

No. 724,429.

PATENTED APR. 7, 1903.

A. BRUNELLE.
MANUAL MOTOR.

APPLICATION FILED AUG. 27, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

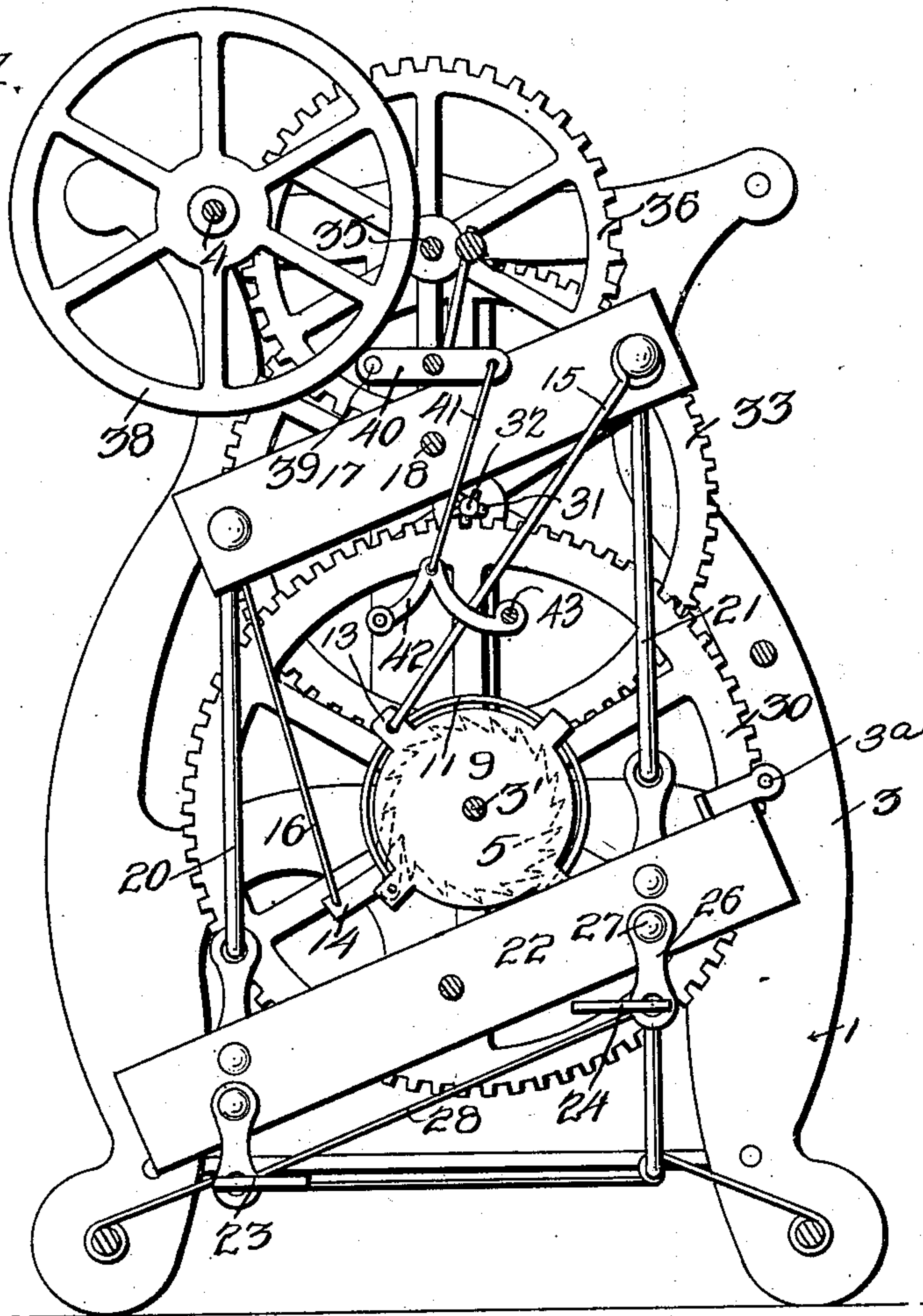
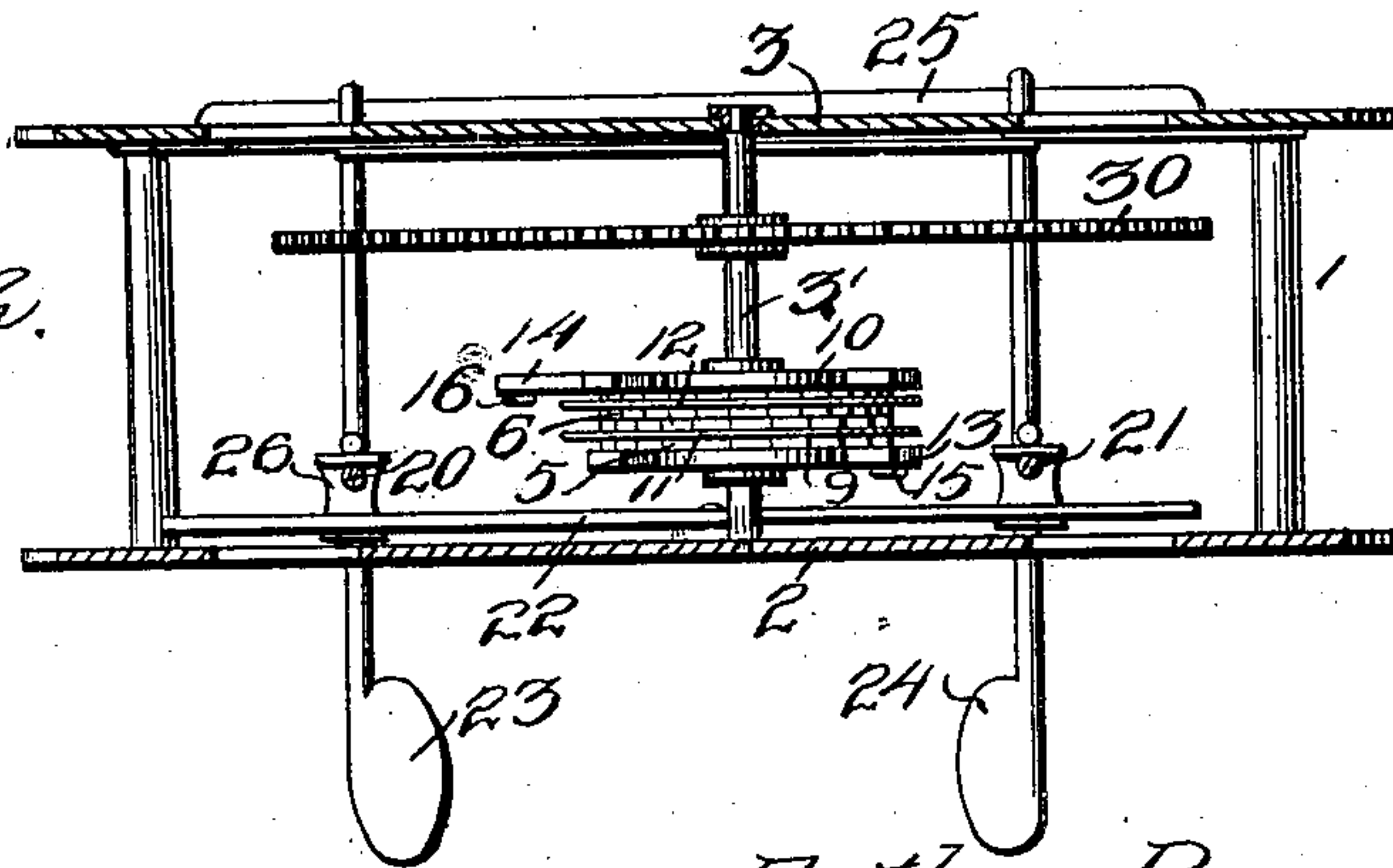


Fig. 2.



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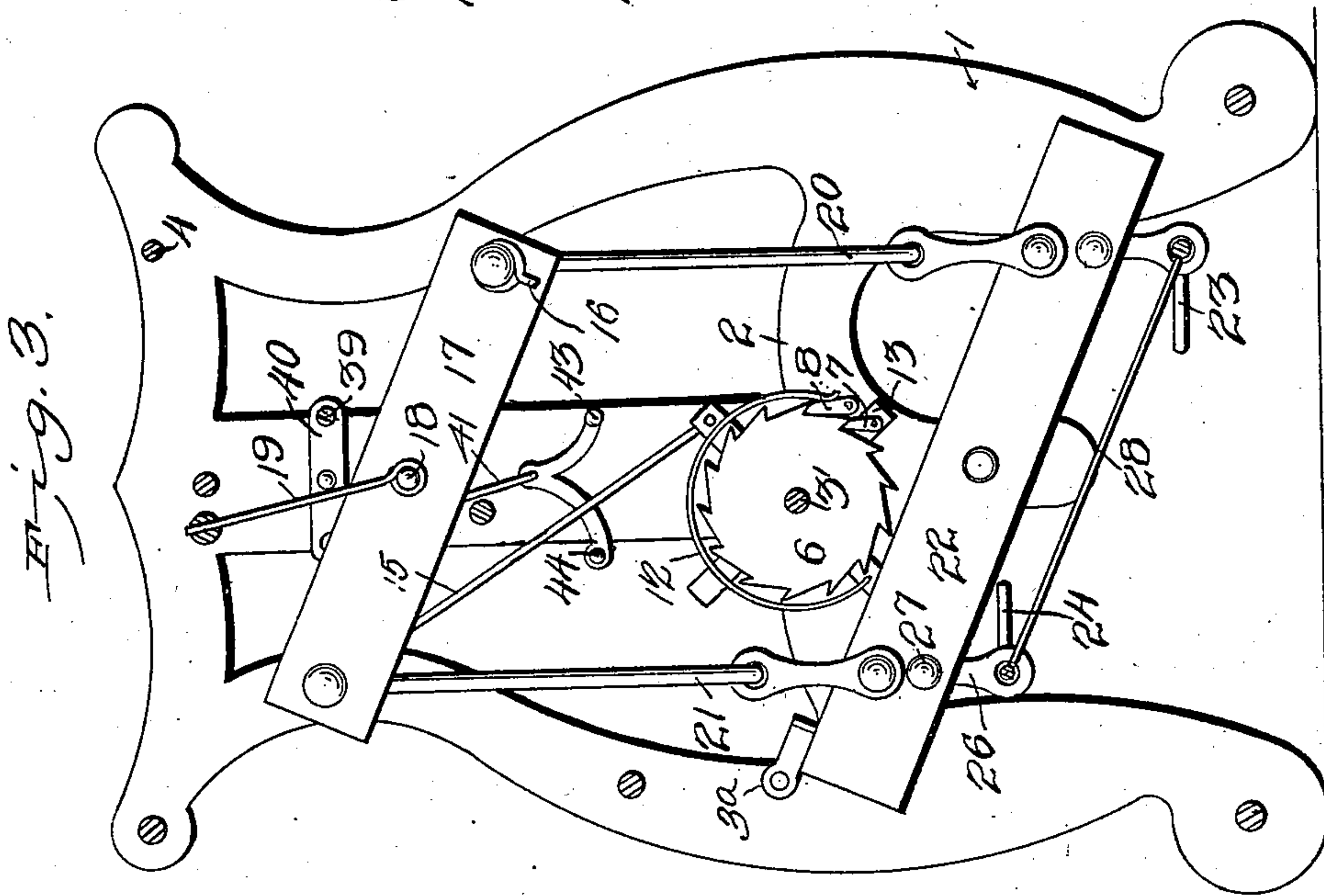
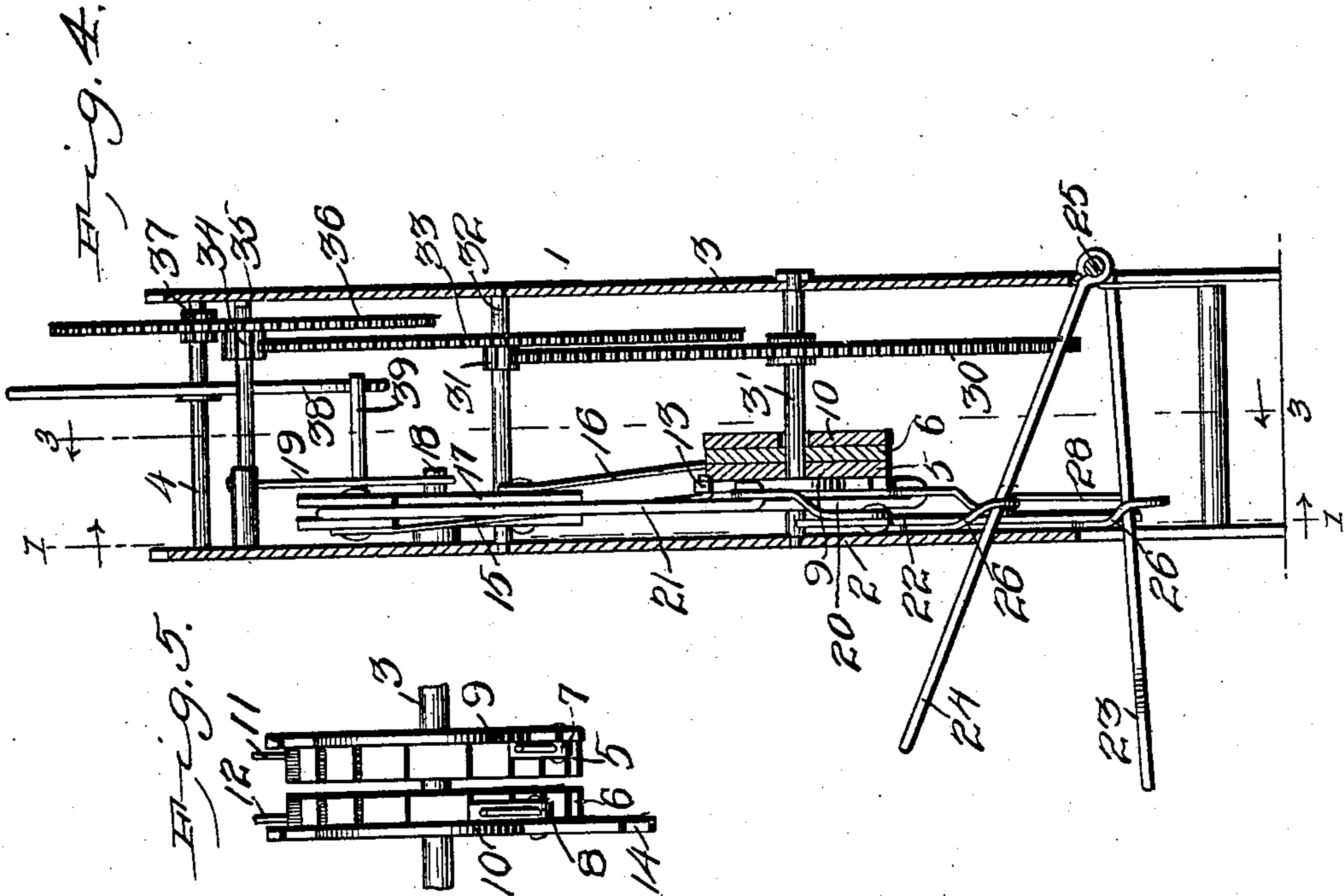
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2 SHEETS—SHEET 2.

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UNITED STATES PATENT OFFICE.

ARTHUR BRUNELLE, OF NORTH YAKIMA, WASHINGTON.

MANUAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 724,429, dated April 7, 1903.

Application filed August 27, 1902. Serial No. 121,244. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR BRUNELLE, a citizen of the United States, residing at North Yakima, in the county of Yakima and State of Washington, have invented a new and useful Manual Motor, of which the following is a specification.

The invention relates to improvements in manual motors.

The object of the present invention is to improve the construction of manual motors and to provide a simple, inexpensive, and efficient one designed for running sewing-machines, bicycles, grindstones, coffee-mills, and various other devices which are usually operated by hand or foot power and adapted to enable the weight of a person to be utilized for generating power and capable of producing a continuous rotation of a shaft or pulley.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a front elevation, partly in section, of a manual motor constructed in accordance with this invention, the front plate or side of the frame being removed. Fig. 2 is a horizontal sectional view. Fig. 3 is a vertical sectional view on the line 3-3 of Fig. 2. Fig. 4 is a vertical sectional view taken at right angles to Fig. 3. Fig. 5 is an enlarged detail view of the ratchet mechanism for actuating the main shaft.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a supporting-frame composed of front and rear plates 2 and 3, suitably connected by rods; but the frame may be constructed in any other desired manner, and a casing may be provided, if desired. The frame or support is provided with front and rear bearings for the reception of a horizontal main or power shaft 3', which is connected by a train of gears with a fly-wheel shaft 4, and which is operated by the means hereinafter described. The main or power shaft 3' has keyed or otherwise fixed to it a pair of ratchet-wheels 5 and 6, which are engaged by pivoted spring-pressed pawls or dogs 7 and 8, pivotally mounted on collars 9 and 10, loosely ar-

ranged on the shaft 3'. The pivoted pawls or dogs 7 and 8 are engaged by springs 11 and 12, secured to the collars 9 and 10 and arranged as shown in Figs. 1 and 3; but any other form of spring may be employed for this purpose. The collars 9 and 10 are provided with projecting arms 13 and 14, which are connected by links 15 and 16 with an upper lever 17, fulcrumed between its ends on a horizontal pivot 18 and located at the upper portion of the frame or support. The pivot 18 extends inward from the front plate of the frame and is supported by a suitable bracket 19, and the said lever, which may be of any desired construction, is preferably composed of two plates or sections, as clearly shown in Fig. 4. The links are pivotally connected at their upper ends to the ends of the upper oscillatory lever, and when the latter is moved in one direction one of the pawls will be carried forward to rotate the ratchet-wheels and the other pawl will be carried backward and will rotate the said ratchet-wheels forwardly when the said lever is oscillated in the opposite direction, whereby a continuous rotation of the shaft 3 is effected. The upper lever is also connected by rods 20 and 21 with a lower oscillatory lever 22, fulcrumed at its center on the lower portion of the front plate and located above a pair of foot-levers 23 and 24 and adapted to be oscillated by the same. The foot-levers, which are provided at their rear ends with eyes, are fulcrumed on a rear rod 25, and they pass through depending eyes 26 of the lever 22. The eyes 26 of the lever 22 consist of plates provided with openings and pivoted at 27 to the arms of the lower oscillatory lever 22. The foot-levers are provided at their outer ends with enlargements, and they may be of any desired length to secure the necessary power. The operator by standing upon the foot-lever 23 will utilize his weight for running the manual motor, and the motor will be thereby driven at a high rate of speed until the lever 23 has reached the limit of its downward movement. The lever 23 is then returned to its initial position by pressing downward on the other lever 24, which also actuates the motor. The operation is then repeated, and the operator by stepping from one of the operating-levers to the other will produce a continuous oper-

ation of the motor, which may be constructed for any desired speed or power by varying the number of gears of the frame and the relative diameters of said gears. The eyes 26 are
 5 connected by a rod 28, located beneath the oscillatory lever and extending across the space between the foot or operating levers. The rod 15 extends from one end of the upper lever 17 across the top of the ratchet-
 10 wheels, and a suitable stop 3^a is provided for limiting the upward movement of one end of the lever 22 to prevent the said link or rod 15 from having its lower end carried across the top of the ratchet-wheels.

15 The train of gears which connect the shaft 3 with the fly-wheel shaft consists of a large gear-wheel 30, keyed or otherwise secured to the shaft 3' and meshing with a pinion 31 of a shaft 32, which also carries the large gear-
 20 wheel 33. The gear-wheel 33 meshes with a pinion 34 of a shaft 35, and the latter carries a gear-wheel 36, which meshes with a pinion 37 of the fly-wheel shaft 4; but any other arrangement of gears may be employed. The
 25 fly-wheel shaft carries a fly-wheel 38, having a smooth periphery and adapted to be engaged by an arm 39 of a brake-lever 40, fulcrumed between its ends and connected by a rod 41 with an operating-lever 42. The oper-
 30 ating-lever 42 is fulcrumed at one end at 43 and is provided at its other end with a handle or grip 44, by means of which it is operated. The fly-wheel shaft may be provided with a crank or pulley or other means for
 35 communicating motion to the device or machine to be operated, and the shafts of the gears of the train may be provided with cranks or other means for communicating motion, whereby the desired power and speed may be
 40 derived.

The ratchet mechanism may be duplicated and reversely arranged, so that one set may be used for driving the motor in one direction and the other set for reversing the motor, and
 45 I desire it to be understood that changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any
 50 of the advantages of this invention.

What I claim is—

1. In a device of the class described the combination with a shaft, of a pair of ratchet-
 55 wheels fixed to the shaft, loosely-mounted collars provided with pawls arranged to engage the ratchet-wheels to rotate the shaft in the same direction, an upper lever located above the ratchet-wheels and fulcrumed between its ends, rods extending from the arms
 60 on the lever to the collars, and connected with the same at the same side of the shaft,

whereby one of the collars will be moved forwardly at each oscillation of the lever to produce a continuous rotation of the said shaft, and a pair of levers located beneath the said
 65 lever and connected with the arms thereof and arranged to receive the weight of a person, said foot-levers being simultaneously moved in opposite directions by the upper lever, substantially as described. 70

2. In a device of the class described the combination of a shaft, a pair of ratchet-
 75 wheels fixed to the shaft, collars located adjacent to the ratchet-wheels, pawls mounted on the collars and engaging the ratchet-wheels, an upper oscillatory lever fulcrumed between its ends and located above the ratchet-wheels, a pair of foot-levers, a lower
 80 oscillatory lever fulcrumed between its ends and connected with the upper lever and with the foot-levers, whereby the latter will be simultaneously moved in opposite directions, and means for connecting the upper lever with the collars, whereby one of the ratchet-
 85 wheels will be moved forwardly at each oscillation of the upper lever, substantially as described.

3. In a device of the class described the combination of a shaft, a pair of ratchet-
 90 wheels fixed to the shaft, collars loosely mounted on the shaft, pawls carried by the collars, a pair of foot-levers, upper and lower levers fulcrumed between their ends and located above and below the ratchet-wheels, the lower lever being connected with the foot-
 95 levers, links connecting the arms of the upper and lower levers, whereby the foot-levers will be simultaneously moved in opposite directions, and rods extending from the arms of the upper lever and connected with the
 100 collars at the same side of the shaft, whereby the latter will be forwardly rotated at each oscillation of the upper lever, substantially as described.

4. In a device of the class described, the
 105 combination of a main shaft, ratchet-wheels mounted on the main shaft, actuating-pawls engaging the ratchet-wheels, upper and lower oscillatory levers connected with each other, means for connecting the upper lever with
 110 the pawls, foot-levers connected with the lower lever, and a train of gears for communicating motion from the said shaft to the device to be operated, substantially as described. 115

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ARTHUR BRUNELLE.

Witnesses:

SAMUEL E. KING,
 JONAS KING.