

No. 867,418.

PATENTED OCT. 1, 1907.

B. O. RINGO.  
MECHANICAL MOVEMENT.  
APPLICATION FILED DEC. 4, 1906.

Fig. 1.

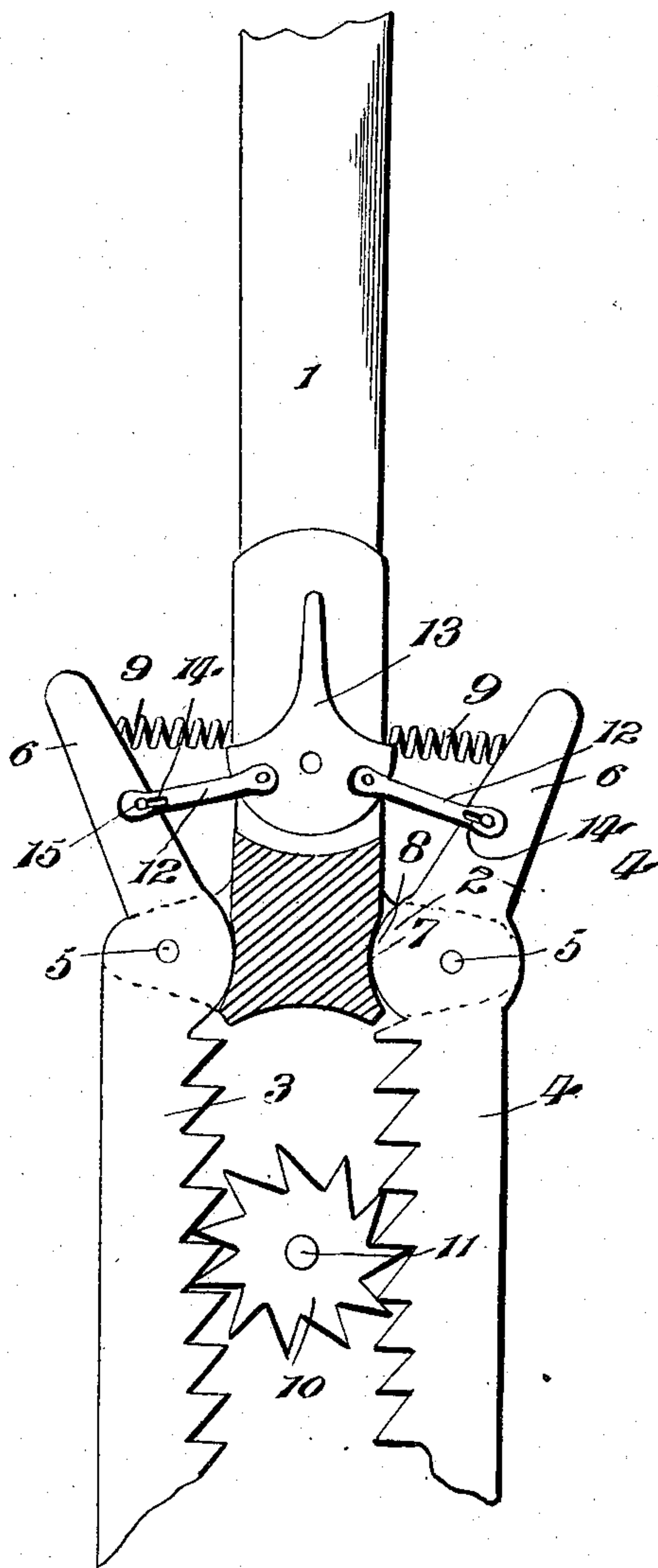
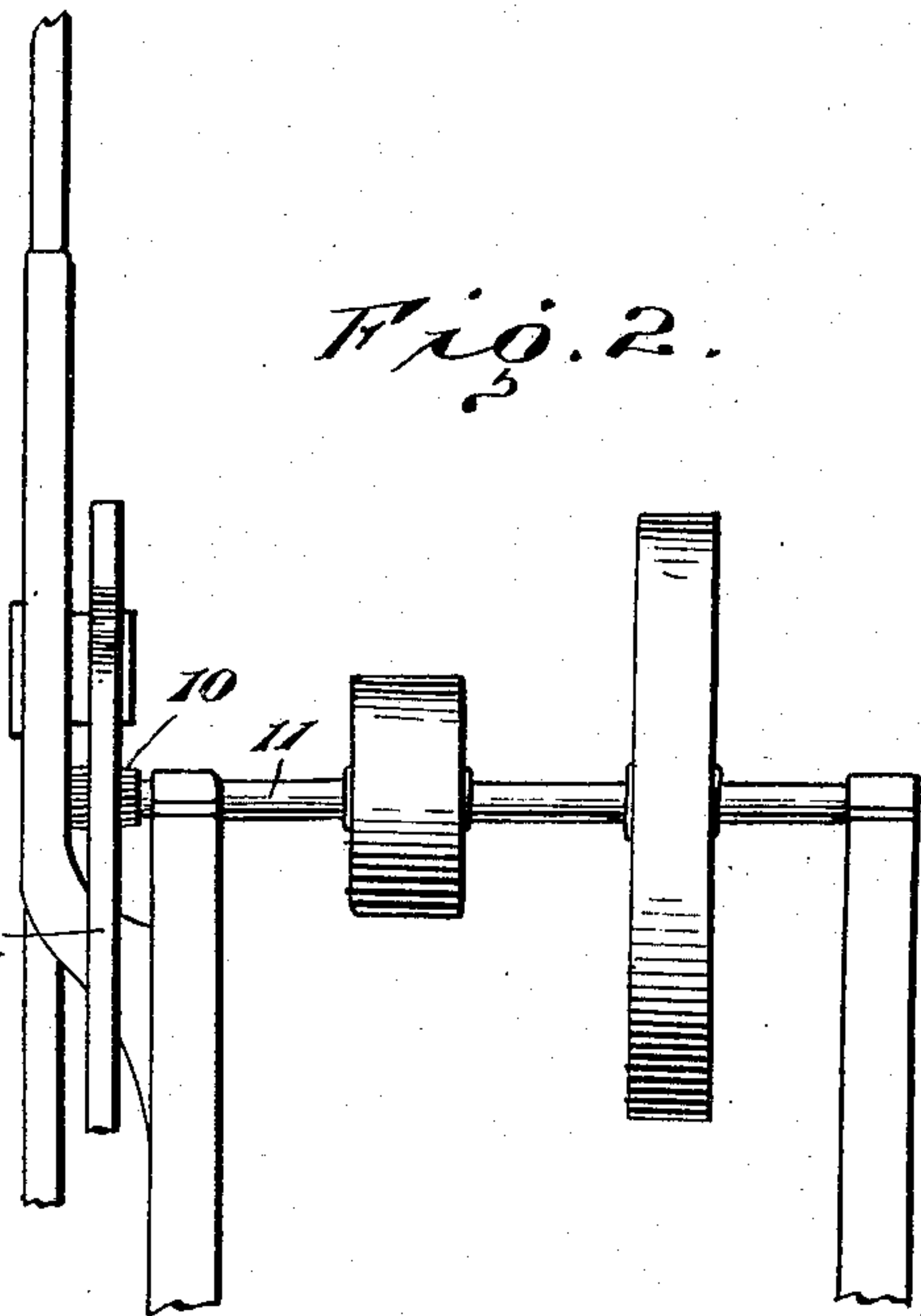


Fig. 2.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## MECHANICAL MOVEMENT.

No. 867,418.

Specification of Letters Patent.

Patented Oct. 1, 1907.

Application filed December 4, 1906, Serial No. 346,320.

*To all whom it may concern:*

Be it known that I, BENJAMIN O. RINGO, a citizen of the United States, residing at Perry, in the county of Noble and Territory of Oklahoma, have invented certain new and useful Improvements in Mechanical Movements, of which the following is a specification.

This invention appertains to the type of mechanisms for transmitting power and converting a reciprocating movement into a rotary movement, the present mechanism being especially adapted for windmills for transmitting power from the pump to a shaft, since it provides for throwing the mechanism out of operation at any time without interfering with the continued operation of the wind engine.

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 thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a view in elevation of the power transmitting mechanism embodying the invention. Fig. 2 is a detail view showing an application of the mechanism.

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.

The rod or bar 1 to which movement is imparted from any suitable source of power may be a pitman or the pump rod of a windmill and is provided with a head 2 and companion rack bars 3 and 4 pivoted to the head at 5, each of the rack bars having an arm 6 projected beyond the pivot support 5, preferably at an angle to the path of movement of the rod, or bar 1. Each rack bar has the portion adjacent to the pivot 5 made rounding as at 7 to fit a corresponding depression 8 in the side of the head 2, forming in effect a ball and socket joint which relieves the pivot fastening 5 in a great measure of the strain which would otherwise be sustained thereby.

A spring 9 of the coil type is interposed between each arm 6 and the rod, or bar 1 and exerts an outward pressure upon the arm to hold the rack bar inward to insure positive engagement between its teeth and the teeth of a pinion 10 fast upon a shaft 11 which is the recipient of the power transmitted thereto from the rod, or bar 1, through the intermediate toothed elements 3, 4 and 10.

Links 12 are pivotally connected at their inner ends to a lever 13 which is pivoted to a side of the rod, or bar 1, adjacent to the head 2, said links extending outward in opposite directions and having a pin and

slot connection with the arms 6 of the respective rack bars. Each link 12 has a longitudinal slot 14 near its outer end to receive a pin 15 extended from the arm 6. When the parts are in normal position, and the rack bars 3 and 4 are parallel, the pins 15 occupy a position at the outer ends of the slots 14, thereby preventing inward movement of the rack bars while at the same time admitting of the rack bars swinging outward upon their pivot supports 5, when in the operation of the mechanism, the teeth of one or the other of the rack bars slip, or ride, upon the teeth of the pinion 10.

The teeth of the pinion 10 have one face straight and the opposite face inclined, and the teeth of the rack bars 3 and 4, face in opposite directions so that upon movement of the rod, or bar 1, in one direction, the teeth of one rack bar will engage positively with the pinion 10 and effect rotation thereof, whereas the teeth of the other rack bar, at the same time slip, or ride, upon the teeth of the pinion and upon movement of the rod, or bar 1, in the opposite direction, the reverse of the operation just described takes place. As indicated, the teeth of the rack bar 3 face upward, whereas the teeth of the rack bar 4 face downward, hence upon upward movement of the rod 1, the teeth of the rack bar 3 engage positively with the teeth of the pinion 10 and rotate the latter to the right, while at the same time the teeth of the rack bar 4 slip or ride upon the teeth of the pinion 10. Upon downward movement of the rod 1, the teeth of the rack bar 4 engage positively with the teeth of the pinion and the teeth of the rack bar 3 slip thereon.

It will be understood that the pinion is positively rotated in the same direction both upon the up stroke and down stroke of the rod 1. By throwing the lever 13 to the right, the arms 6 of the rack bar are thrown inward and the rack bars are moved outward so as to throw their teeth out of engagement with the teeth of the pinion, thereby transmitting a reciprocating movement to the rod 1 without imparting movement to the pinion 10.

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

1. In a mechanical movement, the combination of a head adapted to have a reciprocating movement imparted thereto, a pinion, rack bars arranged upon opposite sides of the pinion and having their teeth facing in opposite directions the said rack bars being pivoted to the head and having arms extending beyond their pivot points, a lever pivotally mounted upon the head, and links connecting the lever and the arms of the rack bars, the said links having a pivotal connection with one of the parts and a pin and slot connection with the opposite part.

2. In a mechanical movement, the combination of a reciprocating rod, a head carried by the rod and provided upon opposite sides thereof with depressions, a pinion, a pair of rack bars pivotally mounted upon opposite sides of the head and located upon opposite sides of the pinion, the pivot ends of said rack bars being formed with enlargements fitting loosely within the before mentioned depres-



sions in the head and the said rack bars having their teeth in coöperative relation with the teeth of the pinion, and means for normally holding the rack bars in engagement with the pinion.

- 5 3. In a mechanical movement, the combination of a pinion, rack bars located upon opposite sides of the pinion and having their teeth facing in opposite directions and in coöperative relation with the teeth of said pinion, a head mounted to receive a reciprocating movement and having  
10 said rack bars pivoted thereto, and having an approximate ball and socket joint between the said rack bars and head, means for holding the rack bars in coöperative relation with the pinion, a lever, and a link connection between  
15 said lever and the rack bars to admit of independent pivotal movement of the latter, or of throwing the rack bars out of action as may be required.

4. In a mechanical movement, the combination of a head

adapted to have a reciprocating movement imparted thereto, a pinion, rack bars arranged upon opposite sides of the pinion and having their teeth facing in opposite directions and pivoted to the said head, and having arms extended beyond their pivots, springs exerting an outward pressure upon said arms, a lever having pivotal connection with the said head, links between the arms of the rack bars and the said lever and having pivotal connection with one  
20 of said parts, and a pin and slot connection with the other  
25 of said parts.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN O. RINGO. [L. S.]

Witnesses:

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J. R. BARNES.