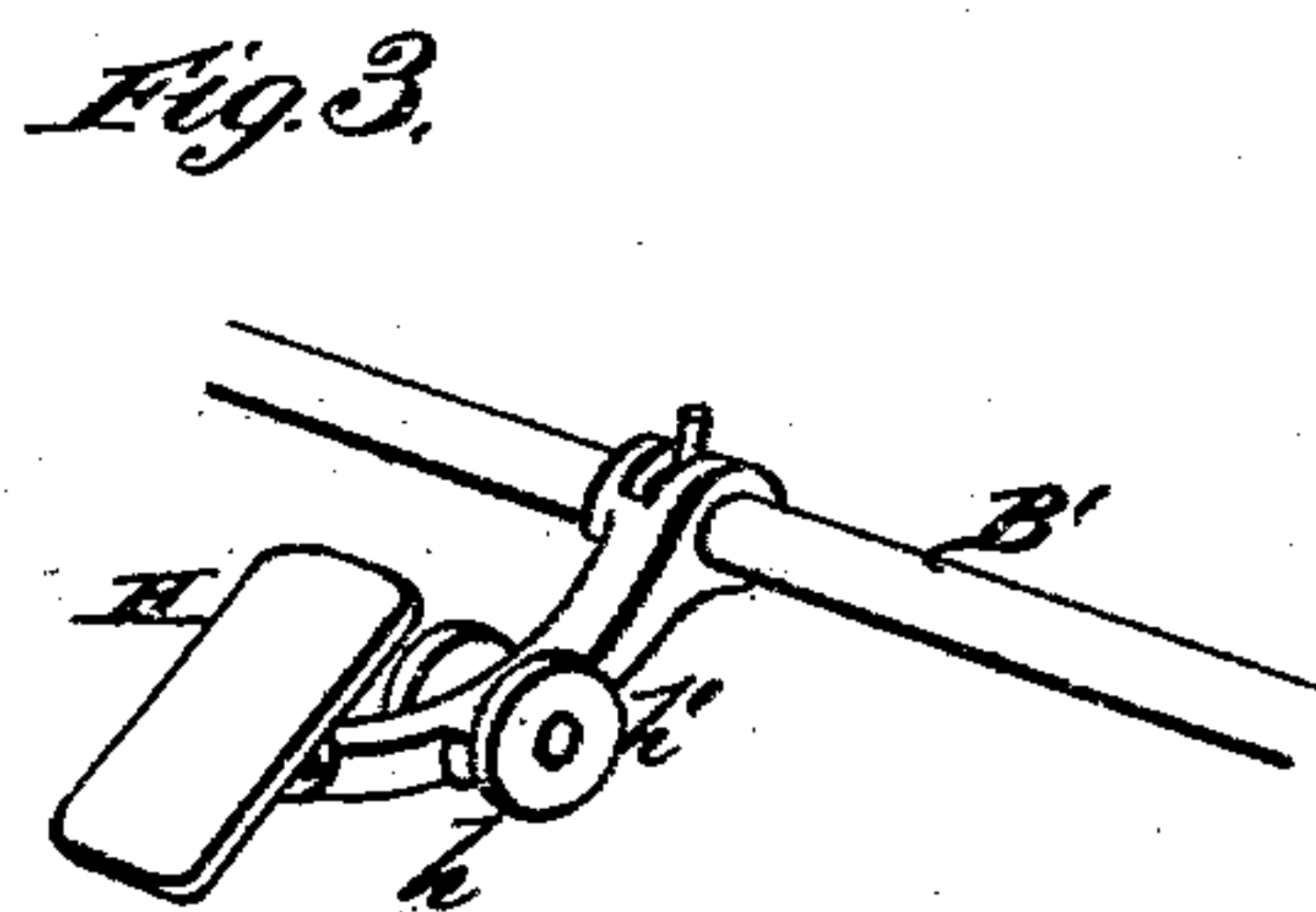
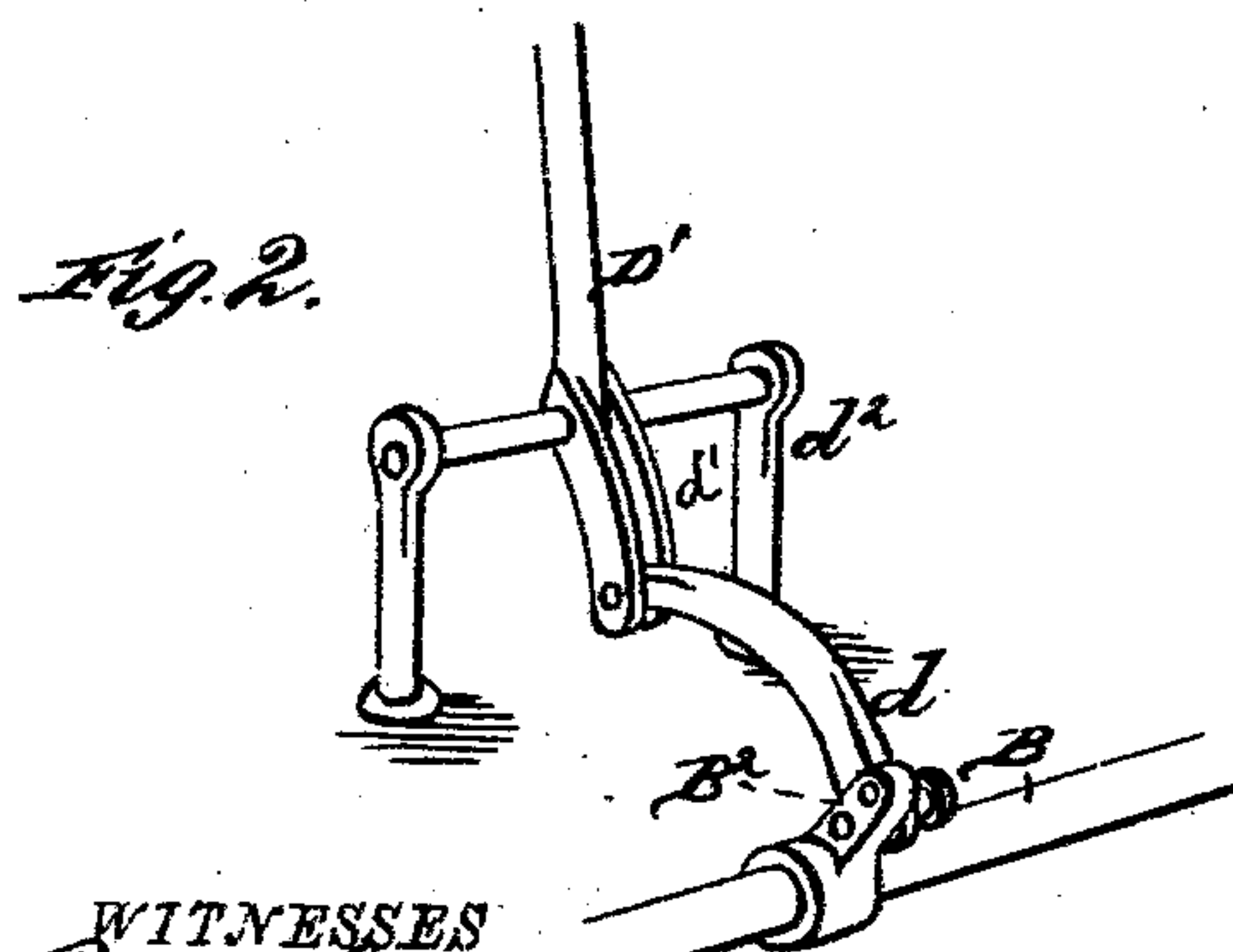
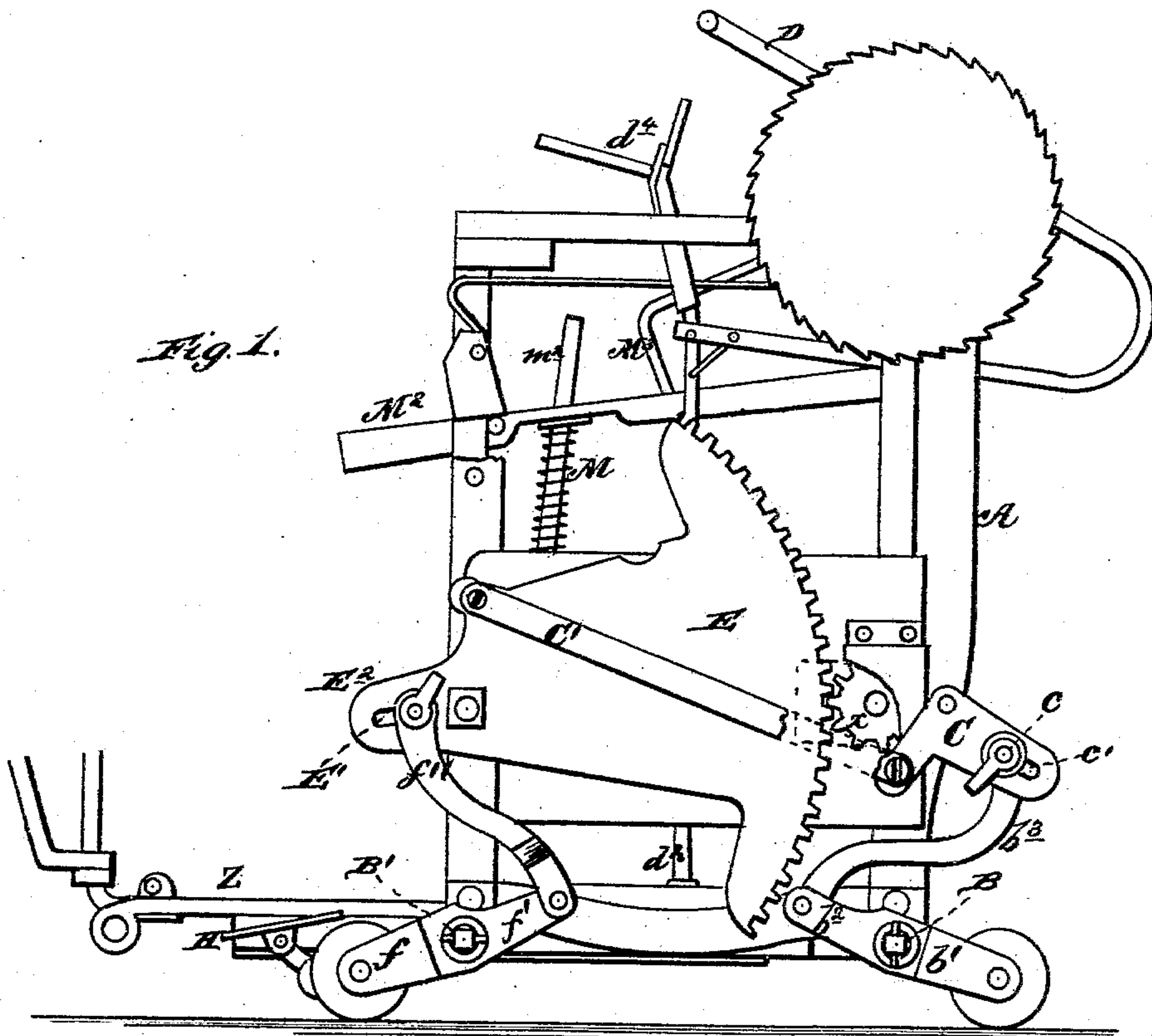


W. DICKINSON.  
Motor

No. 210,760.

Patented Dec. 10, 1878.



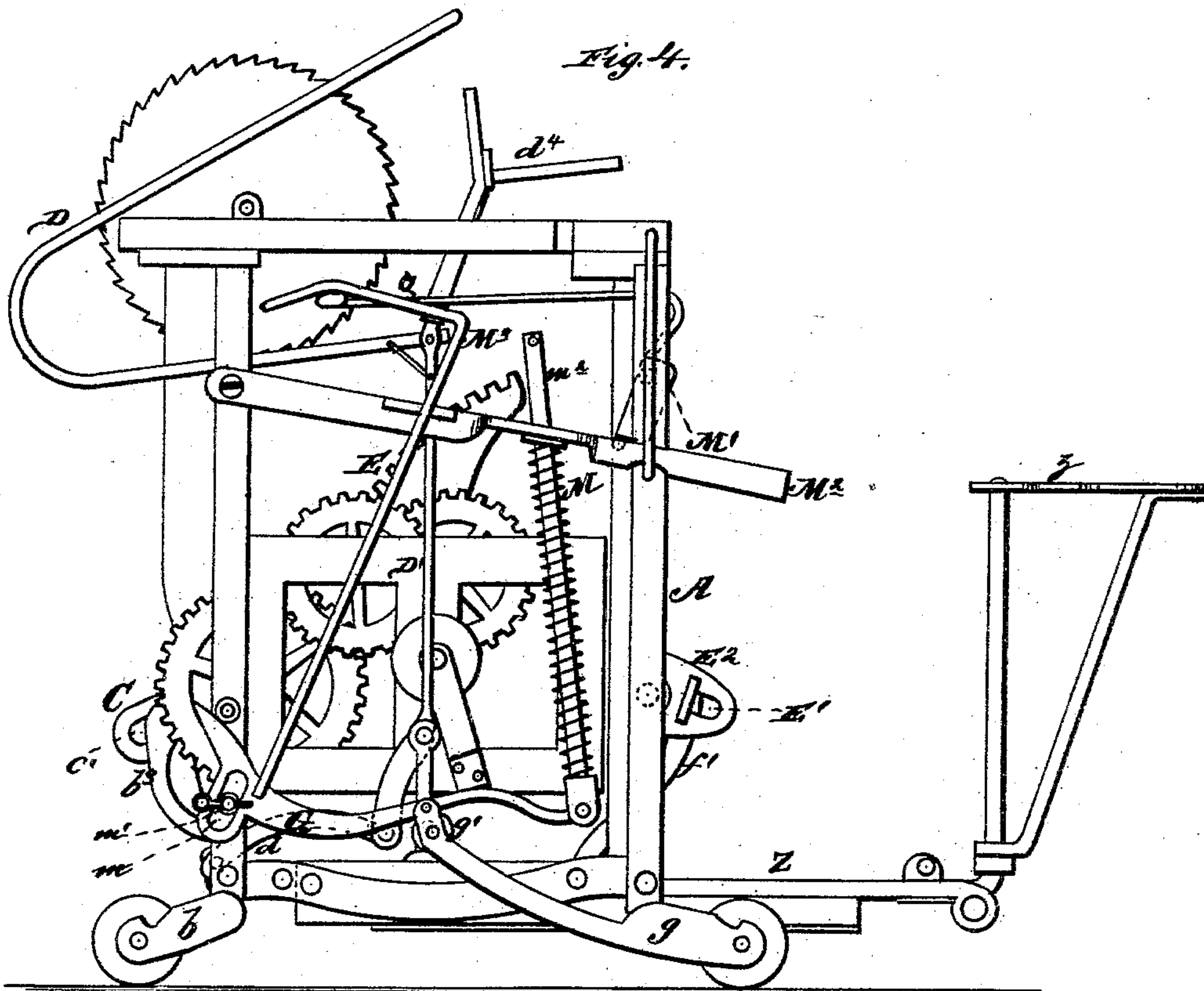
WITNESSES  
*Robert Emmett*  
*H. Clay Smith*

INVENTOR.  
*William Dickinson*  
By *Gilmore, Smith & Co.*  
ATTORNEYS.

W. DICKINSON.  
Motor

No. 210,760.

Patented Dec. 10, 1878.



WITNESSES  
*Robert E. Smith*  
*A. Clay Smith*

INVENTOR.  
*William Dickinson.*  
By *Gibbons, Smith & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

WILLIAM DICKINSON, OF ST. CLOUD, MINNESOTA.

## IMPROVEMENT IN MOTORS.

Specification forming part of Letters Patent No. **210,760**, dated December 10, 1878; application filed October 26, 1878.

*To all whom it may concern:*

Be it known that I, WILLIAM DICKINSON, of St. Cloud, in the county of Stearns and State of Minnesota, have invented a new and valuable Improvement in Motors; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my motor, and Figs. 2 and 3 are detail views of the same. Fig. 4 is a side elevation view.

My invention relates to a combination of mechanical movements which produce a motor or a machine adapted to any light service, such as grinding, polishing, sawing, and the like. The weight of the entire machine, together with that of the operator and the force of an auxiliary spring attachment, serves as a gravitating motive power, which being applied to a train of gear-wheels serves the desired purpose.

In carrying out my invention, I construct a frame composed of four standards and suitable cross-braces, which frame is provided with journal-bearings for shafts, upon which are rigid arms. Each of these shafts is provided with an arm and suitable lever-connections, which allow the operator to lift the machine by turning the shafts in opposite directions, which action lifts one end of each of the rigid arms and allows the weight of the entire machine to rest upon four rollers. The novel construction and arrangement of the parts constitute the invention, which will be more fully hereinafter set forth.

Referring to the drawings, A represents the general frame, journaled in the bottom of which are two shafts, B B<sup>1</sup>. The shaft B is rigid at the ends with arms *b b*<sup>1</sup>, the latter of which has an upward extension, *b*<sup>2</sup>, to which is pivoted a link, *b*<sup>3</sup>, which in turn is pivoted on an adjustable pin, *c*, which works in a slot, *c*<sup>1</sup>, in the channel-iron C. An arm, B<sup>2</sup>, rigid with the shaft B, carries a loose link, *d*, pivoted to an extension, *d*<sup>1</sup>, of lever D<sup>1</sup>, which is hung upon a cross-bar in standard *d*<sup>2</sup>, and a handle, D, extends upward to within easy reach of the

operator. The arms *b b*<sup>1</sup> are provided on one end of each with rollers. The proper manipulation of the lever-handle D turns the shaft B until the arms *b b*<sup>1</sup> rest upon the rollers. This action turns the channel-iron C, and a link, C', operates a toothed segment, E, which is pivoted in the frame at a point between the attaching-point of the lever C' and a slot, E<sup>1</sup>, in a backwardly-extending projection, E<sup>2</sup>, on the segment E. The segment E meshes with a pinion, *x*, which, by pawl and ratchet, connects it with a train of gear of any proper known construction and arrangement that will suit the purpose sought.

The shaft B<sup>1</sup> has two rigid end arms, *f* and *g*, provided with rollers, the arm *f* having an upward extension, *f*<sup>1</sup>, pivoted to a link, *f*<sup>2</sup>, which operates upon a pin in the slot E<sup>1</sup>, and the other rigid arm, *g*, is provided with a friction-roller, *g*<sup>1</sup>, within a guide, which receives a lever, G, which will be hereinafter described.

H represents a foot-piece attached to one end of a lever, the elbow *h* being the fulcrum, where it is provided with rollers *h*<sup>1</sup>. By means of this foot-piece and lever the arms *f g* are turned by the partial rotation of the shaft B<sup>1</sup>, which raises the body of the machine until it rests upon the rollers. This action forces the link *f*<sup>2</sup> and link C' in reverse directions, which depresses the toothed surface of the segment E, and causes an ordinary pawl to slide idly over a ratchet until the weight of the machine reverses the tendency, when said pawl catches and the power is applied to any suitable gearing.

The upper end of the lever D is adapted to operate a feeding device, *d*<sup>4</sup>, which may be arranged to feed any material automatically, as the lever may be directed in any direction with the steady speed of the running-down gear.

To assist in elevating the machine, the operator steps off until the same is elevated. There may be several operators on the same machine. In this specification I have shown a platform, Z, and seat *z* for but one.

G represents the auxiliary lever, loosely pivoted to the frame, and having a slot, *m*, which receives a pin or stud, *m*<sup>1</sup>. At one end is swiveled a vertical rod, *m*<sup>2</sup>, which carries a spring, M. A catch-lever, M<sup>1</sup>, is pivoted to



one of the standards, and a lever,  $M^2$ , receives the rod  $m^2$  and bears down upon spring  $M$ . A trigger,  $M^3$ , releases the lever  $M^2$ , when the arm  $o$ , connected with the catch-lever  $M^1$ , is borne down by the trigger  $M^3$  to raise the catch-lever  $M^1$ . To elevate the frame, to permit it to operate the mechanism by gravity, the operator throws his weight upon the treadle  $H$  and grasps and draws upon the handle  $D$ , which causes the mechanism to be reversed and carries the frame up. When it has been drawn up it will run down again by its own gravity, and its speed may be accelerated by the weight of the operator and additional weights, if desired.

What I claim as new, and desire to secure by Letters Patent, is—

1. The toothed segment  $E$ , having adjusting-slot  $E^1$ , in combination with a pinion, train of gear, and gravitating weight, as set forth.

2. The shafts  $B$   $B^1$ , having arms  $b$   $b^1$   $f$   $g$ , with rollers, and provided with means for elevating the machine by both hand and foot, as specified.

3. The shaft  $B$ , arms  $b^1$   $b^2$ , link  $b^3$ , pin  $c$ , and channel-iron  $C$ , in combination with the ad-

justable segment  $E$  and link  $C'$ , as shown and set forth.

4. The arm  $B^2$  on the shaft  $B$  and link  $d$ , in combination with lever  $D'$ , adapted to receive feeding device  $d^1$ , and with the segment  $E$  and connections, as set forth.

5. The shaft  $B^1$ , arm  $f$ , extension  $f'$ , link  $f''$ , in combination with slot  $E^1$  and segment  $E$ , as set forth.

6. The shafts  $B$   $B^1$  and arms  $b$   $b^1$   $f$   $g$ , in combination with hand-lever  $B^2$   $d$   $d^1$   $D'$  and foot-lever  $H$   $h$   $h'$ , as set forth.

7. The lever  $G$ , having pulley-slot  $m$  and spring  $M$ , in combination with pulley  $g'$  and guide, as set forth.

8. The lever  $G$ , spring  $M$ , lever  $M^2$ , in combination with catch-lever  $M^1$  and trigger  $M^3$ , as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM DICKINSON.

Witnesses:

M. P. NOEL,

L. W. COLLINS.