

No. 755,620.

PATENTED MAR. 29, 1904.

G. A. CONRATH.
DEVICE FOR RAMMING SAND CORES.

APPLICATION FILED AUG. 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 2.

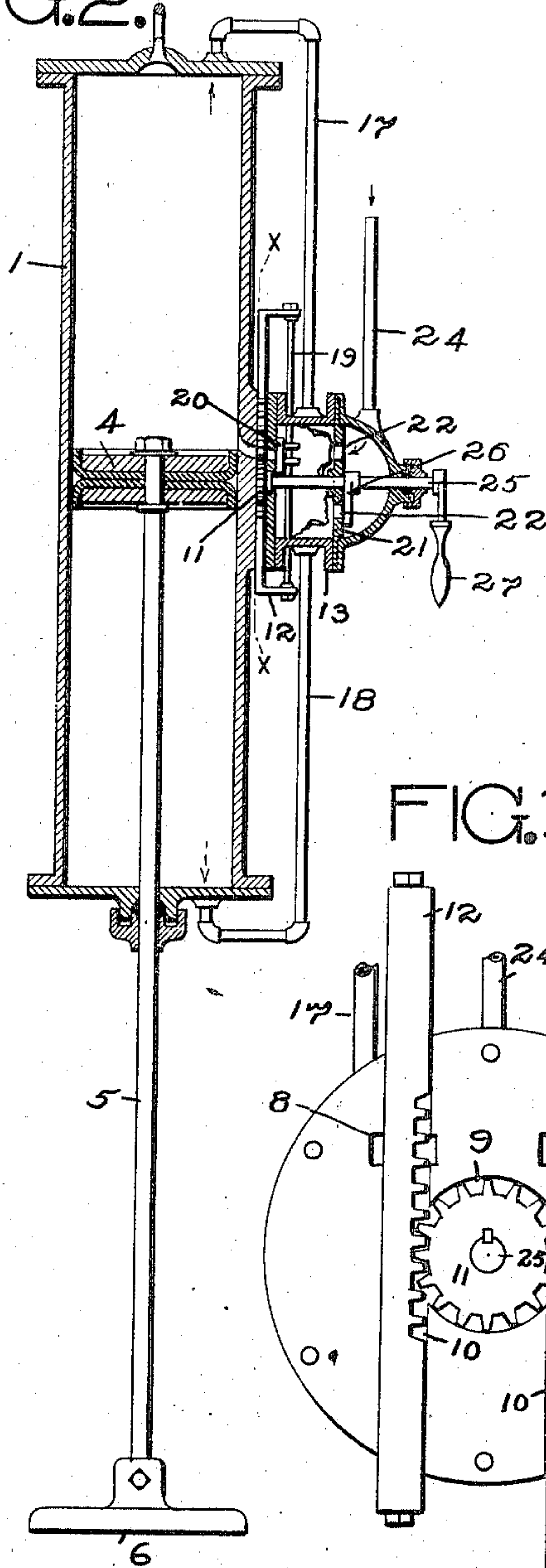


FIG. 1.

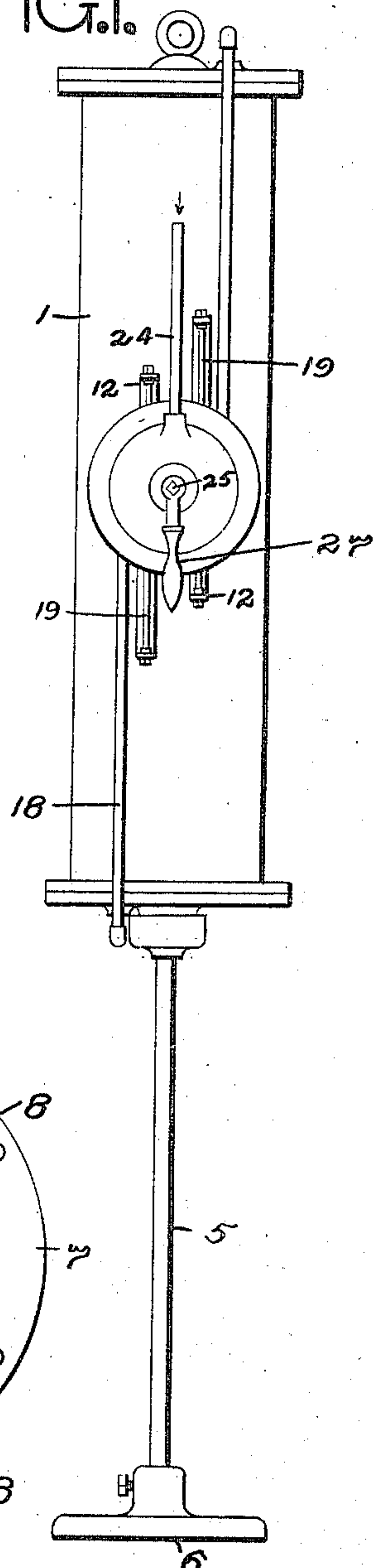
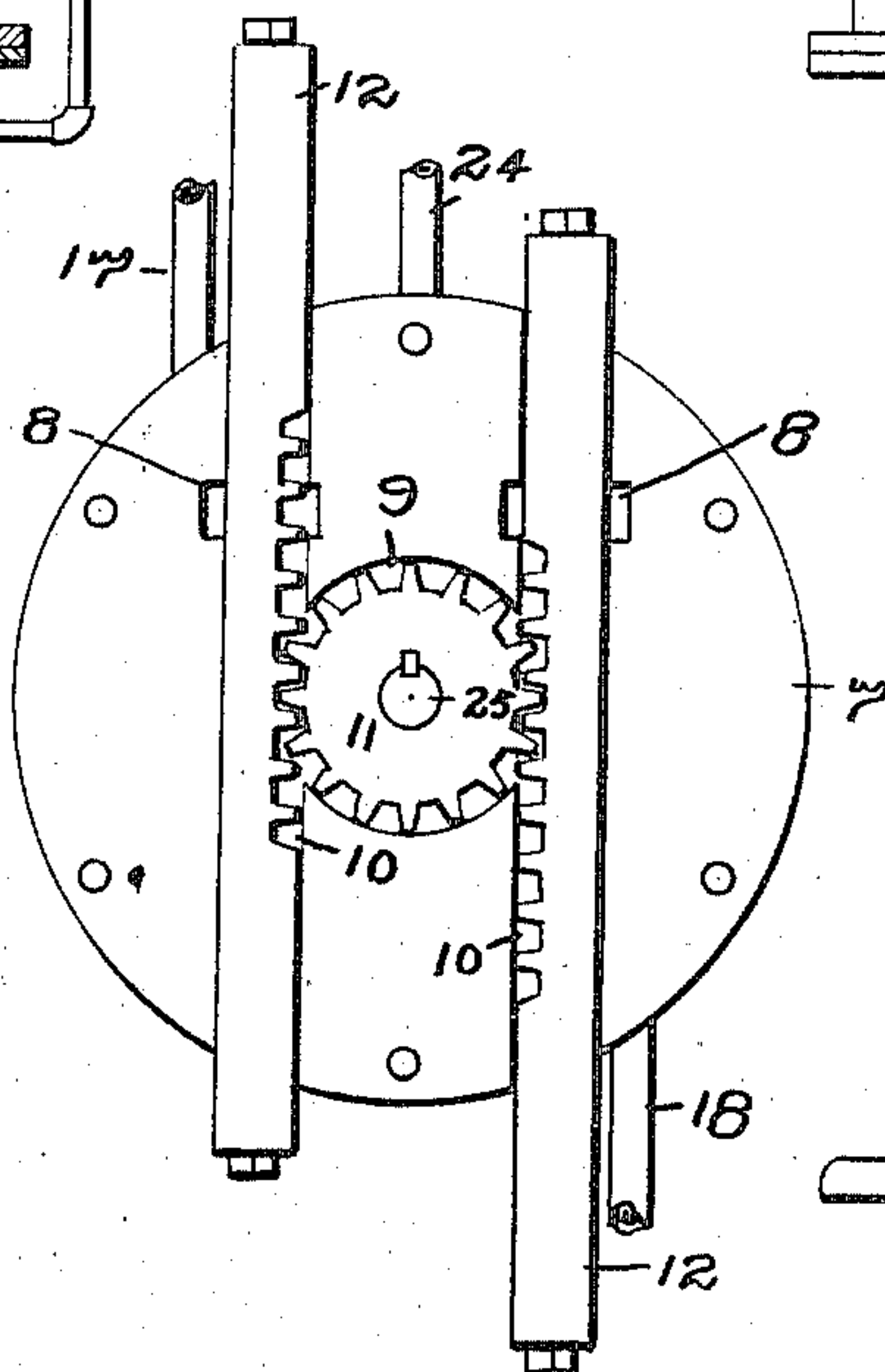


FIG. 3.



WITNESSES:

Prudence M. Karney
J. Edwards

INVENTOR

George A. Conrath,
BY HIS ATTORNEY
Richard D. Harrison.

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2 SHEETS--SHEET 2.

FIG. 5.

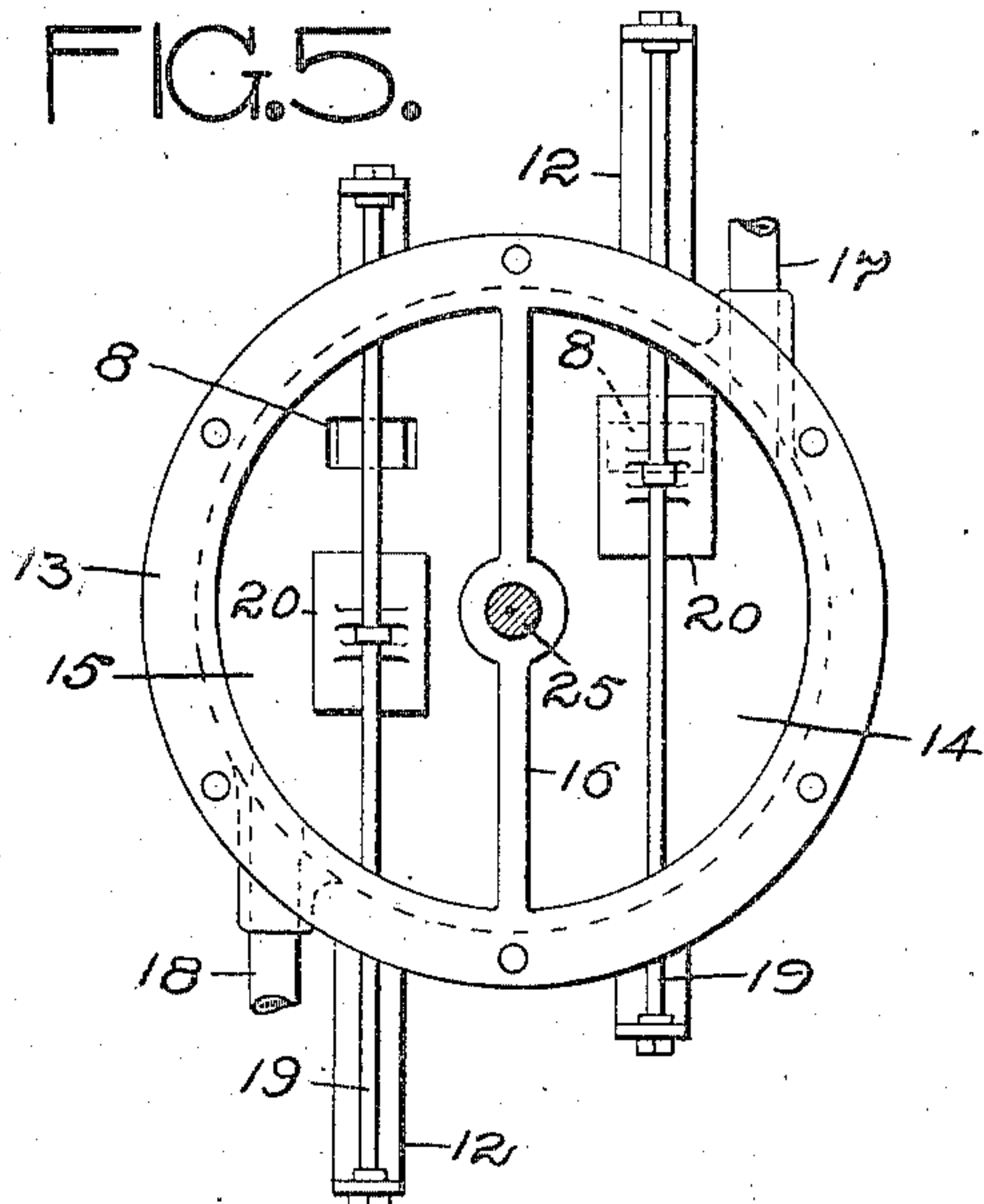


FIG. 6.

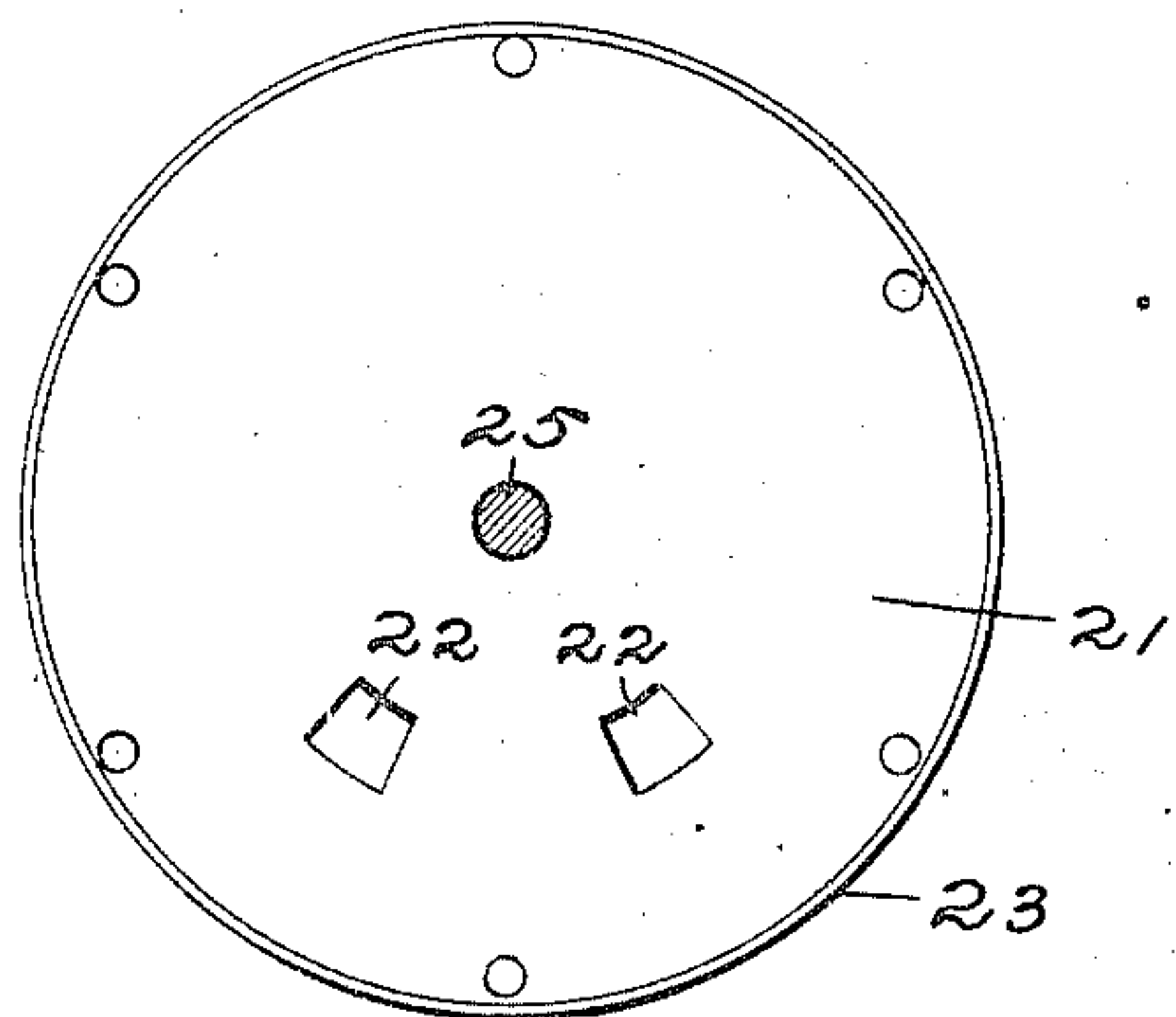


FIG. 7.

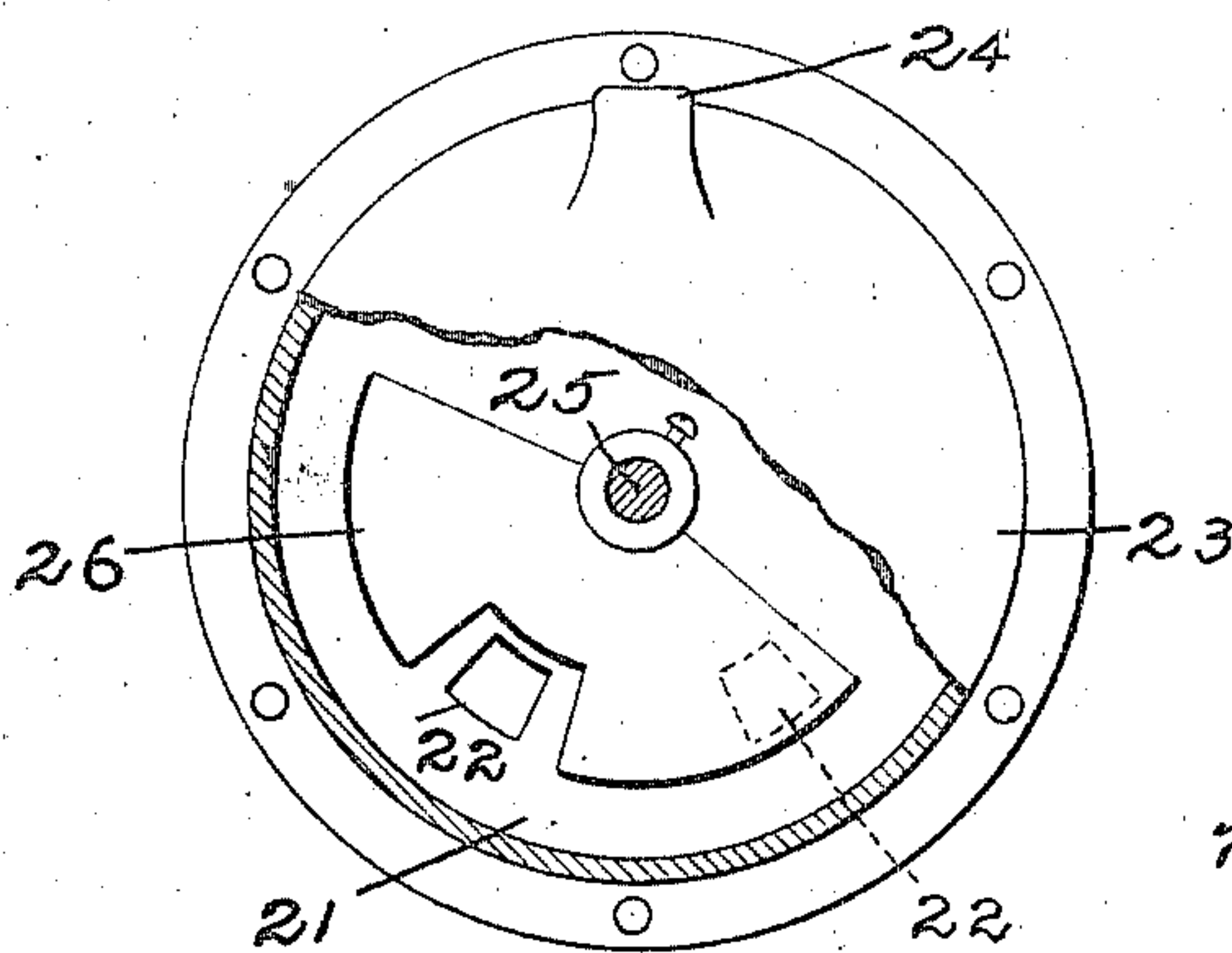


FIG. 4.

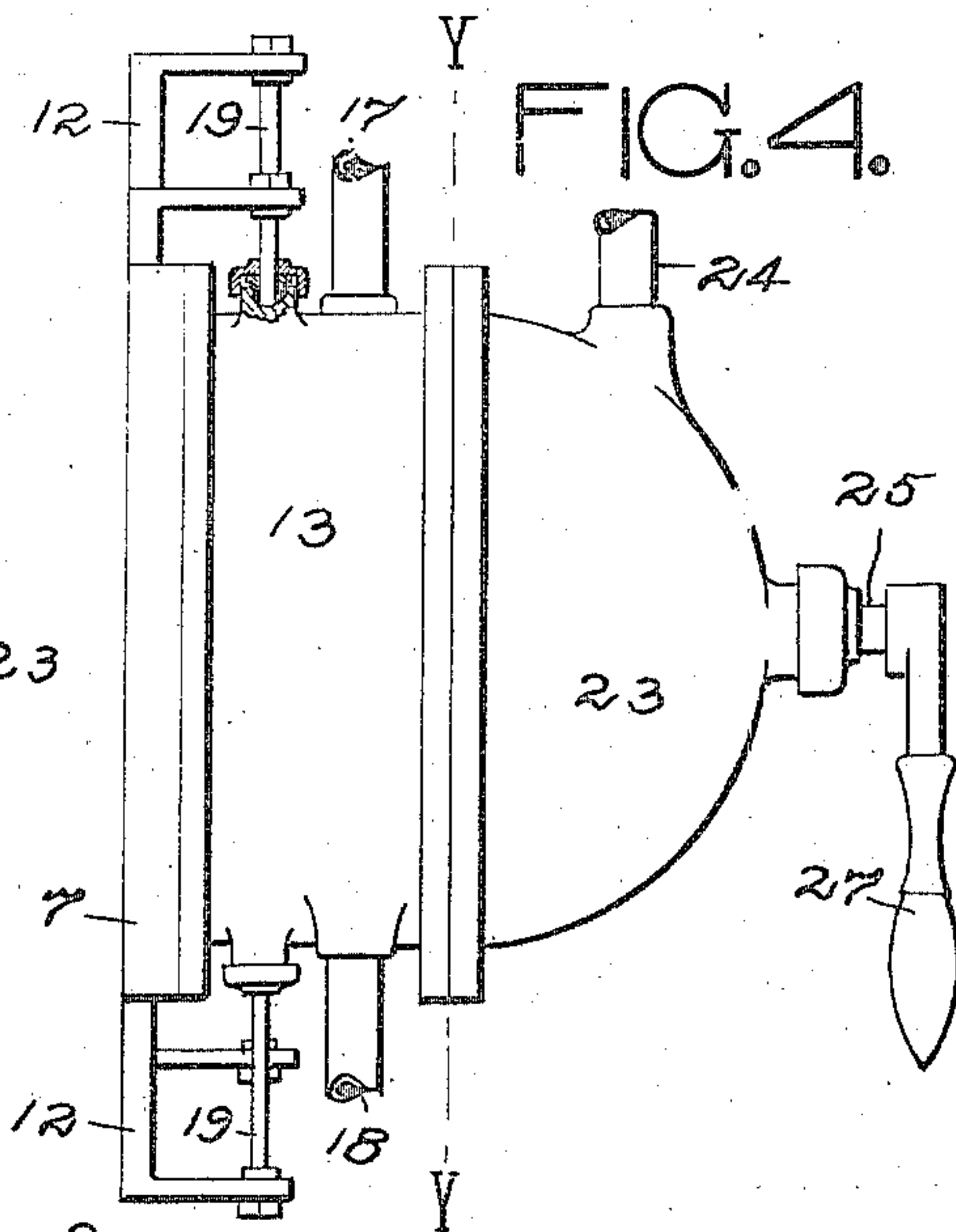
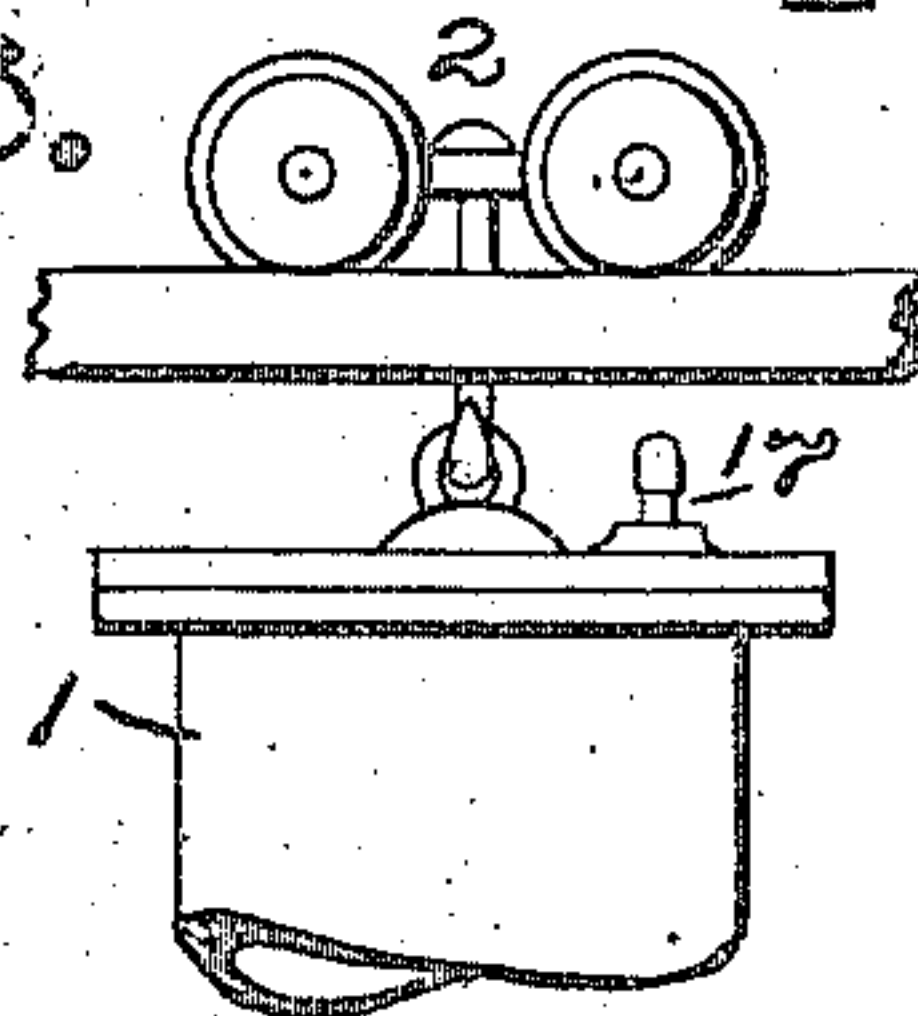


FIG. 8.



WITNESSES:

Prudence M. Harvey
J. C. Edwards

INVENTOR

George A. Conrath
BY his ATTORNEY
Richard D. Garrison

UNITED STATES PATENT OFFICE.

GEORGE A. CONRATH, OF BLAIRSVILLE, PENNSYLVANIA, ASSIGNOR TO
THE PENN ENAMEL-WARE CO., A CORPORATION OF NEW YORK.

DEVICE FOR RAMMING SAND CORES.

SPECIFICATION forming part of Letters Patent No. 755,620, dated March 29, 1904.

Application filed August 6, 1903. Serial No. 168,488. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. CONRATH, a citizen of the United States, residing at Blairsville, in the county of Indiana and State of Pennsylvania, have invented a new and useful Improvement in Devices for Ramming Sand Cores, of which improvement the following is a specification.

This invention has for its object the provision of a power device under the control of the operator adapted for service in ramming up green sand cores and molds, particularly to cores and molds of large surface area and extra depth.

In the accompanying drawings I have by various views illustrated my improved device in full and in detail, in which drawings—

Figure 1 is a vertical front elevation of the device detached from its vertical support. Fig. 2 is a similar view of the same in longitudinal section, showing the interior arrangement. Fig. 3 is an enlarged rear view of the valve-chamber and attending parts disconnected from the cylinder on the line *a a* of Fig. 2. Fig. 4 is a side view of the same. Fig. 5 is a front view of said valve-chamber having the front portion disconnected at line *Y Y* of Fig. 4. Fig. 6 is a rear view of the front portion of said chamber, showing the ports. Fig. 7 is a front view of the same, showing the valve for controlling said ports. Fig. 8 is a vertical front elevation of the upper portion of said device, showing the same suspended from its overhead carriage.

Further referring to the views of said drawings collectively for a detailed description of the parts of said device and their assemblage, the numeral 1 designates a cylinder suspended at its upper end from a carriage 2, which is travelable upon a track 3, said cylinder having fitted therein a piston 4, the rod 5 of which is provided with a ramming-head 6. Attached to the side of said cylinder is a plate 7, provided with ports 8, registering with similar ports in said cylinder. This plate is provided upon its rear surface where it engages with the cylinder with countersunk seats 9 and 10 for the reception of the gear-pinion 11 and gear-racks 12. Attached to said ported plate

is the cylindrical casing 13, divided into two compartments or chambers 14 and 15 by a central partition 16, one of which chambers communicates with one end of the main cylinder by a pipe 17 and the other with the opposite end of said cylinder by a pipe 18. A pair of valve-rods 19 pass through said chambers and are attached at their ends to lugs upon the ends of said gear-racks, which rods carry slide-valves 20 to control the air through the ports to and from the respective ends of the cylinder. A chamber 23 is secured over said ported plate to the cylindrical casing 13, which chamber is adapted to receive air through the medium of a supply-pipe 24, communicating therewith. To the shaft 25, which is secured to the gear-pinion at the rear and extends through the plates and chambers, is attached an oscillatable valve 26 for controlling the air through the ports 22 to the respective chambers, said shaft being provided with a handle 27 to oscillate the same.

In practice the mold to be operated upon is moved beneath the device and supplied with a sufficient quantity of sand. The operator then grasps the handle 27 and moves the same the required distance—say to the left. Now as the valves 20 are adapted to move in opposite directions and in parallel relation and the valve 26 is adapted to perform an oscillating movement simultaneously therewith by turning said handle the ports 8 and 22 on the left will be open and those on the right closed, permitting the air to pass therethrough to the upper end of the cylinder, causing the piston to descend and the ramming-head carried thereby to compress the sand in the mold. The handle being then turned in an opposite or right-hand direction opens the ports on that side, permitting the air to pass therethrough to the lower end of the cylinder, causing the piston to again be elevated. By alternately turning the handle from left to right the piston carrying the ramming-head is caused to descend and compress the sand and be returned to its former elevated position, the air from the inactive end of the cylinder being exhausted or returned to the valve-chamber through the pipes 17.

When ramming the sand in the mold, the device is moved upon its truck or carriage, so as to enable the entire mold-surface to be acted upon.

5 By means of this device much time and labor are saved in preparing the mold, and the sand is more uniformly rammed than is possible by hand.

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

1. In a power ramming device for sand molds, an engine comprehending a cylinder, of independent secondary valve-chambers each
15 provided with a port communicating with said cylinder, parallel reciprocating slide-valves controlling said secondary ports, a primary valve-chamber communicating with the air-supply and with each of said secondary valve-
20 chambers by separate ports, an oscillatable shaft carrying a valve for controlling said primary valve-ports, members operatively connecting said slide-valves with the member for operating the oscillating valve whereby
25 they all move simultaneously, and exhaust passage-ways leading from each end of said cylinder to its respective secondary chambers,

the ramming-head of said device being attached to the engine-piston, as set forth.

2. In a power ramming device for sand molds, an engine comprehending a cylinder, of independent secondary valve-chambers each
30 provided with a port communicating with said cylinder, parallel gear-racks carrying slide-valves controlling said secondary ports, a primary valve-chamber communicating with the
35 air-supply and with each of said secondary valve-chambers by separate ports, an oscillatable shaft carrying a valve for controlling said primary valve-ports, a pinion carried by
40 said shaft to engage said gear-racks to cause said valves to move simultaneously, and an exhaust passage-way leading from each end of said cylinder to its respective secondary valve-
45 chamber, the ramming-head of said device being attached to the engine-piston, as set forth.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE A. CONRATH.

In presence of—

G. M. HAUFF

H. M. YEALY.