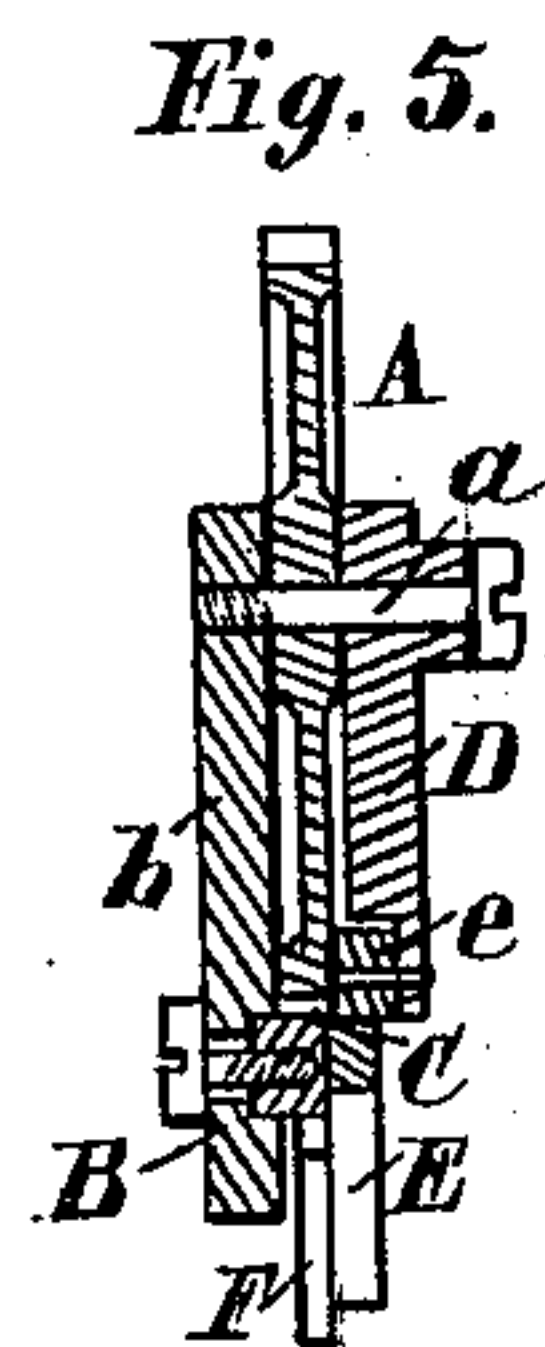
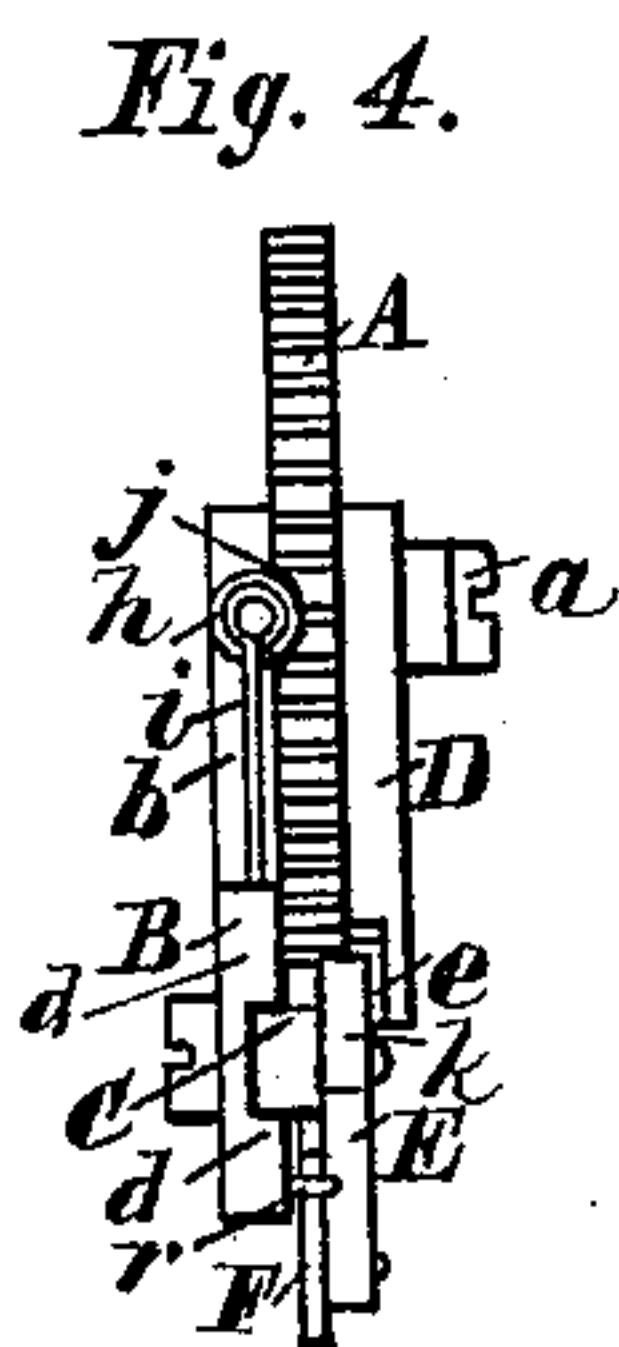
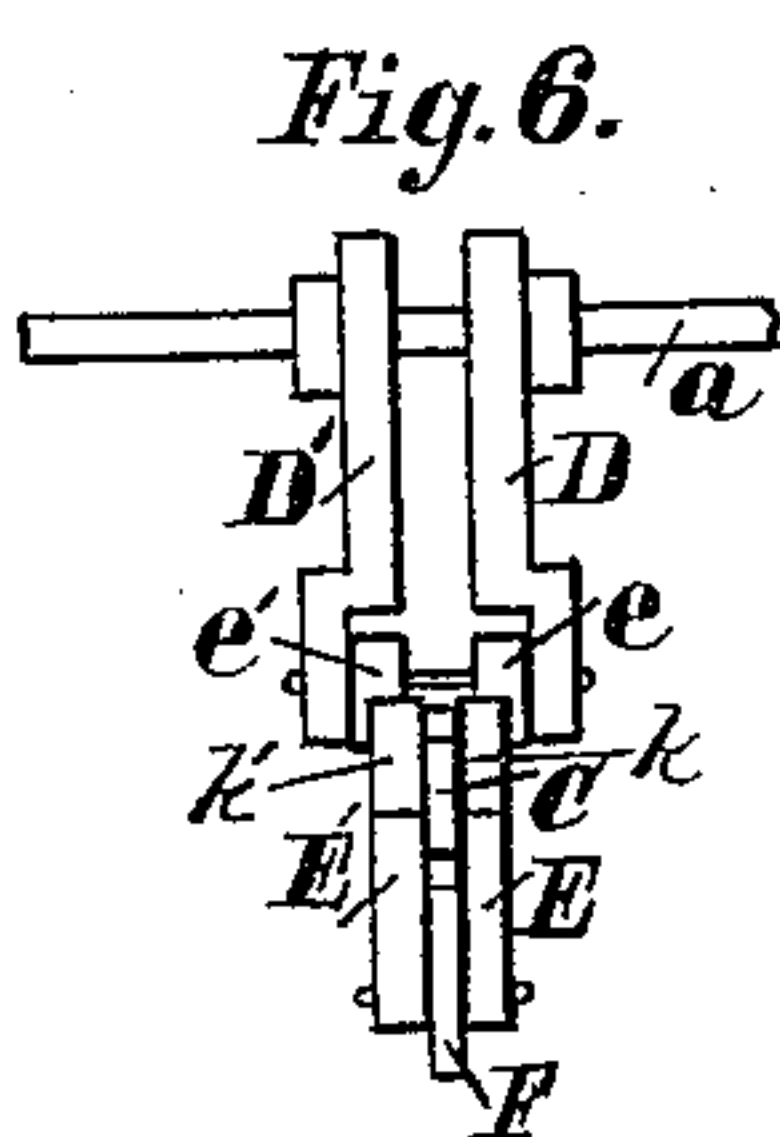
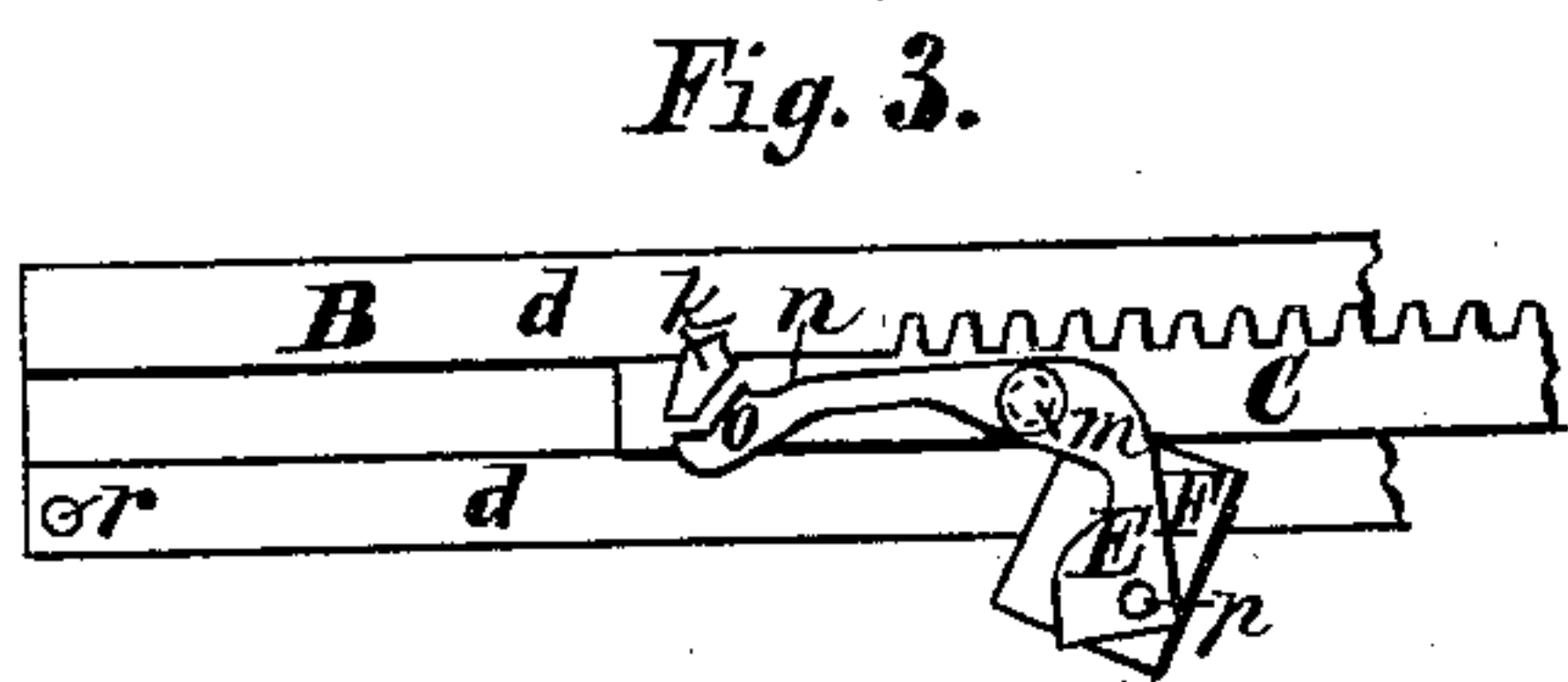
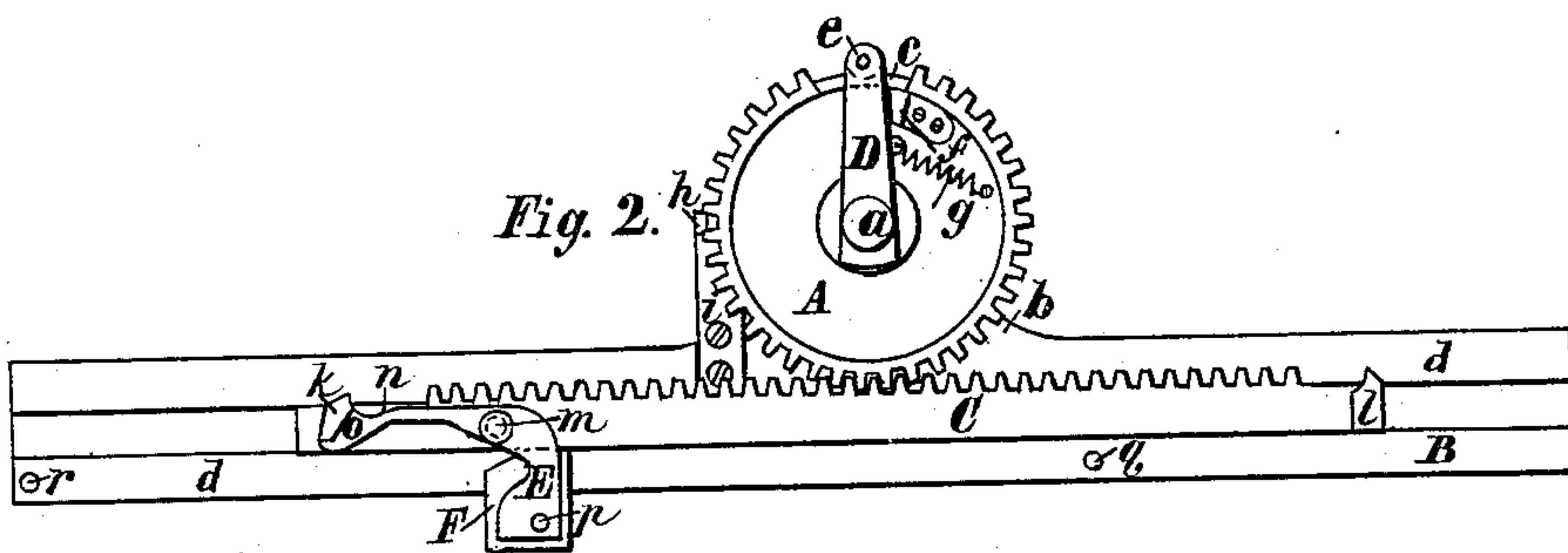
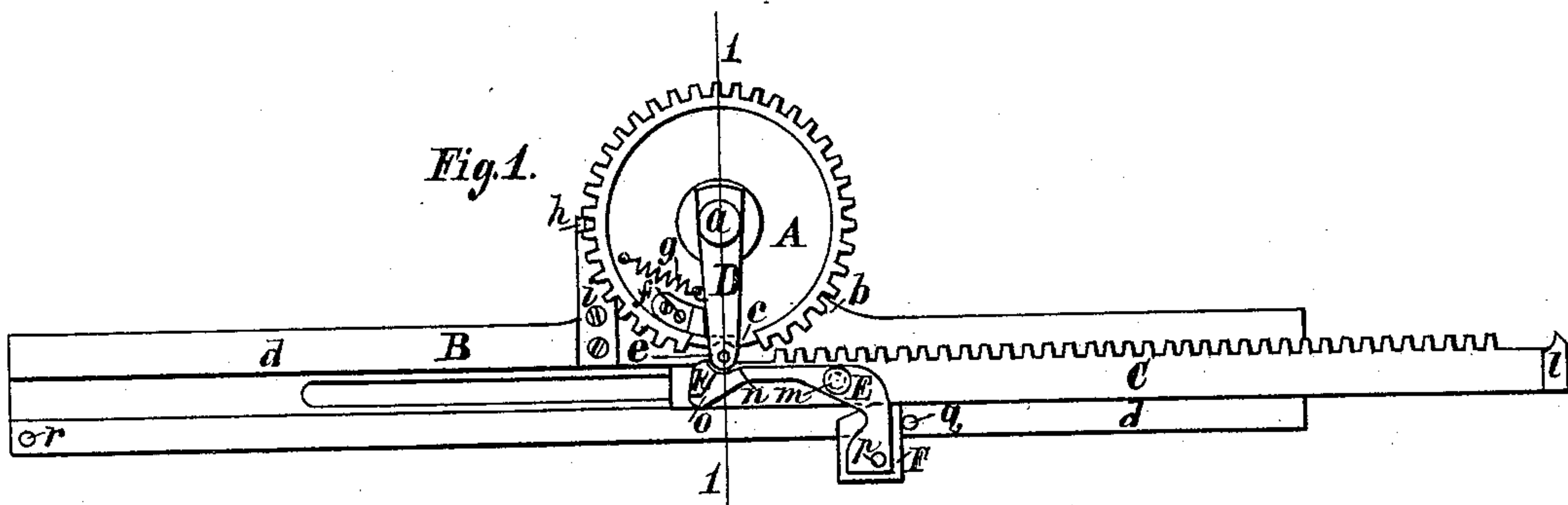


(No Model.)

G. F. McINDOE.
MECHANICAL MOVEMENT.

No. 338,541.

Patented Mar. 23, 1886.



Attest;

Fred J. Hutchinson
Wm. H. Dury.

Inventor;

George F. McIndoe,
per Edw. Summer, Atty.

UNITED STATES PATENT OFFICE.

GEORGE F. MCINDOE, OF EVERETT, MASSACHUSETTS.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 338,541, dated March 23, 1886.

Application filed September 16, 1885. Serial No. 177,300. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. MCINDOE, a citizen of the United States, residing at Everett, in the county of Middlesex and State of Massachusetts, have invented a new and useful Mechanical Movement, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to mechanism for obtaining intermittent rotary motion of parts in one and the same direction from parts moving alternately in opposite directions; and the invention consists in devices hereinafter described, in combination with a rack and gear, as hereinafter set forth, and specifically pointed out in the claims.

In the drawings, Figure 1 is an elevation of so much of the mechanism as serves to illustrate my invention, the parts being in the position required at the commencement of a forward movement of the rack. Fig. 2 shows the same parts in position at a point during said forward motion. Fig. 3 is to illustrate the position of the lever E during the backward movement of the rack. Fig. 4 is an end view of parts as shown in Fig. 1, and Fig. 5 is a section taken on the line 11 in Fig. 1, and shows parts on the right hand of said line. Fig. 6 illustrates a modification.

The gear A is on a shaft or stud, *a*, supported by a stand, *b*, on the frame B, and has a part at *c* of its periphery free of teeth. A rack, C, located to engage with the gear, is fitted to slide on and be guided by ways *d* on the frame B. On the shaft or stud *a* is pivoted an arm, D, which bears at its outer end a roller, *e*, which is on a stud the axis of which is parallel with that of the gear. The normal position of this arm is such that the outer end and roller *e* is midway of that part of the gear which has no teeth, and that the arm bears against a stop, *f*, fixed on the gear. The arm is drawn against this stop by means of a spring, *g*. There is a roller, *h*, which is supported by a flat spring, *i*, in position to be pressed into a notch, *j*, at the back of the gear when the part of the periphery of the gear free of teeth is immediately over the rack.

The rack has a stop, *k*, thereon, which meets the roller *e* and insures its proper position when the rack has reached the extreme of its

backward movement. There is a stop, *l*, at the other end of the rack, which meets the roller *e* and insures its proper position when the rack is at the extreme of its forward movement. On the rack is pivoted at *m* a lever, E. This lever is formed at *n* so as to have an incline or bevel on its upper side, or one toward the roller *e*, and at its end *o* is formed to meet the stop *k*. The other end of this lever has pivoted thereto at *p* a locking-piece, F, which may be swung by a pin, *q*, on the frame into the position shown in Figs. 1 and 2. The piece F may be swung by a pin, *r*, on the frame so that the end *o* of the lever may drop down, as shown in Fig. 3.

At the commencement of the forward movement of the rack—that is, toward the left hand—the roller *e* will bear against the inclined plane or bevel *n* of the lever E, and since this lever is locked in position on the rack and the arm D bears against the stop *f* the gear will be caused to begin its revolution, and comparatively slowly on account of the incline or bevel at *n*. The teeth of the rack will then engage with those of the gear, and while the rack makes its complete movement forward the gear will make one revolution. At the end of these movements the stop *l* will meet the roller *e*, so that the gear is sure to be brought to the right position and be locked by means of the roller *h* and spring *i*. The gear will not be revolved during the backward movement of the rack, since the teeth of the rack will pass under that part of the gear having no teeth, and the end *o* of the lever has dropped down out of the way of the arm D and roller *e*. At the end of the backward movement of the rack the end *o* of the lever is swung upward and the lever is locked by means of the pin *q* and locking-piece F, as stated above.

Should the lever E fail to be unlocked at the end of the forward movement of the rack, or become locked during the backward movement, the arm D will be swung away from the stop *f*, and thus carry the roller *e* so that it will pass over the lever and down the incline or bevel *n* into position shown in Fig. 1, preparatory to the forward movement of the rack and revolution of the gear thereby. Thus it appears how the lever E might be dispensed

with a piece having the incline or bevel *n* rigidly fixed to the rack taking the place of said lever; but I prefer to use said lever, rather than to depend solely upon the swinging arm
5 D, for bringing the roller *e* into the required position with reference to the incline or bevel *n*.

The form and construction of certain details shown in the drawings and herein described may be somewhat varied and my invention in
10 substance be involved, the invention being suitable for application in various machines in which intermittent rotary motion in one direction of parts is to be obtained from parts having reciprocating movements. In such ap-
15 plications details of mechanism will take such form and be connected as may be required in each case, adaptation being simply the work of a skilled mechanic. I have in view the im-
mediate application of my invention to that
20 class of printing-machines which have an impression-cylinder and a reciprocating bed. In such a machine the gear A will be connected with the impression-cylinder and on the same
axis therewith, while the rack C will be con-
25 nected with the reciprocating bed, the frame B, being part of the frame-work of the printing-machine, being of the required construction to suitably form such part.

The modification illustrated in Fig. 6 is to
30 insure an equal or balanced pressure on the shaft or stud *a*. For this purpose I would place upon said shaft or stud two arms, D D', one on each side of the gear. These two arms swing as one, two rollers or a double-faced
35 roller, *e e'*, having an axle-bearing in both arms. There will then be two levers, E E'—one on each side of the rack C—which swing as

one, having the locking-piece F pivoted to them and between them, as shown.

I claim as my invention—

1. In combination with a gear having a part
40 of its periphery free of teeth and provided with an arm, D, and roller *e*, a rack having pivoted thereto a lever, E, inclined or beveled at *n*, substantially as and for the purpose set
45 forth.

2. The combination of gear A, having part of its periphery free of teeth, swinging arm D, roller *e*, and a piece or lever, E, inclined or
50 beveled at *n* and fixed to the rack, substantially as and for the purpose set forth.

3. The combination of gear A, arm D, roller *e*, rack C, lever E, and stop *k*, substantially as specified.

4. The combination of gear A, stop or spring
55 and roller *h* and *i*, rack C, and piece or lever E, provided with the incline or bevel *n*, substantially as specified.

5. The combination of gear A, provided with a roller, *e*, rack C, lever or piece E, pro-
60 vided with an incline or bevel, *n*, and stop *l*, substantially as specified.

6. The combination of gear A, provided with an arm, D, and roller *e*, rack C, lever E, locking-piece F, and a stop or pin, *r*, substan-
65 tially as set forth.

7. The combination of gear A, provided with an arm, D, and roller *e*, rack C, lever E, locking-piece F, and stop or pin *q*, substan-
tially as set forth.

GEORGE F. McINDOE.

Witnesses:

JOHN WHYTE,
CHARLES E. MILLS.