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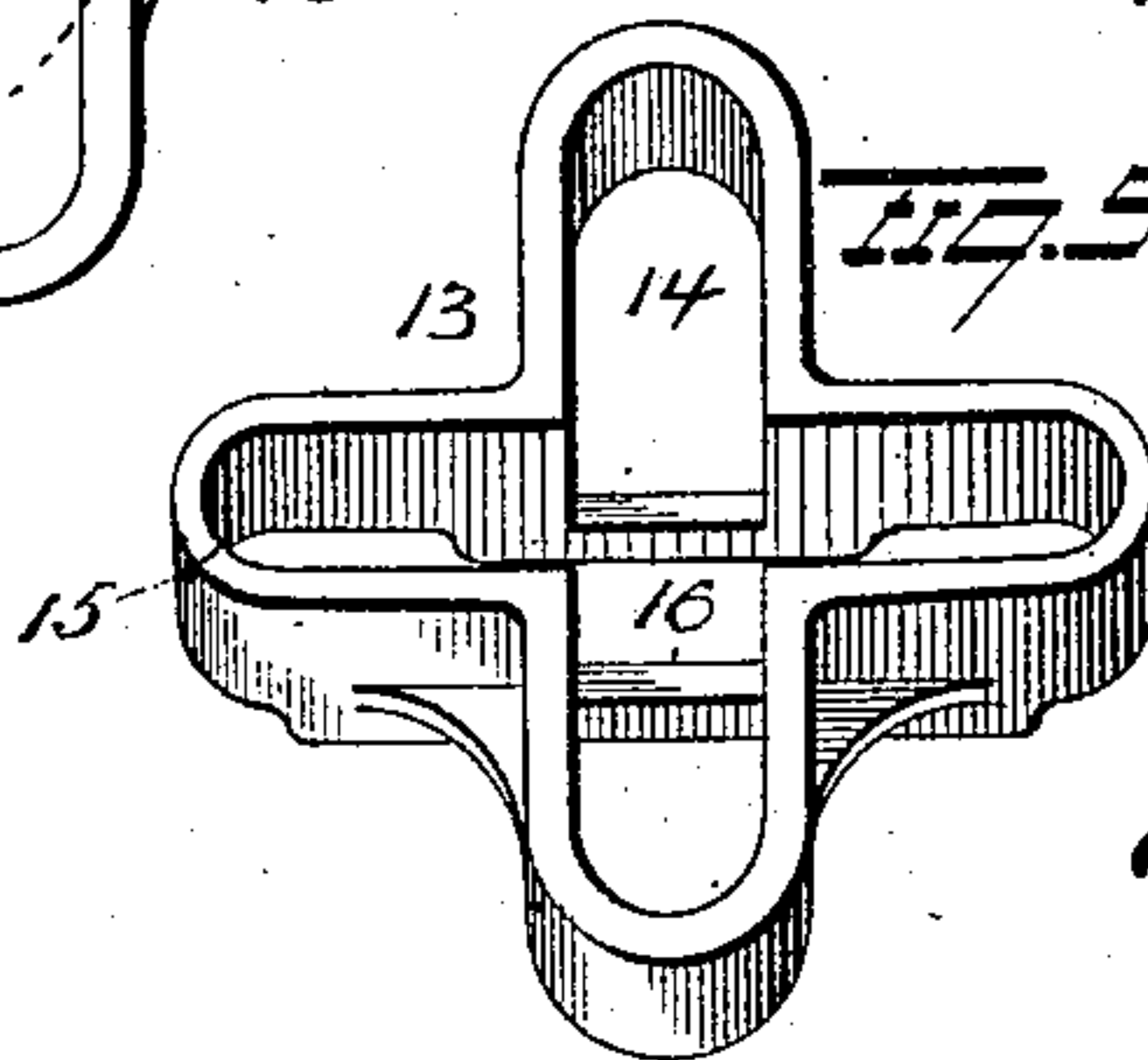
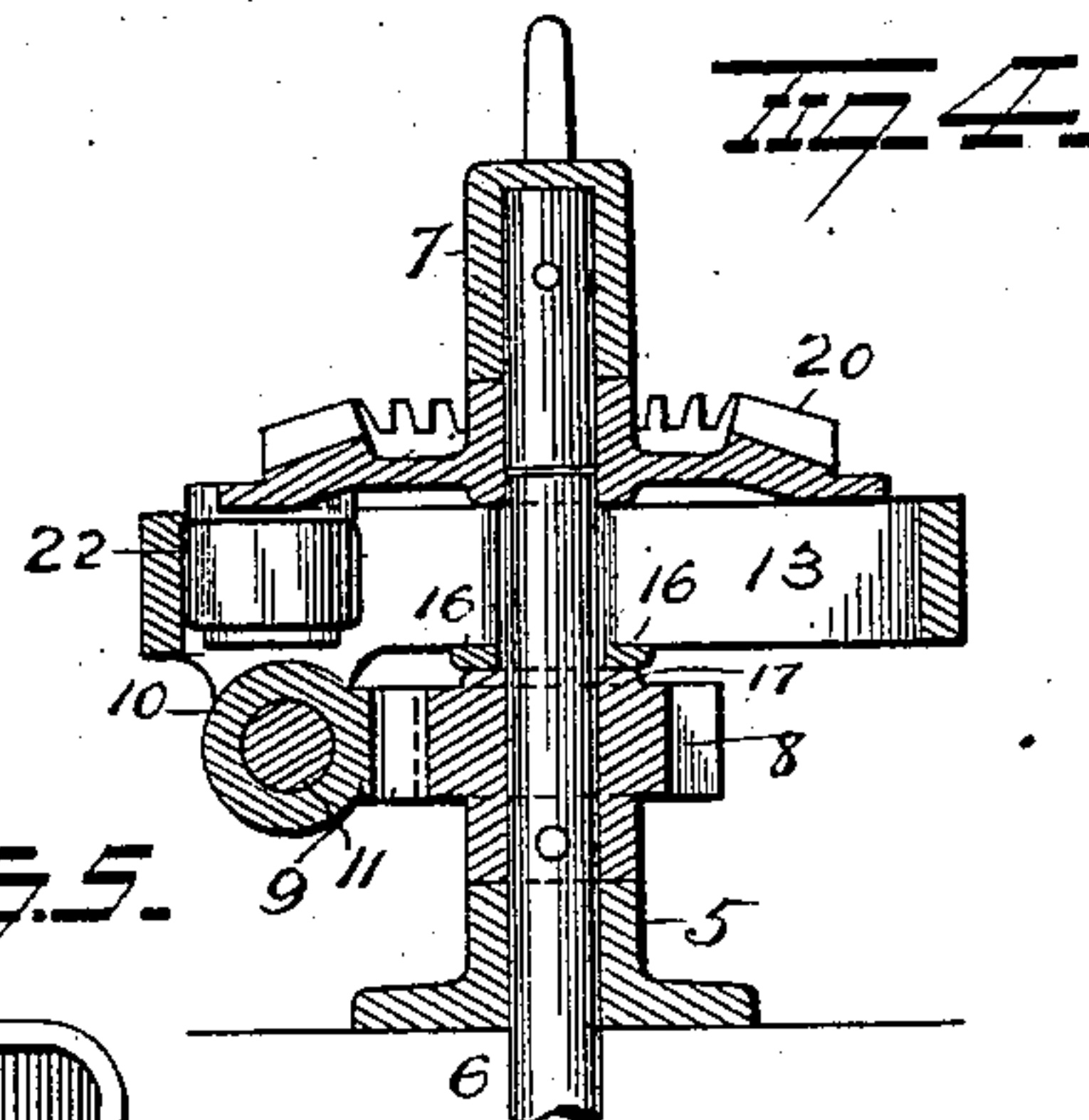
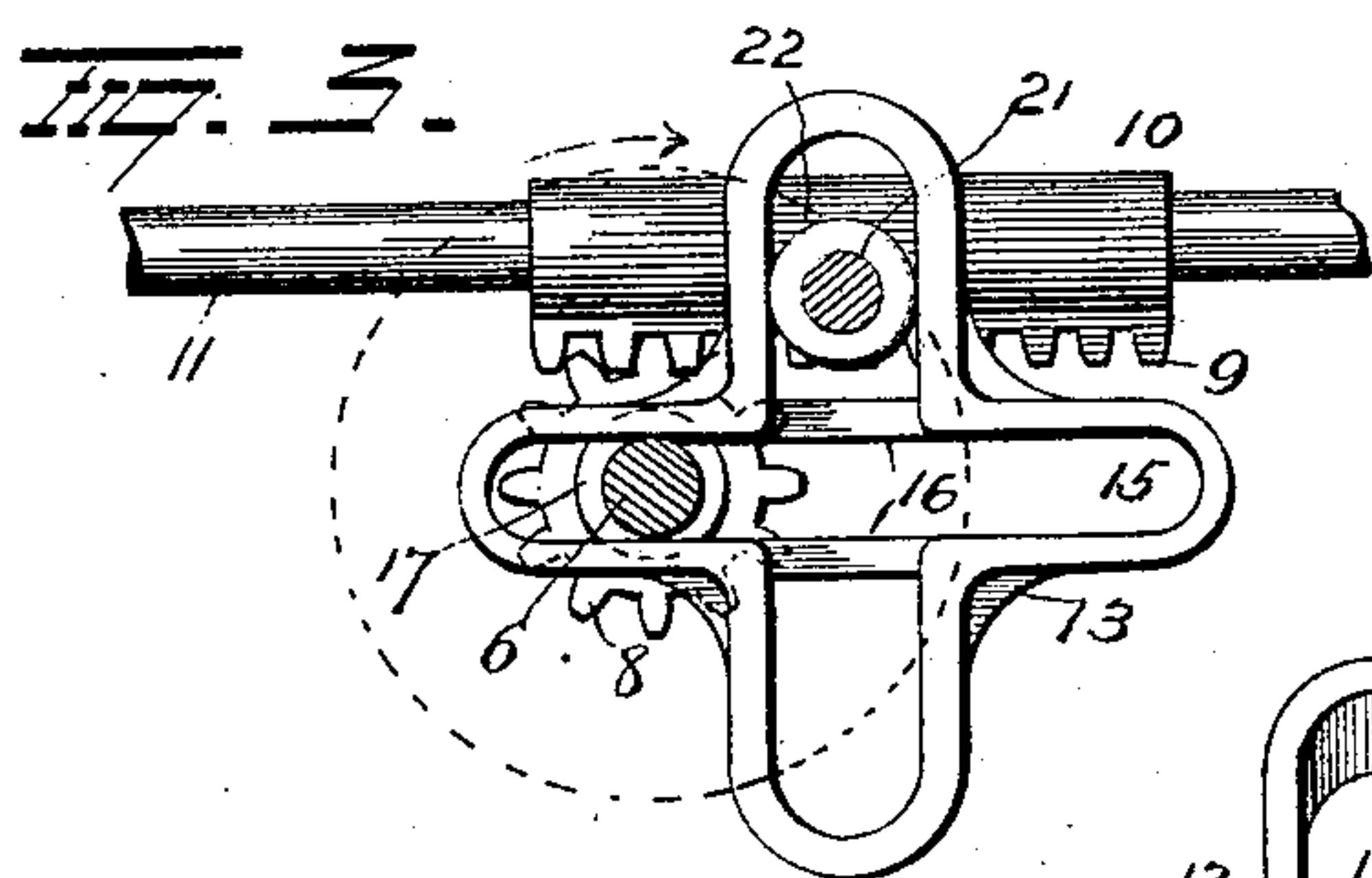
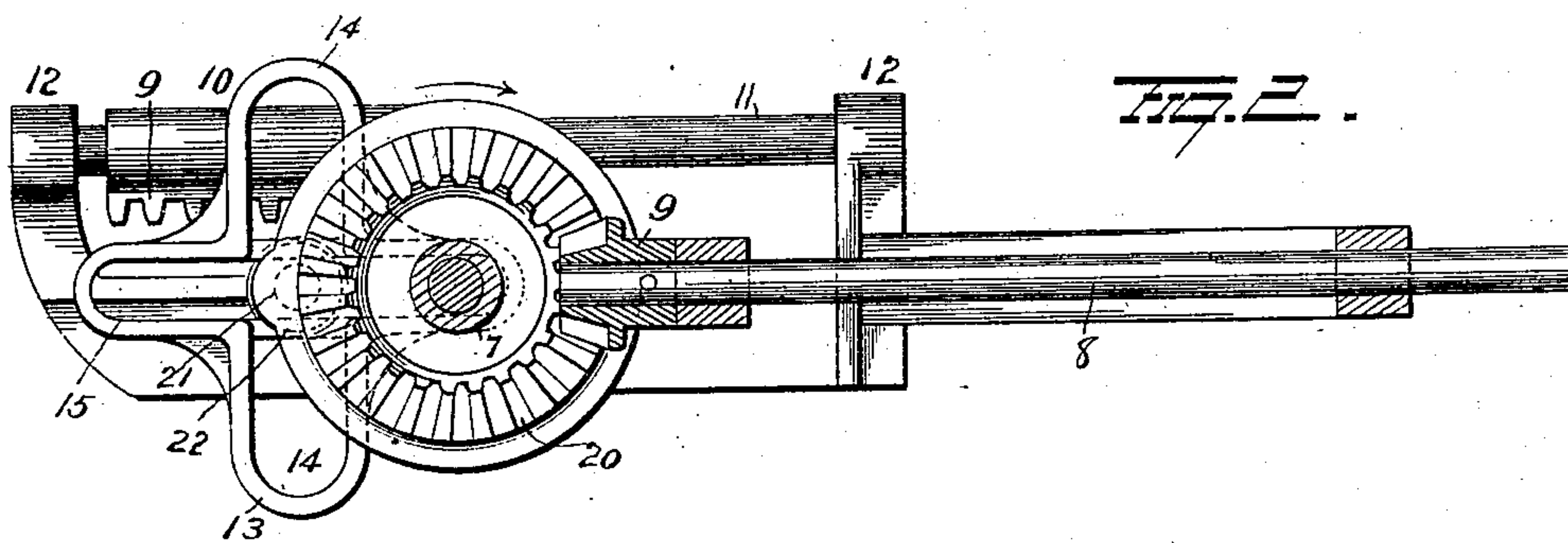
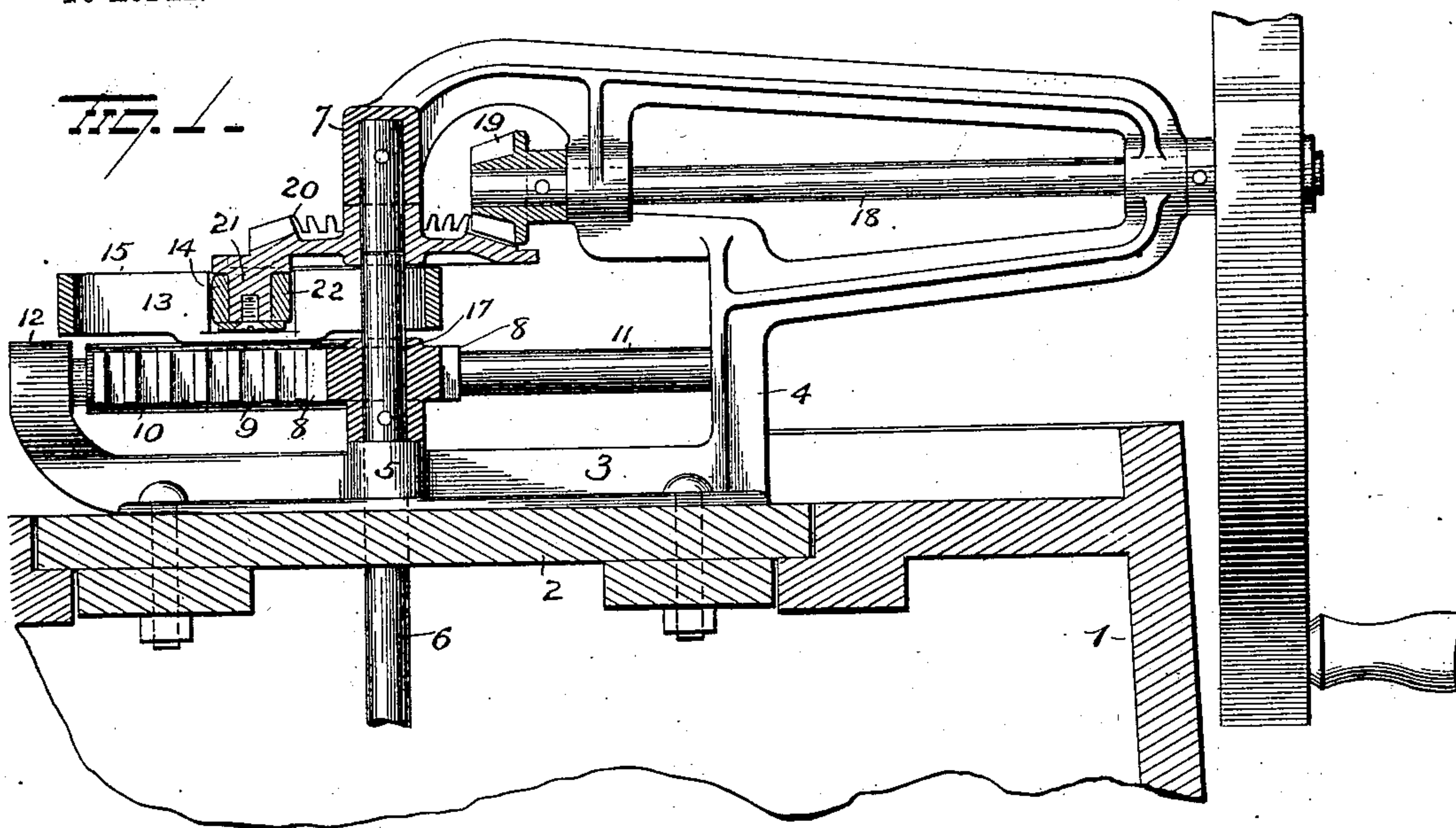
PATENTED MAR. 17, 1903.

J. E. HAUSFELD.
ALTERNATING ROTARY GEARING.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES
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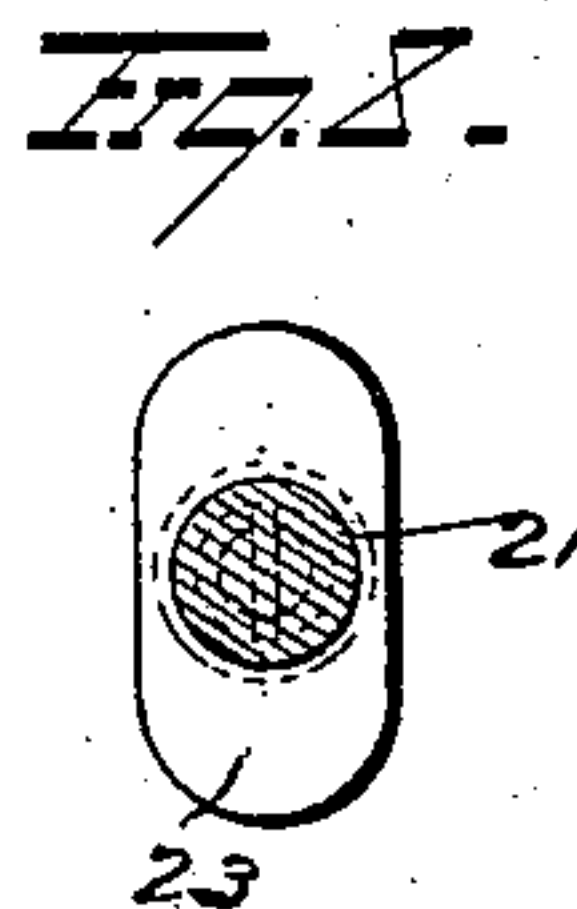
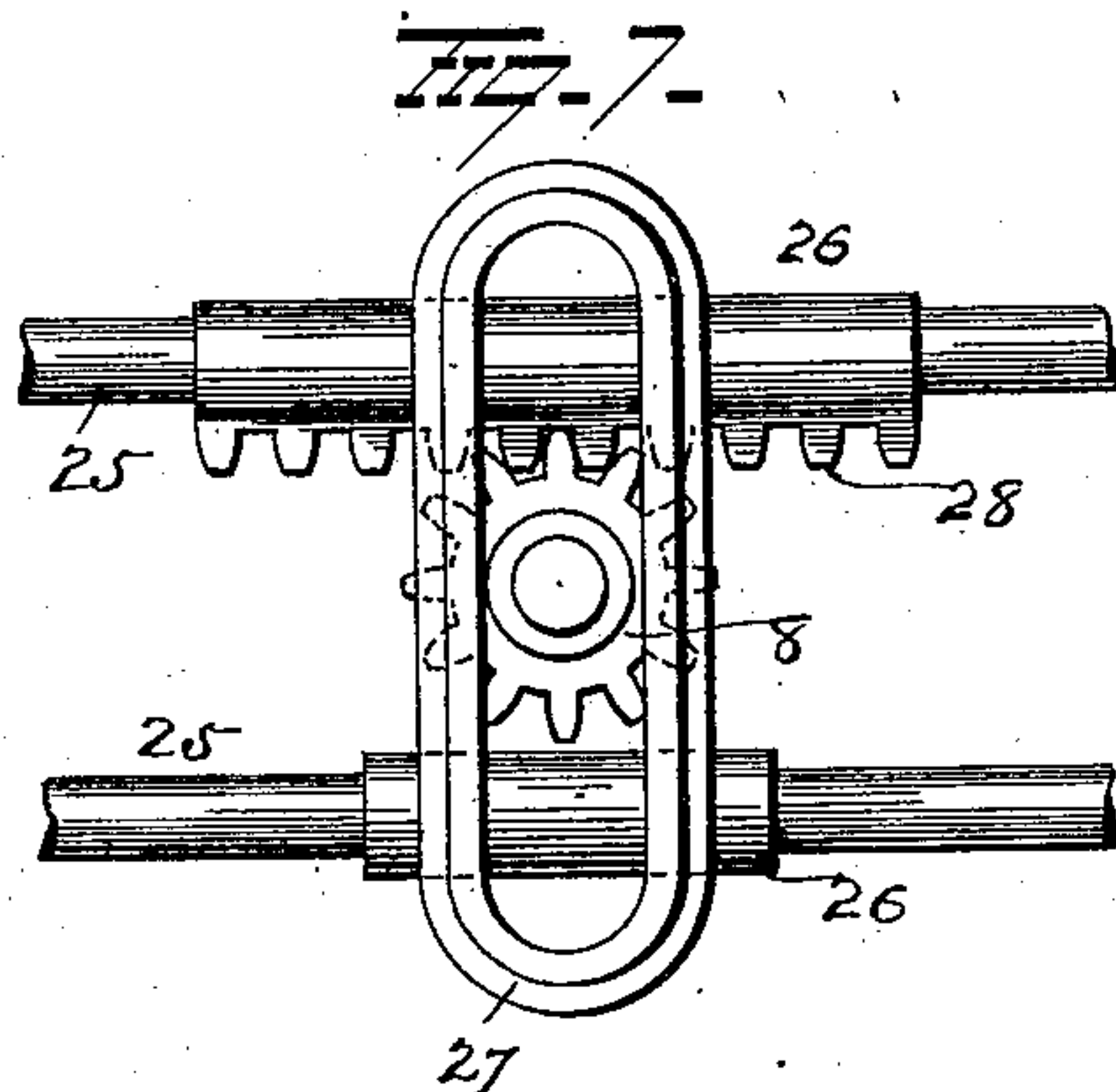
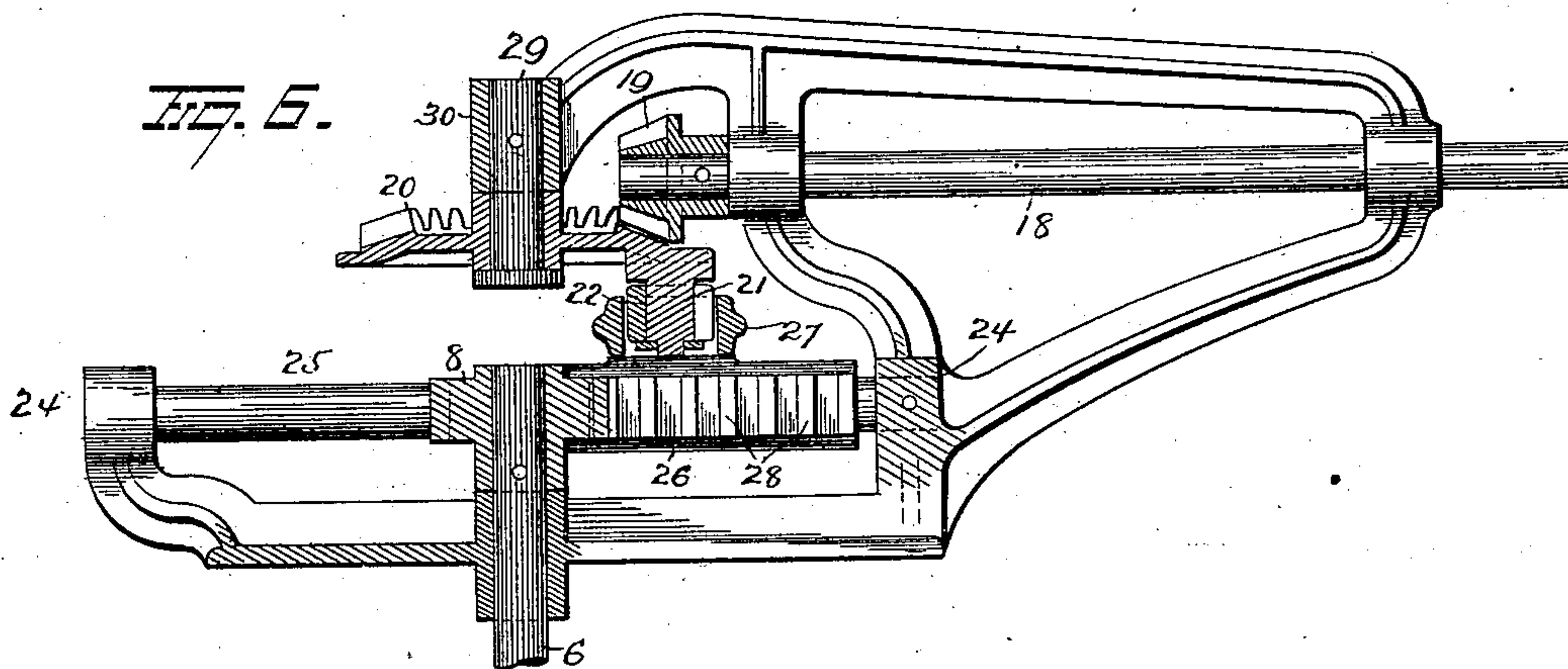
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UNITED STATES PATENT OFFICE.

JOSEPH E. HAUSFELD, OF CINCINNATI, OHIO, ASSIGNOR TO ERNST H. HUENEFELD, OF CINCINNATI, OHIO.

ALTERNATING ROTARY GEARING.

SPECIFICATION forming part of Letters Patent No. 722,704, dated March 17, 1903.

Application filed December 2, 1902. Serial No. 133,609. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. HAUSFELD, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Alternating Rotary Gearing; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved alternating rotary gearing, and more particularly to a gearing for rotating alternately in reverse directions the dasher or agitator of a washing-machine and the like, the object of the invention being to provide improved mounting and means for reciprocating a sliding rack to rotate a driven pinion in opposite directions.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation illustrating my improvements. Fig. 2 is a top plan view. Figs. 3, 4, and 5 are views of details; and Figs. 6, 7, and 8 are views illustrating modifications.

1 represents a tub, having a cover 2, to which my improvements are secured, as will now be explained.

On the cover 2 the base-plate 3 of a frame 4 is secured and is made with a bearing 5 to receive a shaft 6, which latter projects up into a bearing 7 in frame 4 and down into the tub 1 and is adapted to have secured thereto any approved dasher or agitator. A pinion 8 is secured on the shaft 6 and rests on bearing 5 and is in mesh with a rack 9, integral with a sleeve 10, supported to slide upon a rod 11, secured in arm 12 of frame 4. My improved guide-frame 13 is made integral with or secured to sleeve 10 and comprises two slots or guideways 14 and 15, respectively, the former preferably of greater width than the latter and located at right angles to sleeve 10 and the guideway 15 located parallel to the sleeve and adapted to inclose the shaft 6 and move thereon. This guide-frame 13 is provided on its lower edge with parallel flanges 16 to run

on a collar 17 at the upper end of pinion 8, and thereby reduce friction and hold the frame in proper working position.

Frame 4 is made with alined bearings for a drive-shaft 18, on the outer end of which a hand-wheel or other driver is secured to facilitate turning the shaft. On the inner end of this shaft 18 a beveled gear 19 is secured and meshes with a beveled gear 20, loosely mounted on driven shaft 6, and this latter gear 20 is provided on its lower face at or near its periphery with a crank-pin 21, carrying an antifriction-roller 22, movable in guideway 14 to reciprocate the guide-frame and rack, as will now be explained.

The operation of my improvements is as follows: Drive-shaft 18 is turned in either direction to transmit motion to gear 20 by means of gear 19 meshing therewith. As gear 20 turns, crank-pin 21, with roller 22 thereon, moving in guideway 14, will move the guide-frame back and forth and reciprocate sleeve 10 and rack 9 and rotate pinion 8 and driven shaft 6 alternately in reverse directions. As gear 20 turns it will be seen crank-pin 21 and roller 22 move from end to end of guideway 14 and guideway 15 moves back and forth on shaft 6, and flanges 16 at the bottom thereof resting on the collar 17 of pinion 8 always maintain the parts in proper working position.

To prevent possibility of crank-pin 21 moving partially into guideway 15 while crossing the same, I may mount thereon a sliding block 23, as shown in Fig. 8. This block is of sufficient length to prevent any possibility of its moving wholly or partially into the guideway 15, and thereby insure a smooth-running mechanism.

Instead of constructing my improvements as above described I might make them as shown in Figs. 6 and 7. In this form of my invention the frame 4 is provided at each end with T-heads 24, in the ends of which parallel rods 25 are secured. On these rods 25 sleeves 26 are mounted to slide and have secured thereto or made integral therewith a guideway 27, and one of said sleeves 26 is made with a rack 28, meshing with the driven pinion 8. The drive-shaft 18 is supported in bearings in frame 4 and carries the beveled

gear 19, meshing with beveled gear 20, which latter is supported upon a headed shaft 29, secured in an overhanging arm 30 of frame 4. The gear 20 has crank-pin 21 and anti-friction-roller 22 thereon to run in guideway 27 to reciprocate the sleeves 26 and rack 28 and rotate driven pinion 8 alternately in reverse directions.

A great many other changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I do not confine myself to the precise constructions set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. The combination with a driven shaft, a pinion secured thereto, a rack meshing with the driven pinion, and a guide carried by the rack, and disposed in a plane parallel therewith, of a gear-wheel, a crank-pin on said gear-wheel and engaging the guide, a driving-shaft and a pinion secured to the driving-shaft and meshing with said gear-wheel, substantially as set forth.

2. The combination with a driven shaft, a pinion secured thereto, a rack meshing with the driven pinion, and a guide carried by the rack, of a gear-wheel loosely mounted on the driven shaft and provided with a crank-pin that engages the guide, a driving-shaft and a pinion secured to the driving-shaft and meshing with said gear-wheel, substantially as set forth.

3. The combination with a driven shaft, a pinion secured thereto, a rack meshing with the driven pinion, and a horizontally-disposed guide carried by the rack, of a gear-wheel, a crank-pin on said gear-wheel, an anti-friction-roller on the crank-pin engaging the guide, a driving-shaft, and a pinion secured to the latter and meshing with said gear-wheel, substantially as set forth.

4. The combination with a driven shaft, a pinion secured thereto, a rack meshing with the driven pinion and a guide carried by the rack and located at right angles to the driven shaft, of a gear-wheel loosely mounted on the driven shaft and provided with a crank-pin

that engages the guide, a driving-shaft and a pinion secured to the latter and meshing with said gear-wheel, substantially as set forth.

5. The combination with a driven shaft, a pinion secured thereto, a rack meshing with the driven pinion and a guide carried by the rack and slotted to receive the driven shaft, of a gear-wheel loosely mounted on the driven shaft and provided with a crank-pin that engages the guide, a driving-shaft and a pinion secured thereto that meshes with said gear-wheel, substantially as set forth.

6. The combination with a frame and a rod carried thereby, of a sleeve mounted to slide on the rod, a driven shaft projecting up through the frame, a pinion secured thereto, a rack on the sleeve meshing with the pinion, a slotted guide-frame, substantially as shown and described, carried by the sleeve and movable on the driven shaft, a drive-shaft, a gear thereon, another gear driven by the first-mentioned gear and carrying a crank-pin located in the slotted guide-frame, and an anti-friction-roller on said crank-pin.

7. The combination with a driven shaft, a pinion secured thereto, a guide-rod, a sleeve mounted to slide on the guide-rod, a rack on said sleeve, a slotted horizontally-disposed guide, a gear-wheel, a crank-pin on said gear-wheel carrying the slot in the guide, a driving-shaft and a pinion secured thereto which meshes with said gear-wheel, substantially as set forth.

8. The combination with a driven shaft, a pinion secured thereto, a rack meshing with the driven pinion, a guide carried by the rack and supported by the driven pinion, said guide being provided with two slots crossing each other, in one of which is located the driven shaft, of a gear-wheel provided with a crank-pin that engages one of the slots in the guide, a driving-shaft and a pinion secured thereto and meshing with said gear-wheel, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH E. HAUSFELD.

Witnesses:

J. R. CARTER,

J. P. BAUER, Jr.