

UNITED STATES PATENT OFFICE.

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DEVICE FOR CONVERTING MOTION.

SPECIFICATION forming part of Letters Patent No. 277,345, dated May 8, 1883.

Application filed March 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOEL R. RICKETTS, a citizen of the United States of America, residing at Strafford, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Converting Motion; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved hand-motor or mechanism for driving machinery by hand-power, its object being to provide a mechanism of this class by means of which a large amount of driving force may be applied.

The invention consists in certain novel constructions and combinations of devices, for a full understanding of which it will be necessary to refer to the accompanying drawings, in connection with the following particular description.

In the drawings, Figure 1 is a side elevation of my improved hand-motor. Fig. 2 is an elevation of the motor on the opposite side from the view shown in Fig. 1. Fig. 3 is a top view of the motor.

The letter A indicates a supporting-frame, between the side walls, a' , of which a smooth-faced wheel, B, is mounted to turn on a stationary axle, C. Spanning this wheel is an arch-shaped frame, D, having its feet resting upon the end walls of the supporting-frame. From the opposite legs of this arch-shaped frame project pins e , upon which are mounted friction-rollers E. Upon these friction-rollers rests the outer face of a smooth segment, F, on opposite sides of the middle point of which are pivoted links $g g'$, which cross each other, and are respectively connected with wrist-pins h , projecting from the flat face of wheel B. From the top of the arch-shaped frame D projects a pin, i , upon which is mounted a friction-wheel, I, the periphery of which is in contact with the smooth inner surface of the segment F. To the ends of this segment is secured a lever, K, and by operating this lever vertically by its handle k the segment F will be caused to roll on the friction-rollers E, and an oscillating

motion will be communicated to the wheel B through the links $g g'$. The wheel I serves to guide the segment and prevent its rising from the friction-rollers E.

A suitable pitman may be connected to the rear side of wheel B, and motion thereby transmitted to any suitable machinery through well-known connections, and I do not limit myself to any particular devices for transmitting motion from the said wheel B. I have, however, constructed a combination of devices for the purpose, which gives an extended range of movement and great force in proportion to the initial power applied to the lever, and this arrangement of devices I will now proceed to describe.

On the top of the rear wall of the supporting-frame A is secured a stationary rack, M, in which meshes a pinion, N, which has an eccentric pin, n , projecting loosely into a socket formed to receive it in the wheel B, so that as the said wheel B oscillates it will carry said pin through a partial arc revolution to the pinion N, alternately in opposite directions, said pinion traveling back and forth in engagement with the rack M, its outer end being prevented from rising from said rack by means of a center pin, o , which projects from the pinion through a straight slot, o' , in a vertical plate, O, which is attached to the supporting-frame.

The letter P designates a sliding rack-bar which meshes with the pinion N, and is mounted in guides g , supported by the plate O. To one end of the rack-bar P is connected one end of a pitman, R, the other end of which is connected to a crank of one of the axles; or the outer end of this pitman may be connected to the wrist-pin of a crank-wheel mounted on any suitable shaft to which it is desired to transmit rotary motion.

The operation of the invention will be readily understood without further explanation, and it will be seen that as the wrist-pins which connect the links g and g' with the wheel B are near the periphery of said wheel, and the eccentric pin which connects the pinion N is much nearer the center of said wheel, there is a gain of lever-power added to the leverage gain, which is accomplished by the segment and its lever K, so that said lever K does not need to have such an extended range of ver-

tical reciprocation as would otherwise be the case.

Having now fully described my invention and explained the operation thereof, what I claim is—

- 5 1. The combination, with the wheel B, of the segment F, mounted on friction-rollers, and connected with said wheel by one or more links and wrist-pins, substantially as described.
- 10 2. The combination, with the wheel B, of the segment F, provided with an operating-lever, K, the friction-rollers supporting said segment, and the links *g g'*, connecting said segment with separate wrist-pins of said wheel,
- 15 substantially as described.
3. The combination, with the wheel B, seg-

ment F, and connecting-links, of the friction-roller E, supporting said segment, and the guide-roller I, in contact with the inner surface of said segment, substantially as described. 20

4. The combination, with the wheel B and segment F, connected and supported as described, of the rack M, the pinion N, eccentrically connected with the wheel, and the rack-bar P, essentially as and for the purpose 25 set forth.

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

JOEL R. RICKETTS.

Witnesses:

THOS. W. KERREY,
F. M. DONNELL.