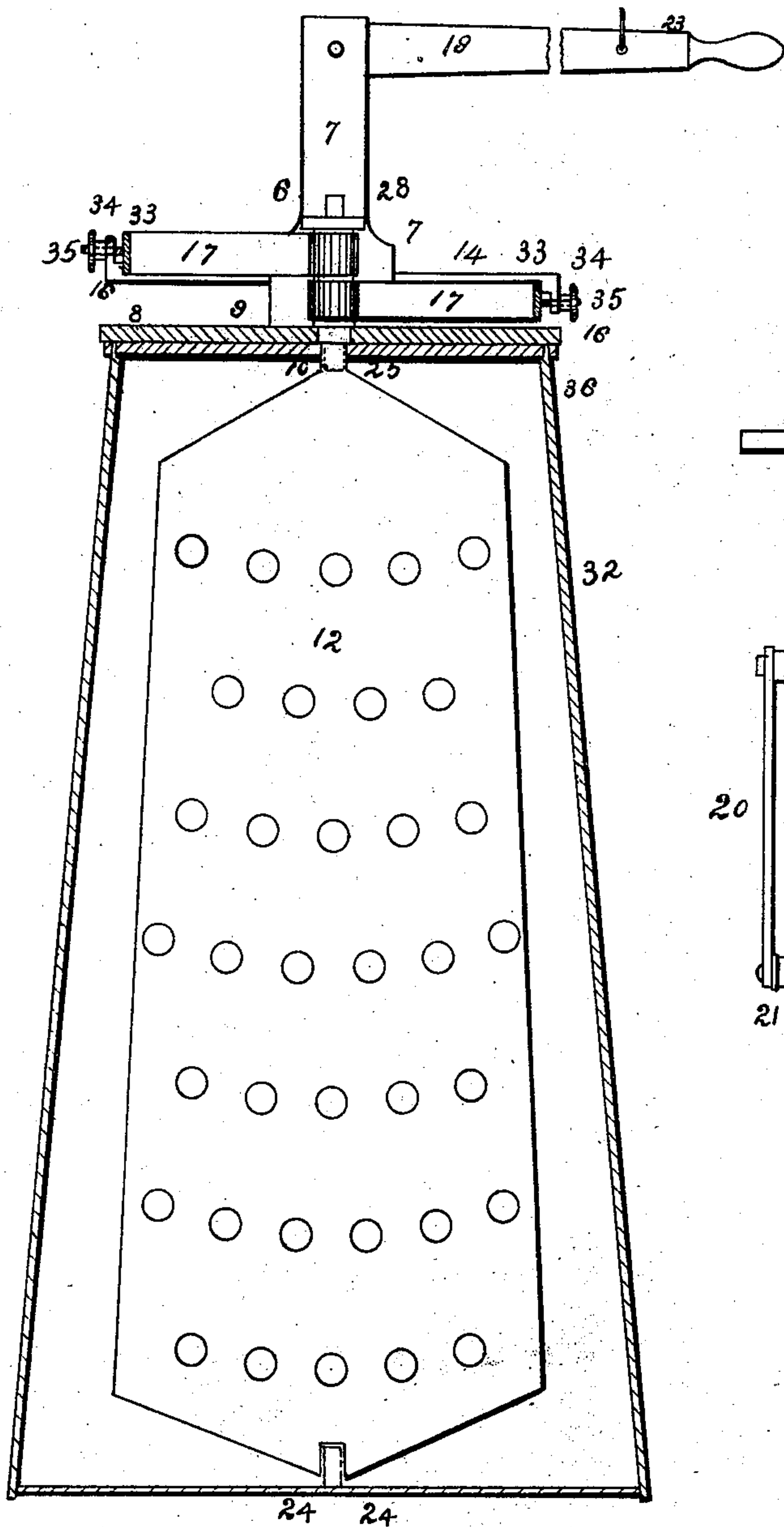


FIG. 1

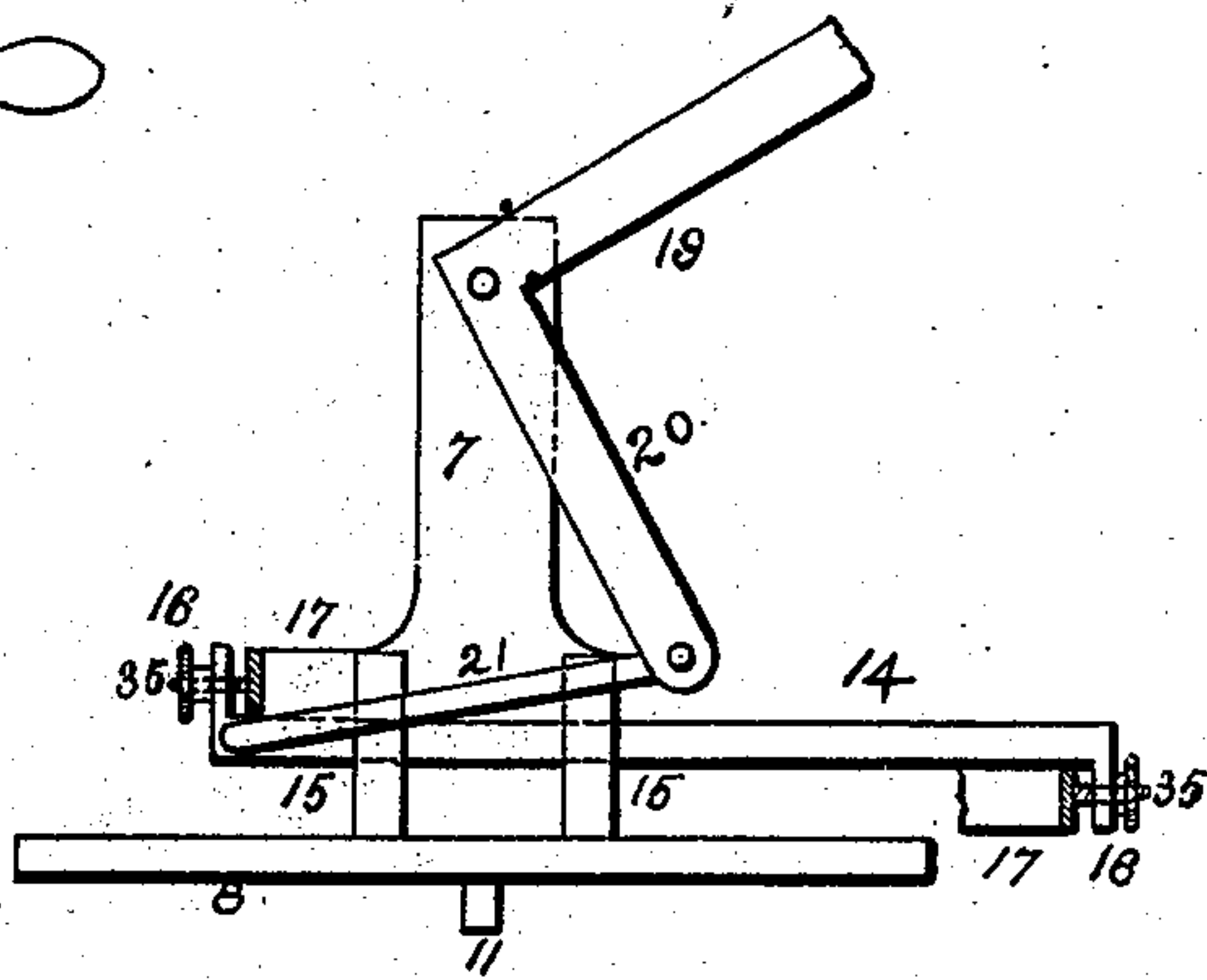


FIG. 2.

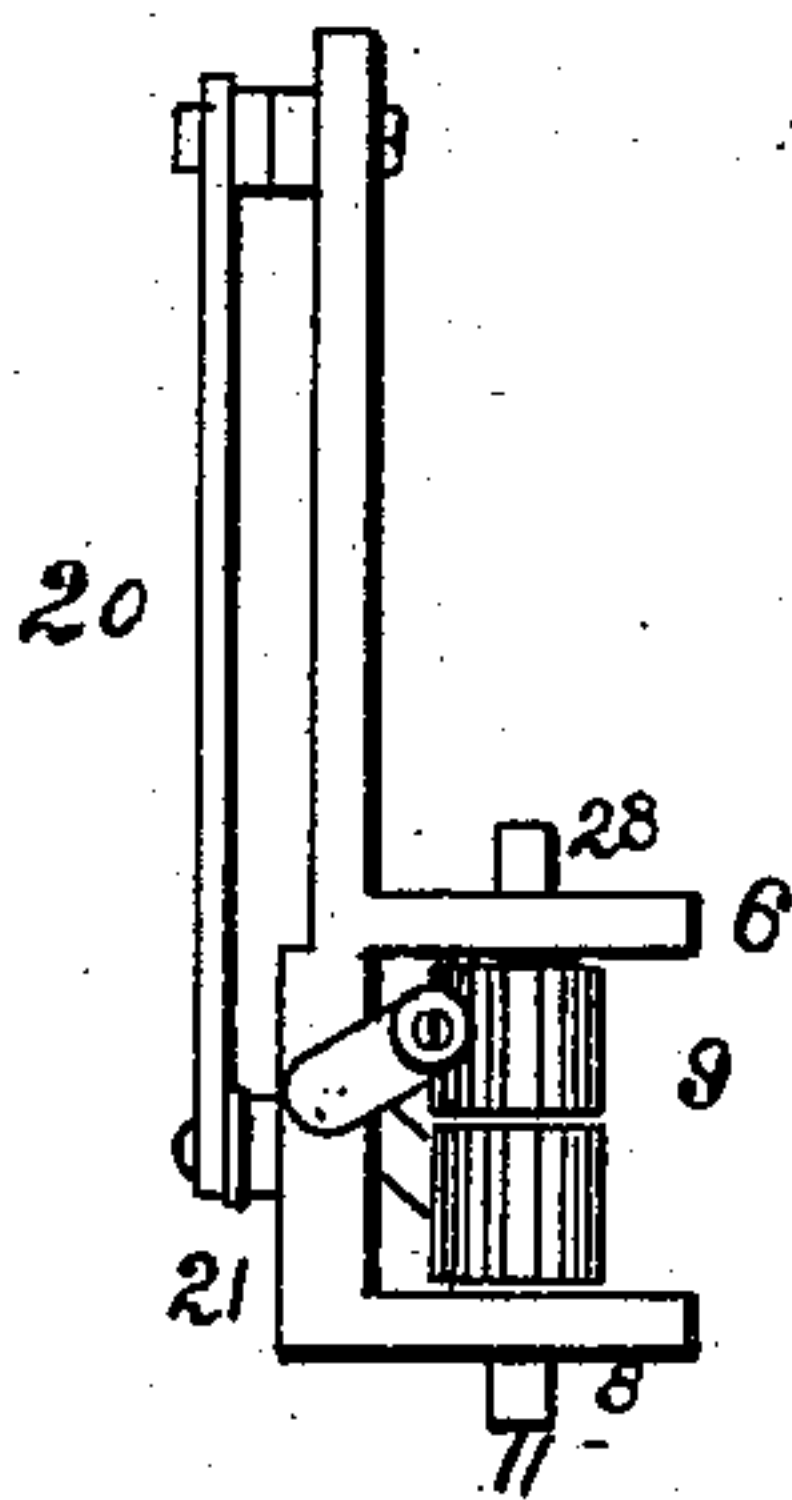


FIG. 3.

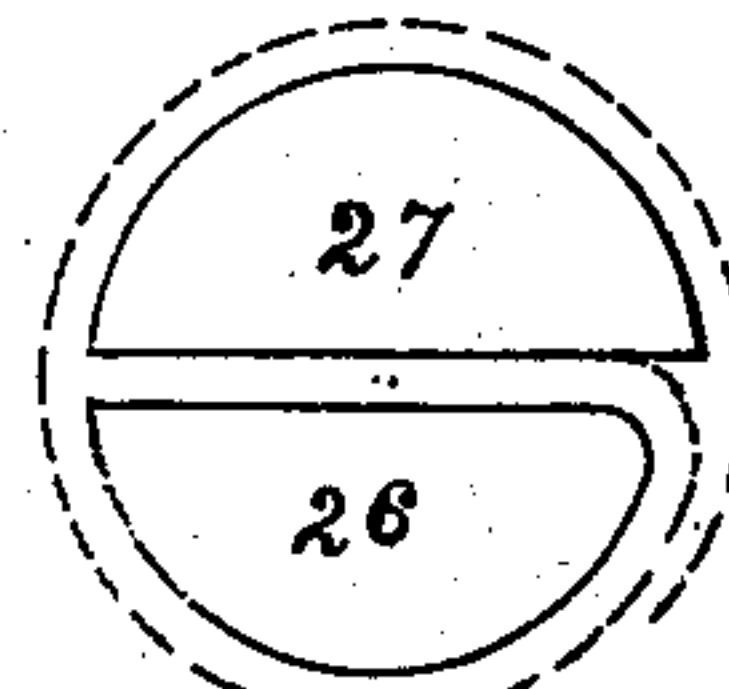


FIG. 5.

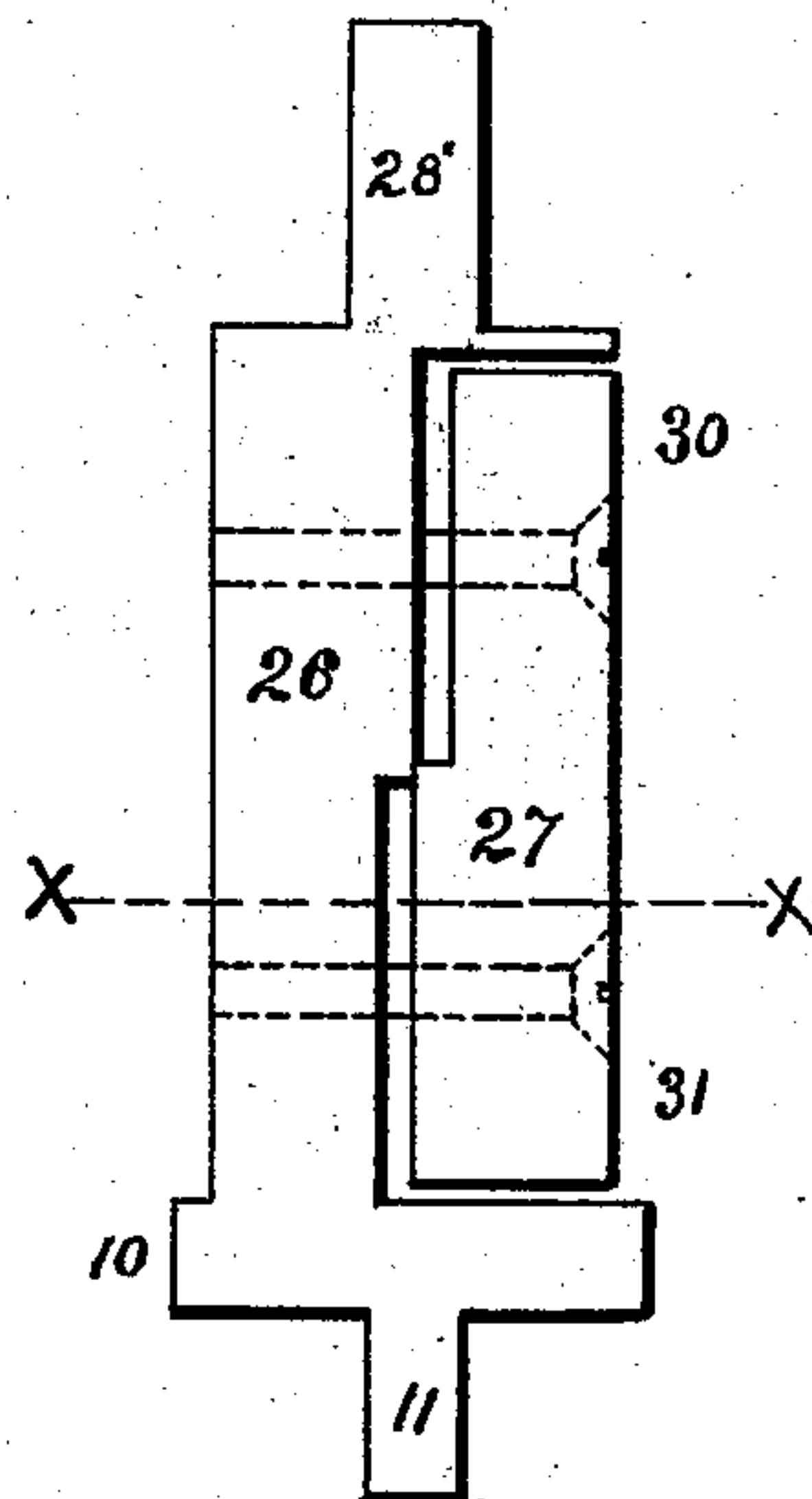


FIG. 4.

WITNESSES:

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WARREN SWEET, OF FORT WAYNE, INDIANA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 506,382, dated October 10, 1893.

Application filed December 22, 1892. Serial No. 456,085. (No model.)

To all whom it may concern:

Be it known that I, WARREN SWEET, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Mechanical Motors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in mechanical motors and its object is to provide an improved device for producing a reciprocating motion. And the invention consists in the construction and novel combination of parts hereinafter described, pointed out in the claims and illustrated in the accompanying drawings in which—

Figure 1 is a front elevation of my device attached to a churn vessel, which is in section to show the interior. Fig. 2 is a rear elevation of the oscillating device. Fig. 3 is an end view of the oscillating device. Fig. 4 is a vertical section of the cylinder enlarged; and Fig. 5 is a cross section of the cylinder taken on the line $x-x$ of Fig. 4.

Referring to the drawings by numerals, the oscillating device consists of a frame or standard 7 provided with a base 8 by which it is attached to the churn vessel 32. A cylinder 9 provided with projecting journals 10 and 28 is mounted in bearings attached to the standard 7. Preferably the lower bearing 10' is made in the base 8 and the upper bearing 28' in a lug 5 placed above it and attached to the standard 7. Any suitable cylinder may be used; but I prefer the novel construction particularly illustrated in Figs. 4 and 5. In this construction the cylinder is made in two half parts. The fixed half 26 is provided with an upper journal 28 and with a lower journal 10. The lower journal 10 is provided with a rectangular projection 11 to afford means of attachment to the dasher or part to be oscillated. This fixed half is so called because it is held in place in the device by its journals and their bearings and to distinguish it from the removable half. It is recessed on either half of its plane surface, (the lower half is so shown,) in depth nearly the thickness, and in

width, the width of the belt to be used so as to form with the unrecessed part of the other half 27, a space 31 in which one end of one of the belts 17 may be placed and clamped between the parts. The recessed part of this half 26 is further recessed on one edge thereof in depth the thickness of the belt 17. From the inner edge of this second recess the periphery of the fixed half 26 is cut out so as to make it curvilinear to the other edge, and said inner edge is slightly rounded as shown in cross section in Fig. 5. By this construction the belt 17 passes around the cylinder in unbroken or uniform curved lines as shown by the dotted lines in Fig. 5, and the pull on the cylinder is uniform at all points of revolution. The removable half 27 is similarly recessed on the upper half of its plane surface, or on that half thereof not opposite the recessed part of the fixed half 26, and forms with the unrecessed part of said fixed half the space 30 for the reception of the end of the belt 17. The second recess and curvilinear construction are also similar to that of said fixed half excepting that the second recess is preferably of the edge on the opposite side of the cylinder to that of the recessed edge of said fixed half so that the secured belts 17 when wound on the cylinder 9 as shown in Fig. 1 are wound thereon from opposite directions in unbroken or uniform lines. In other words, the difference in construction of these two half parts is, that one is adapted to wind the belt when the cylinder is turned in one direction, and the other is adapted to wind the belt when the cylinder is turned in the opposite direction, the two belts being attached to the cylinder, the one above the other, so as not to interfere with each other. The ends of the belts 17 are placed in these recesses respectively, preferably on opposite sides of the cylinder 9 and screw bolts are passed through them to secure the two half parts 26 and 27 firmly to each other and to clamp the ends of the belts between them.

To the standard 7 I attach guides for a slide bar, preferably lugs 15 provided with orifices adapted to permit a circular slide bar 14 to move freely back and forth through them. The slide bar 14 is preferably made circular and is provided at each end with projections 16 adapted to hold the other ends of the belts 17 in lines at right angles to the up-

per and lower halves of the cylinder 9 respectively so that the belts when operated will be wound uniformly. For this purpose the projections 16 are extended the one above
 5 and the other below the line of the slide bar 14, and the belts are preferably connected by attached end plates 33 provided with centrally projecting screw bolts 34 which pass through orifices in the projections 16 and are
 10 secured and adjusted by nuts 35 on the outside. The other ends of the belts are secured to the cylinder 9 as above described. Such projections afford convenient means to hold the cords or belts in proper position, and by
 15 such construction the pull is applied at right angles to the axis of the cylinder whereby the resistance is equally divided between the two journals 10 and 28.

The slide bar 14 is oscillated by any suitable means but I prefer a novel construction for that purpose shown in the drawings. It consists in a lever 19 having an arm 20 attached at an angle thereto, preferably at right angles as shown in Fig. 2 and secured
 25 pivotally to the standard at its junction with the arm. A connecting rod 21 is pivotally attached, the one end to the lower end of the arm 20 and the other end to the slide bar 14, preferably near one end. The operating end
 30 of this lever 19 is provided with a handle and also with an orifice near the end through which a rod 23 may be pivotally attached and have its other end connected with the operating shaft of a wind-mill whereby it may be
 35 operated mechanically.

The operation is as follows: The devices being in place as shown in Fig. 1 the slide bar 14 is oscillated by the lever 19 thereby applying a torsional force to the cylinder
 40 through the attached belt 17 in alternate directions. The cylinder thus oscillated causes a like oscillation of the dasher 12 by means of its connection therewith. This oscillation of the dasher churns the milk or cream upon
 45 principles of action well known.

I have illustrated in the drawings a churn vessel as with a dasher oscillated by my device for which it is especially adapted. But the device is equally adapted to oscillate any
 50 other part to which it may be attached.

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

1. In a motor a frame having a base, or
 55 means for attachment: a slide bar: guides for said slide bar: an operating lever provided with an arm attached at an angle and pivotally attached to said frame: a connecting rod pivotally attached to the other end of said
 60 arm and to said slide bar: a fixed half of a cylinder provided with two journals and recessed on its plane surface on the lower or upper half thereof, for the reception of a belt, and said recessed part further recessed and
 65 its periphery made curvilinear so as to adapt that part of said fixed half with the other half of the cylinder to hold a belt thereon in uni-

form curved lines when wound from one direction: a removable half of said cylinder similarly recessed and curved on its half part
 70 not opposite the recessed part of said fixed half and the curvilinear being in opposite direction, so that when that part of the cylinder is completed by attachment of the other half (unrecessed) it will hold a belt
 75 thereon in uniform curved lines when wound from an opposite direction: bearings for the said journals adapted to hold the cylinder at right angles to the base of the frame: projections attached to the ends of said slide bar
 80 adapted to hold two belts secured thereto at right angles to said cylinder, the one belt in line with the upper half and the other with the lower half of said cylinder: two belts connected respectively to the recessed parts of
 85 said cylinder and to said projection.

2. In a motor the combination of a standard or frame with a slide bar: guides for said slide bar: an operating lever pivotally attached to the frame: an arm attached to
 90 said lever at an angle thereto: a connecting rod pivotally connecting said arm and slide bar: a cylinder provided with journals and mounted in bearings attached to the frame at right angles to the base: projections attached
 95 to the opposite ends of said slide bar for the attachment of belts and adapted to hold them in lines at right angles to said cylinder, the one to the upper half and the other to the lower half of said cylinder respectively: two
 100 cords or belts connected to said projections and to the upper and lower halves of said cylinder respectively: and means for attaching the end of the lower journal of said cylinder to the part to be oscillated.

3. In a motor, a cylinder constructed in half parts as follows: a fixed half provided with two journals and recessed on its plane surface on part of one half thereof for the reception of a belt or cord, and said recessed
 110 part further recessed and the periphery made curvilinear so as to adapt that part of said fixed half with the other half of the cylinder to hold a belt thereon in uniform curved lines when wound in one direction: a removable part or half of said cylinder similarly
 115 recessed and curved on its half part not opposite the recessed part of said fixed half and the curvilinear being in an opposite direction, so that with the unrecessed part of the
 120 other half they will, hold a belt in uniform curved lines when wound in an opposite direction: means to secure the two half parts together and clamp a belt placed between them: suitable bearings for said journals:
 125 belts attached to the cylinder: and means to operate the belts.

In testimony whereof I hereunto subscribe my name, in the presence of two witnesses, this 22d day of November, 1892.

WARREN SWEET.

Witnesses:

H. C. HARTMAN,
 W. J. HARTMAN.