

No. 806,066.

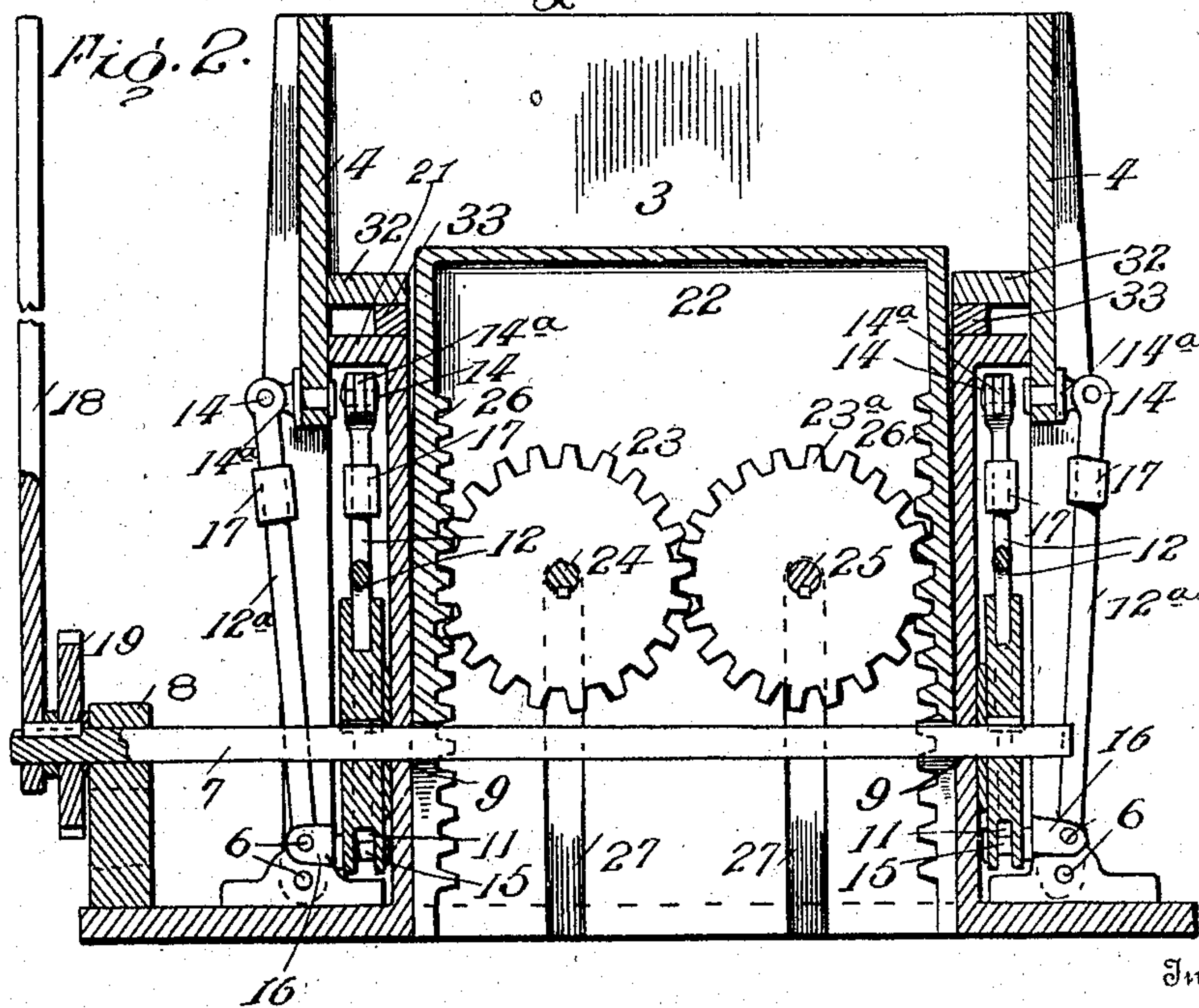
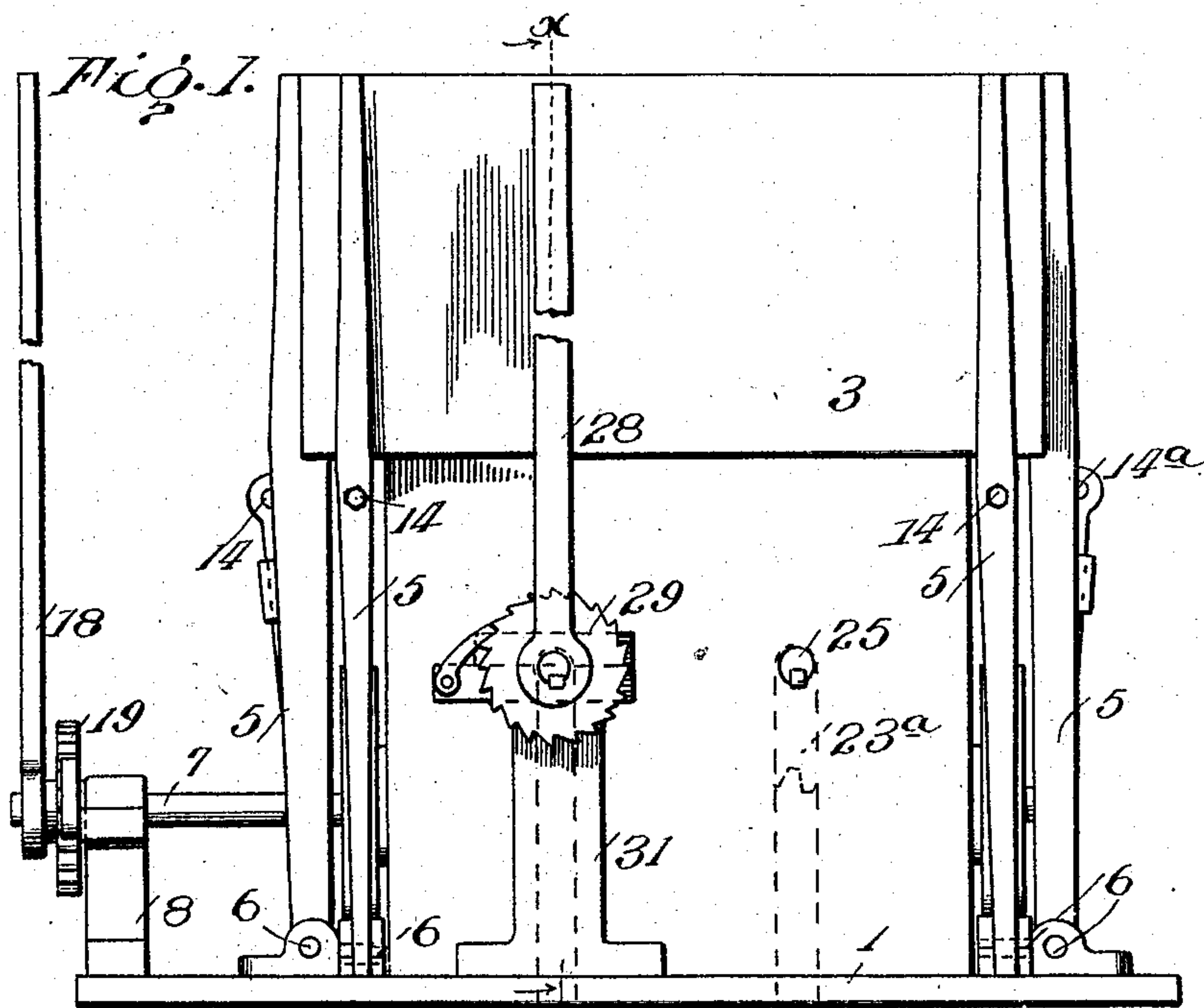
PATENTED NOV. 28, 1905.

E. A. CIMMERY & N. W. MOTTINGER.

MOLD.

APPLICATION FILED JAN. 20, 1905.

2 SHEETS—SHEET 1.



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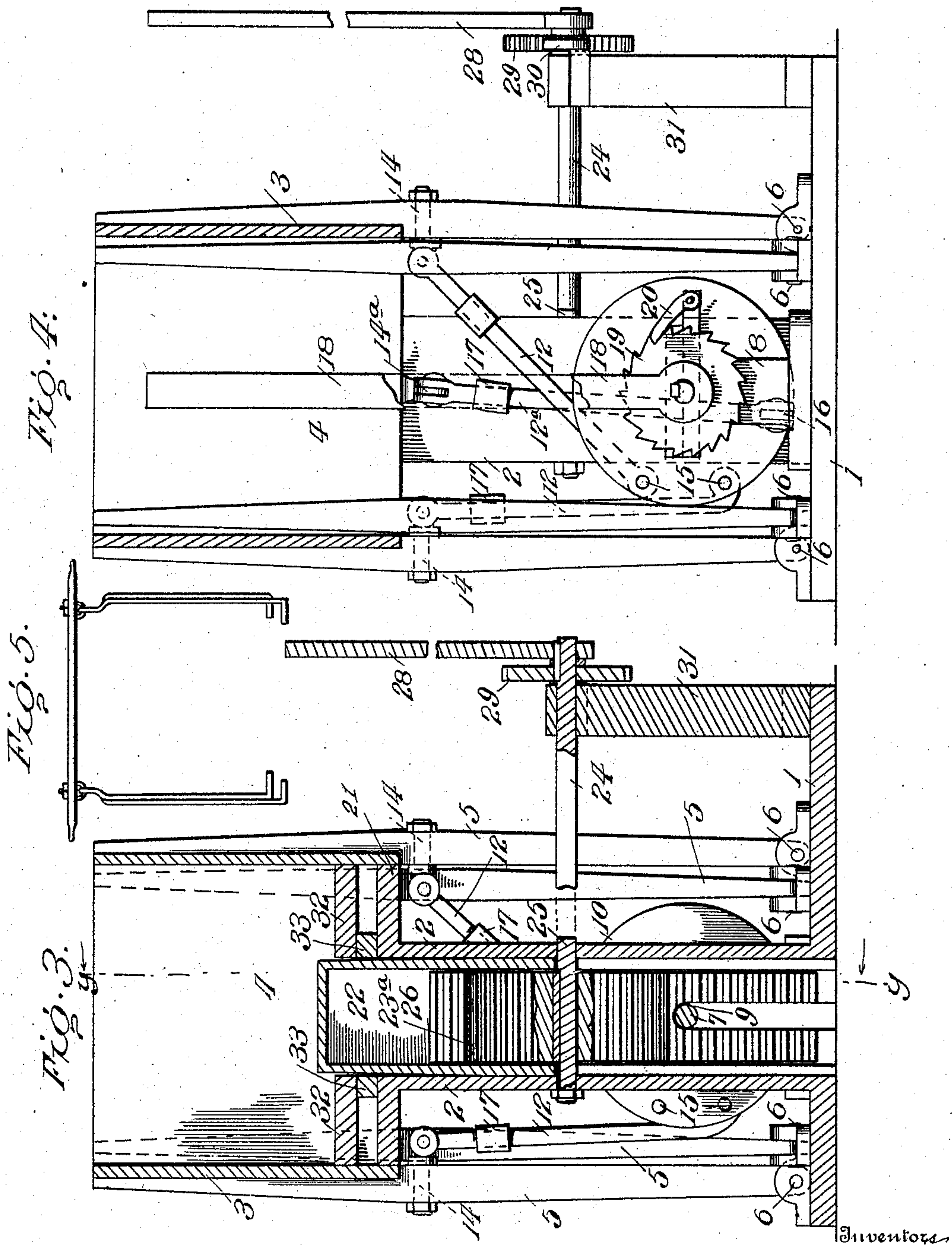
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UNITED STATES PATENT OFFICE.

EDVORDO A. CIMMERY AND NOAH W. MOTTINGER, OF MANISTEE,
MICHIGAN.

MOLD.

No. 806,066.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed January 20, 1905. Serial No. 242,036.

To all whom it may concern:

Be it known that we, EDVORDO A. CIMMERY and NOAH W. MOTTINGER, citizens of the United States, residing at Manistee, in the county of Manistee and State of Michigan, have invented certain new and useful Improvements in Molds, of which the following is a specification.

This invention relates to the construction of molds of that type particularly designed for making building tiles or blocks of cement, concrete, composition, or the like. The essential feature of the invention is comprised in the peculiar mounting of the parts, the mold being of sectional formation, whereby the sides and ends of the device may be operated to throw the same into and out of operative position, a special construction of core being utilized in connection with the invention, constituting an essential feature thereof.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features of the invention, still the preferred embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a mold embodying the invention. Fig. 2 is a longitudinal vertical sectional view. Fig. 3 is an end elevation. Fig. 4 is a transverse vertical sectional view. Fig. 5 is a detail perspective view of a lifting device which may be employed in removing the building-blocks from the machine.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In its general structure the invention consists of a suitable base 1, from which upwardly projects a core-box 2. The mold proper comprises the sides 3 and the ends 4, said sides and ends being pivotally mounted upon the base 1 in order that they may be thrown downwardly away from each other after the molding operation has been com-

pleted. The sides 3 and the ends 4 of the mold are provided with downwardly-extending legs 5 near the ends thereof, and the lower extremities of the legs 5 are pivoted to the base 1, as shown at 6. The mounting of the members 3 and 4 is such that said members are adapted for an outwardly downward movement in order to separate the same.

Special actuating devices are utilized in order to operate the sides 3 and the ends 4 of the mold, and for this purpose a shaft 7 is mounted at one end upon a standard 8 and extends longitudinally of the mold, having bearings in the ends of the core-blocks 2, as shown most clearly at 9. Upon the shaft 7 and located at opposite ends of the core-box 2 are mounted wheels 10, annularly grooved, as shown at 11. The wheels 10 are keyed to the shaft 7 and are operably connected with the sides and an adjacent end of the mold, so as to effect proper movement of these parts for purposes before premised. Bars or rods 12 and 12^a are utilized for connecting the sides and ends of the mold to the wheels 10, the bars or rods 12 being pivotally connected at their upper ends with eyebolts 14, secured to the legs 5 of the sides 3. The members 12^a, however, are connected at their upper ends with an eyebolt 14^a, one of which is directly secured to the lower extremity of the ends 4 of the mold. The lower extremities of the connecting members 12 have pivotal attachment to transverse pins 15, mounted transversely of the groove 11 in each wheel 10. The bars 12 are thus located in the same plane virtually as the wheel 10, to which they are connected; but the bars 12^a have connection with the wheels 10, to which they are attached upon the outer sides of said wheels. The lower extremity of each bar 12^a is pivotally attached to an eyebolt 16, which projects outwardly from each wheel 10, the several parts 15 and 16 being located eccentric of the wheel 10 in order that upon rotation of this wheel movement will be imparted to the bars 12 and 12^a to throw said bars outwardly and downwardly or in a reverse direction, as the case may be. Turnbuckles or similar take-up devices 17 are interposed in the length of the bars 12 and 12^a, which of course are of two-part formation, and these take-up devices admit of variation in the movement of the sides 3 and ends 4 in a manner readily apparent. It will be noted that the bars 12^a, which

connect the ends 4 of the mold with the wheel 10, have swivel connection at each end with the parts to which they are attached, this being necessary to secure the requisite operation of the devices. The shaft 7 is operated by a suitable lever 18, keyed at its lower end to the shaft, and a ratchet-wheel 19 is mounted upon the shaft 7, adjacent the lever 18, said ratchet-wheel being engaged by a pawl 20, carried by the standard 8, in order that the sides and ends of the mold may be rigidly positioned when assembled preparatory to the molding operation. The pawl 20 coöperates with the ratchet-wheel 19 to fix the position of the shaft 7, and the operable connections between the shaft and the sides and ends of the mold having the necessary rigidity it will be seen that when the shaft is fixed for movement the mold parts are firmly held in place.

The core-box 2 of the device is flanged at its upper extremity, as shown at 21, and this core-box receives a movable core 22. The core 22 is of hollow formation and is preferably of rectangular form, as in the construction illustrated, and this core is adapted for vertical movement in the mold, peculiar actuating means being utilized to effect such movement. Mounted within the core 22 are meshing gears 23 and 23^a, the gear 23 being mounted upon the shaft 24, having suitable bearing in the sides of the core-box 2, said shaft 24 extending entirely through the core-box and the core 22 located therein. The gear 23^a is mounted upon a short shaft 25, the ends of which are received by bearings in the sides of the core-box 2. The gears 23 and 23^a, which intermesh, as above mentioned, coöperate with racks 26 upon the interior of the core 22 at the ends thereof. The racks 26 are formed by a plurality of teeth extending vertically of the ends of the core 22, and upon operation of the gears 23 and 23^a the core 22 is adapted to be elevated or lowered by the coöperation of the said gears with the racks 26 aforesaid. In order that the core 22 may have free vertical movement, the sides of the core are vertically slotted, as shown at 27, so that the shafts 24 and 25 will not interfere with the movement of the core, as described above. The slots 27, which receive the shafts 24 and 25, coöperate with the core in its vertical movement, being advantageous for this reason. In operating the core power is communicated to the shaft 24, upon which the core 23 is mounted, by a lever 28, keyed to the outer end of the shaft 24. The lever is adapted to rotate the shaft 24 in a manner similar to the operation of the shaft 7, and the position of the lever 28 is fixed by means of a ratchet-wheel 29 and a suitable pawl 30 coöperating therewith. The outer extremity of the shaft 24 is mounted upon a suitable standard 31, the pawl 30 being supported by this standard in normal engagement with the ratchet-wheel 29. The bottom of the mold is provided with a suit-

able mold-board 32, having an opening therein, through which the core 22 operates, and the said mold-board 32 is spaced from the upper end of the core-box 2 in order that when the sides and ends of the mold have been thrown outwardly and downwardly the lifting device (shown in Fig. 5) may be readily engaged beneath the mold-board 32 to remove the mold block or tile from the mold. Cleats 33 are preferably utilized to space the mold-board 32 from the flanges 21 of the core-box 2.

The operation of the device is as follows: The parts being in the normal positions shown in Fig. 1 of the drawings, after the material has been received by the mold, stamped and grouted, the lever 18 is thrown to the right in the use of the construction illustrated, such movement operating the shaft 7 and the wheels 10 carried thereby. The bars 12 and 12^a are thus simultaneously actuated, and the sides and ends of the mold are thrown outwardly and downwardly. The lever 28 is next operated, and the gears 23 and 23^a actuated thereby coöperate with the racks 26 of the core 22 and effect lowering movement of the core, the top of which has of course been upon a level with the upper extremities of the sides of the mold. The core having been lowered and the sides and ends of the mold having been actuated in the manner specified above, the lifting device used to remove the blocks can be readily engaged beneath the mold-board 32, and the molded article thus removed preparatory to further use of the device.

The peculiar construction of the core—namely, in the hollow formation thereof in connection with the arrangement of the actuating devices therefor—has been pointed out as an essential feature of the invention. The above-mentioned structure is mainly advantageous, aside from the usual advantage in saving of material and lightness secured by a hollow structure of core, in that the actuating devices which coöperate with the core are entirely housed thereby. Thus there is no likelihood that the plastic material molded will interfere with the operation of the actuating gear devices, foreign matter being entirely excluded from the chamber within the body of the core. A further essential advantage resultant from the construction of the core is to be noted in the fact that the parts of the machine are made more compact, so that the size of the general structure is reduced appreciably, the actuating devices not taking up any valuable space beneath the machine, as found in many of the mold devices at present in use.

Having thus described the invention, what is claimed as new is—

1. In a mold, the combination of sides and ends, a hollow core, and means for operating said core embodying actuating devices mounted and housed therein.

2. In a mold, the combination of sides and

ends, a hollow core, and means for operating the core embodying rack and gear devices mounted and housed within the hollow body thereof.

5 3. In a mold, the combination of sides and ends, a hollow core therefor, rack-teeth arranged upon the inner sides of the core, gears mounted and housed within the core in mesh with said rack-teeth, and means for actuating
10 the gears aforesaid to effect movement of the core.

4. In a mold, the combination of a base, the sides and ends, a core-box extended from the base, a core movably mounted in said core-box
15 and comprising a hollow body, rack-teeth projecting from the inner sides to the hollow body of the core, intermeshing gears mounted within the core in mesh with rack-teeth thereof, and means for actuating said gears.

20 5. In a mold, the combination of a base, the sides and ends, a core-box projecting from the base, a hollow core mounted in said core-box, shafts mounted transversely in the sides of the core-box, and wheels mounted in the core-
25 box upon the shafts aforesaid and operably connected with the gear for actuation thereof.

6. In a mold, the combination of a base, the sides and ends, a core-box projecting from the base, a hollow core mounted in said core-box,
30 shafts mounted transversely in the sides of the core-box, and wheels mounted in the core-box upon the shafts aforesaid and operably connected with the core for actuation thereof,

sides of the core being longitudinally slotted to receive the shafts aforesaid and forming 35 guides for directing the movement of the core.

7. In a mold, the combination of a base, a mold-box embodying a vertical side and vertical end mounted upon the base, a vertical wheel and actuating means therefor, a bar 40 connected at one end with the side and having its opposite end pivotally connected with the wheel at its peripheral portion, and a second bar connected with the end of the mold-box aforesaid and having eccentric swivel con- 45 nection with the wheel upon one side thereof.

8. In a mold, the combination of a base, a core-box projecting upwardly from the base, a movable core mounted in said core-box, means for raising and lowering the core, sides and 50 ends, legs extending from the sides and ends and pivotally attached to the base, a shaft mounted in the core-box, wheels carried by said shaft at opposite end portions of the core-box, bars having pivotal connection at one 55 end with certain sides and ends of the mold, the opposite ends of said bars having eccentric connection with the wheels aforesaid, and means for actuating the shaft.

In testimony whereof we affix our signatures 60 in presence of two witnesses.

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NOAH W. MOTTINGER. [L. S.]

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