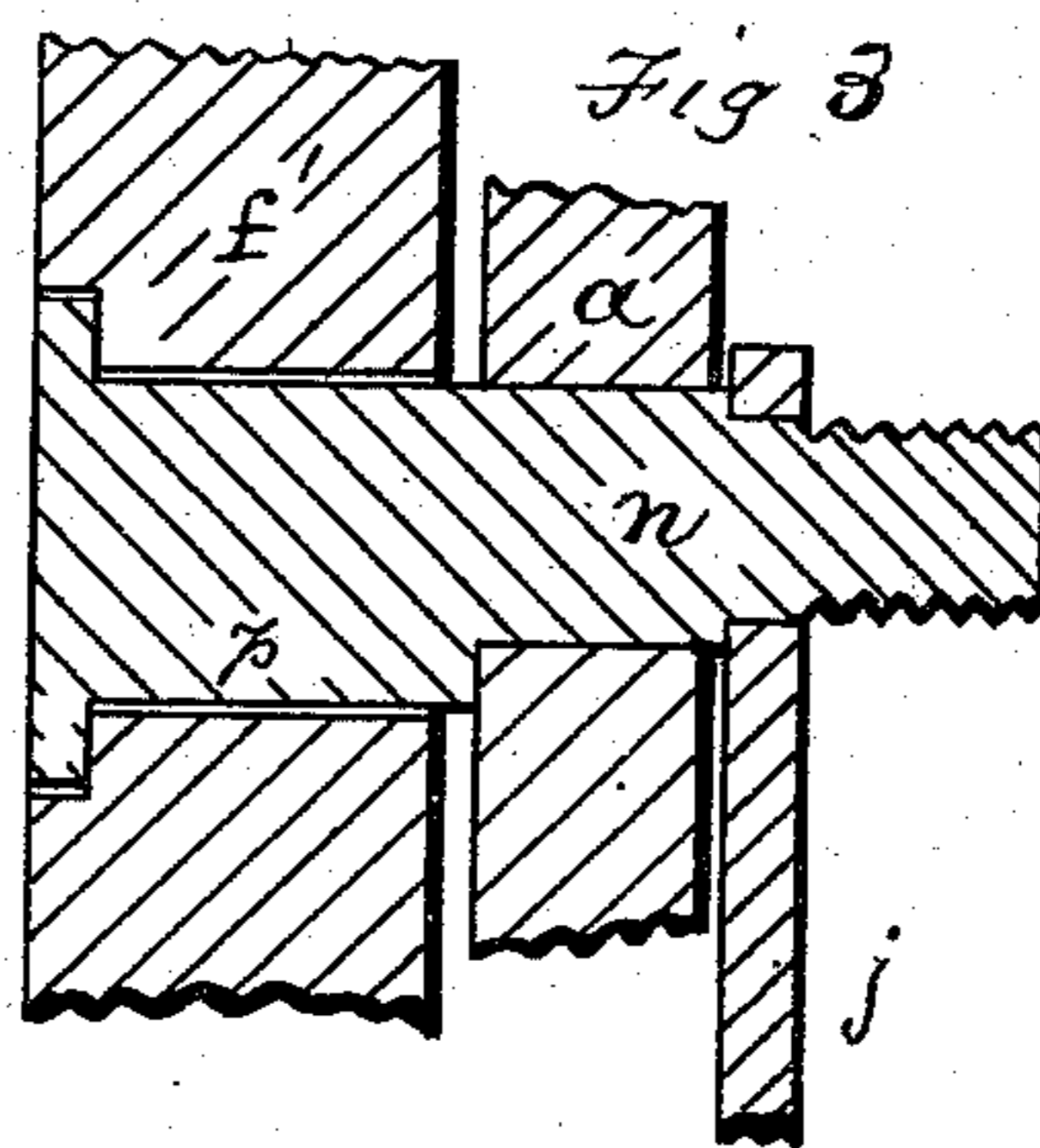
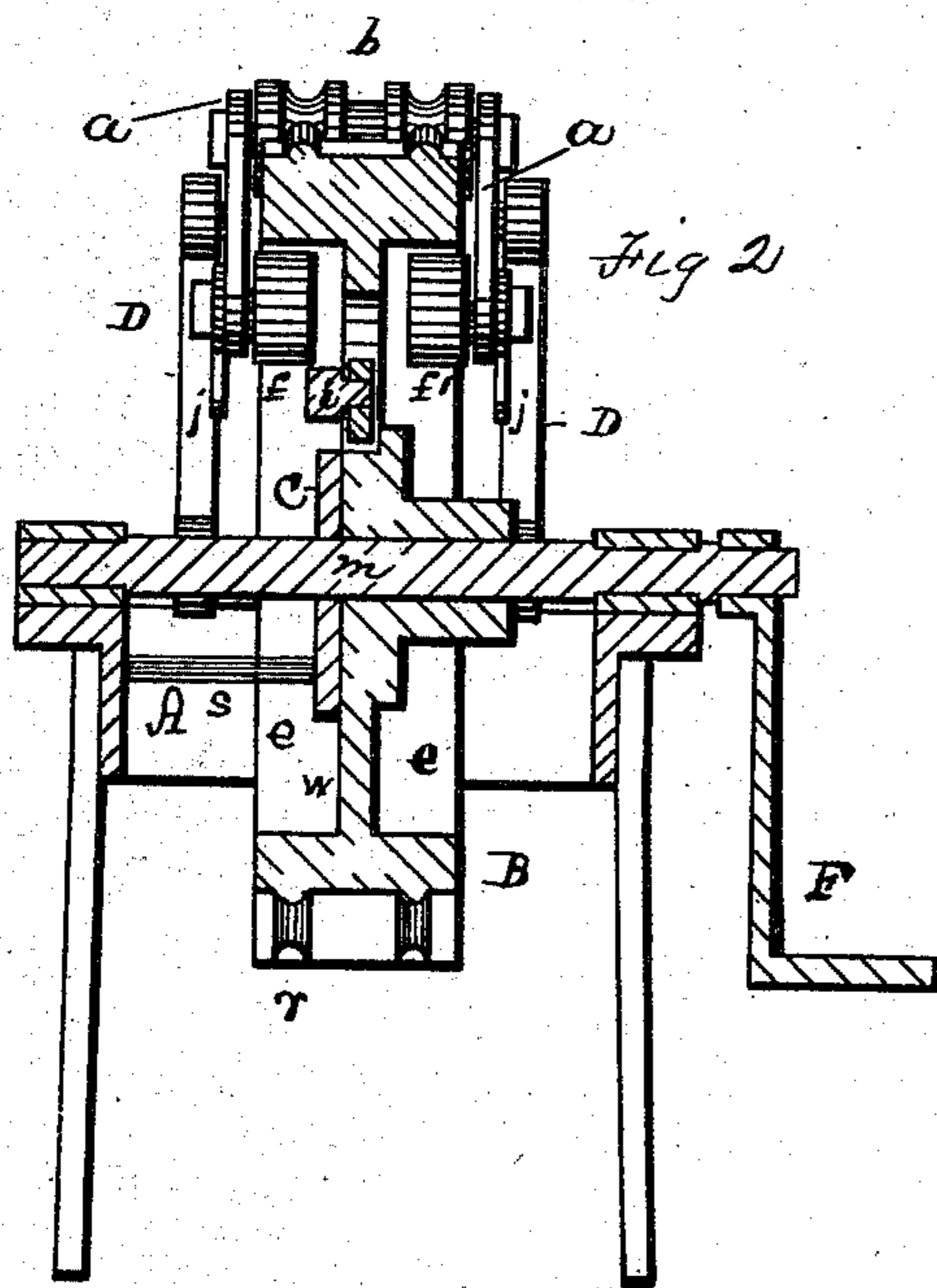
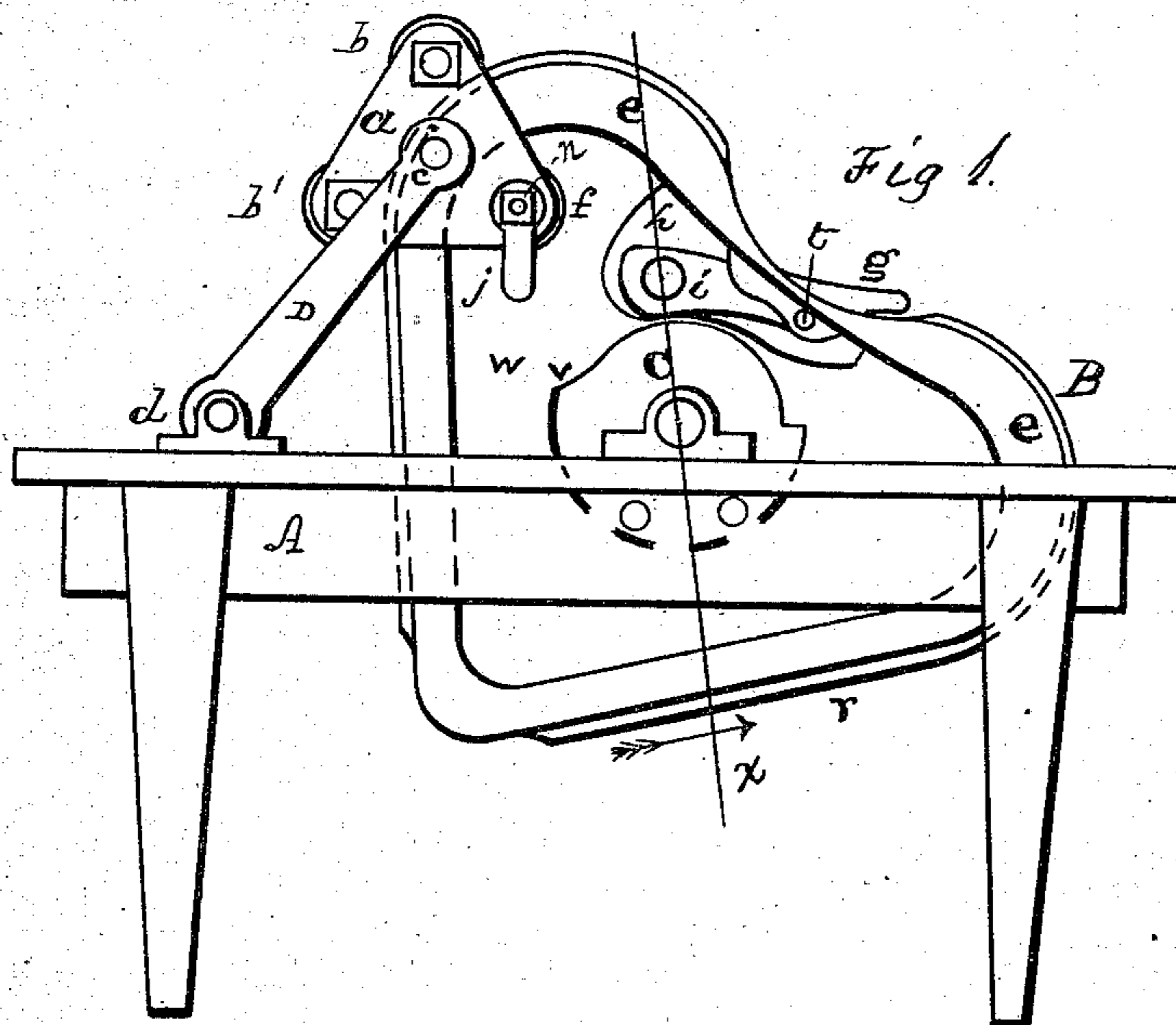


Machines for Bending Metal.

Patented Jan. 12, 1875.



Witnesses.
O. Bond.
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By Ezra A. Peck
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UNITED STATES PATENT OFFICE.

EZRA A. PECK, OF SYCAMORE, ILLINOIS.

IMPROVEMENT IN MACHINES FOR BENDING METAL.

Specification forming part of Letters Patent No. **158,600**, dated January 12, 1875; application filed September 16, 1874.

To all whom it may concern:

Be it known that I, EZRA A. PECK, of Sycamore, De Kalb county, Illinois, have invented new and useful Improvements in Rolling-Mills, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a section on line *x* of Fig. 1; Fig. 3, an enlarged detail—full size as compared with the other figures.

The object of my invention is to provide improved devices for forming metal—either hot or cold, either sheet metal or in bars—into irregular shapes. It consists in the use of a gang of rollers combined with a form of the desired shape, and the devices and combinations herein claimed.

In the drawings, the frame which supports the working parts is marked A. B is an irregular form, over which the metal is to be bent and shaped. The left-hand side does not come into actual use in the machine represented. *w* is the central part or web of the form B, and *e e* are strong flanges, one on each side of B, and varying in thickness, as required, by the work to be done by the rollers *b b'*. C is a stationary eccentric, made fast to the frame A, or otherwise secured in a fixed position. *a a* represent a frame, in which the rollers *b b'* are supported. On each side or part of this frame is a trunnion, *c*, upon which trunnions one end of the supporting-arms D are placed. The other ends of these arms are hinged to the frame A at *d*. *f f* are friction-rollers, each rolling on a pin secured to the frame *a a*—one on each side. These friction-rollers act upon or against the under sides of the flanges *e e*. The pins *n*, on which are the rollers *f f'*, may be made eccentric, as shown at *p*, Fig. 3, for the purpose of regulating the pressure of the compression-rollers *b b'*, and these pins can be adjusted by means of levers *j* secured to them. The rollers *f f'* are located on the enlarged or eccentric parts of the pins. The smaller parts of these pins or bolts pass through the frame, and receive the handles or levers *j*, and a nut to hold the parts in place. *g* is a latch pivoted at *t*. A portion of the web *w* is cut away at *h*, to make a place for the latch. On its inner end is a small friction-

roller, *i*, arranged to engage with the eccentric C. The face of the form B may be provided with beads *r*, for the purpose of ornamenting the work, in which case the rollers must have corresponding indentations. The central part of the rollers *b b'* is recessed to allow them to pass over the end of the latch *g*. F is a crank, through which power may be applied. The form B is placed upon a suitable shaft.

In use, one end of the piece of metal to be shaped is placed under the end of the latch *g* when the machine is in about the position shown in Fig. 1, and the form B is to be rotated in the direction indicated by the arrow. As the roller *i* mounts the cam *v* on C, the latch *g* will hold fast the piece of metal, and it will be drawn under the rollers *b b'* by the continued movement of B, and receive the shape or form required.

The shape of the part B can be greatly varied, and thus be adapted to a great variety of forms.

The frame which carries the compression-rollers *b b'* and the friction-rollers *f f'* being supported on the trunnions *c*, and the arms D being hinged to the main frame, it follows that these parts easily adapt themselves to varying positions required by irregularities of form.

I have shown only two compression-rollers. A greater number can be used.

The space between the face of the form B and the rollers *b b'* will vary with the varying thickness of the metal to be shaped. A single set of rollers, when the machine is made as shown, is not adapted to many thicknesses of work. As these machines will be likely to be used where a great number of pieces alike in size and form are required, it will not be necessary to make the rollers adjustable, only so far as provided for by the eccentric pin *n*.

In rolling hot bar-iron, when some parts of the metal are to be thinner than others, the desired result can be accomplished by properly shaping the flanges *e e*, making them thicker where the metal is to be thinner.

In rolling long irregular bars a stationary form can be used instead of a movable form, and the gang of rollers can be forced over the whole length of the form, and brought back again, by applying power to the arms D D, which in such case will not be hinged to the

frame A; but compression-rollers and friction-rollers in a frame, supported on trunnions, would be used substantially as represented; and the form must have flanges, as before, under which the friction-rollers will pass.

As shown, the eccentric C is supported by two bars rigidly secured to the frame, one of which, *s*, is shown in Fig. 2.

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

1. A gang of two or more compression-rollers, *b b'*, and friction-rollers *f f*, all supported in a frame supported on trunnions, in combination with the arms D D, and an irregular form, substantially as and for the purposes set forth.

2. The eccentric-pin *n p* and friction-rollers *f f*, in combination with compression-rollers *b b*, supported in a frame on trunnions, and an irregular form, substantially as and for the purposes specified.

3. An irregular form, B, with stationary eccentric C, in combination with the latch *g*, substantially as and for the purposes specified.

EZRA A. PECK.

Witnesses:

C. W. MOSHER,
A. M. STARK.