

(No Model.)

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P. FRICHETTE.

MACHINE FOR STRAIGHTENING OR BENDING RAILS.

No. 273,353.

Patented Mar. 6, 1883.

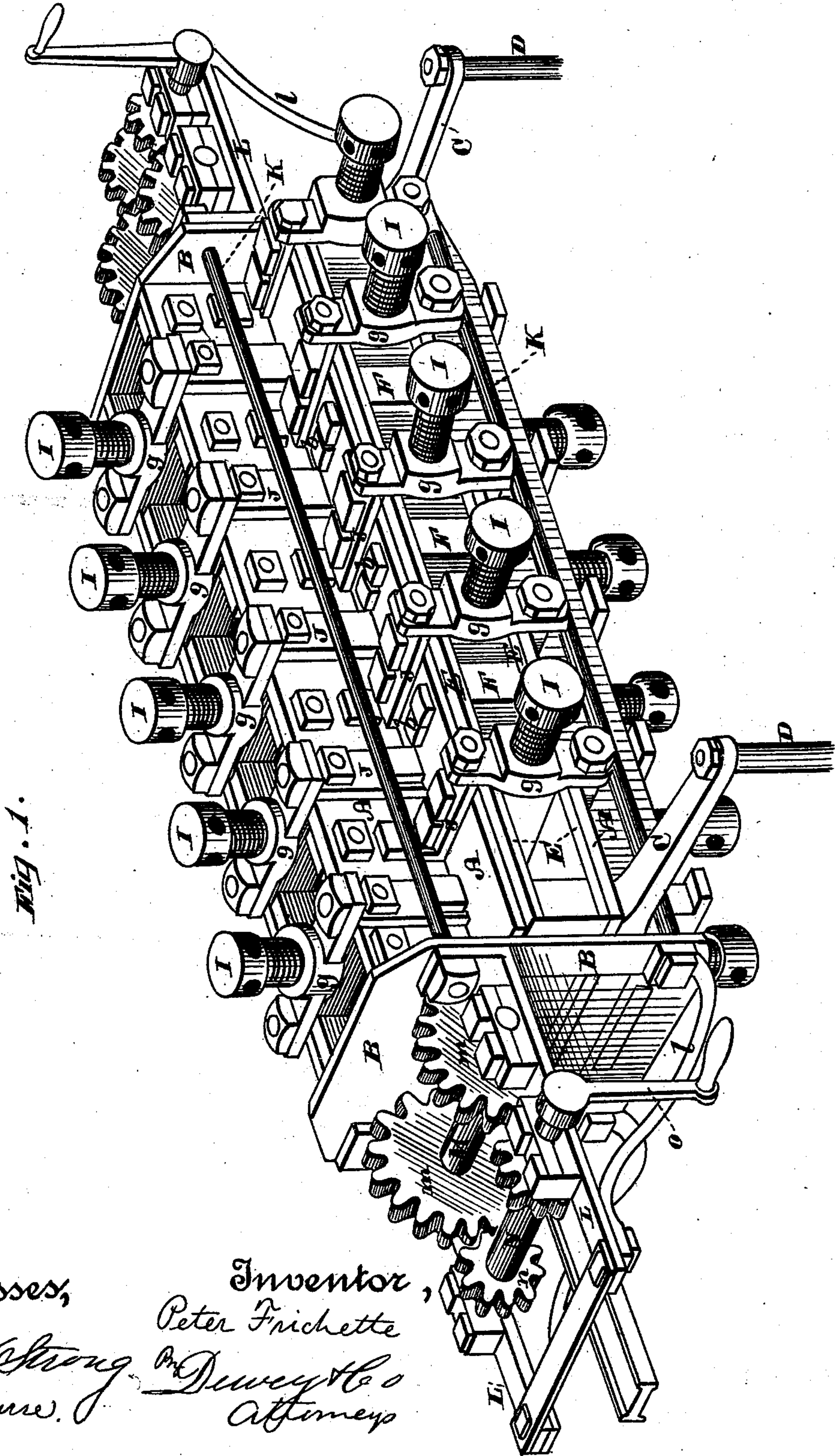


Fig. 1.

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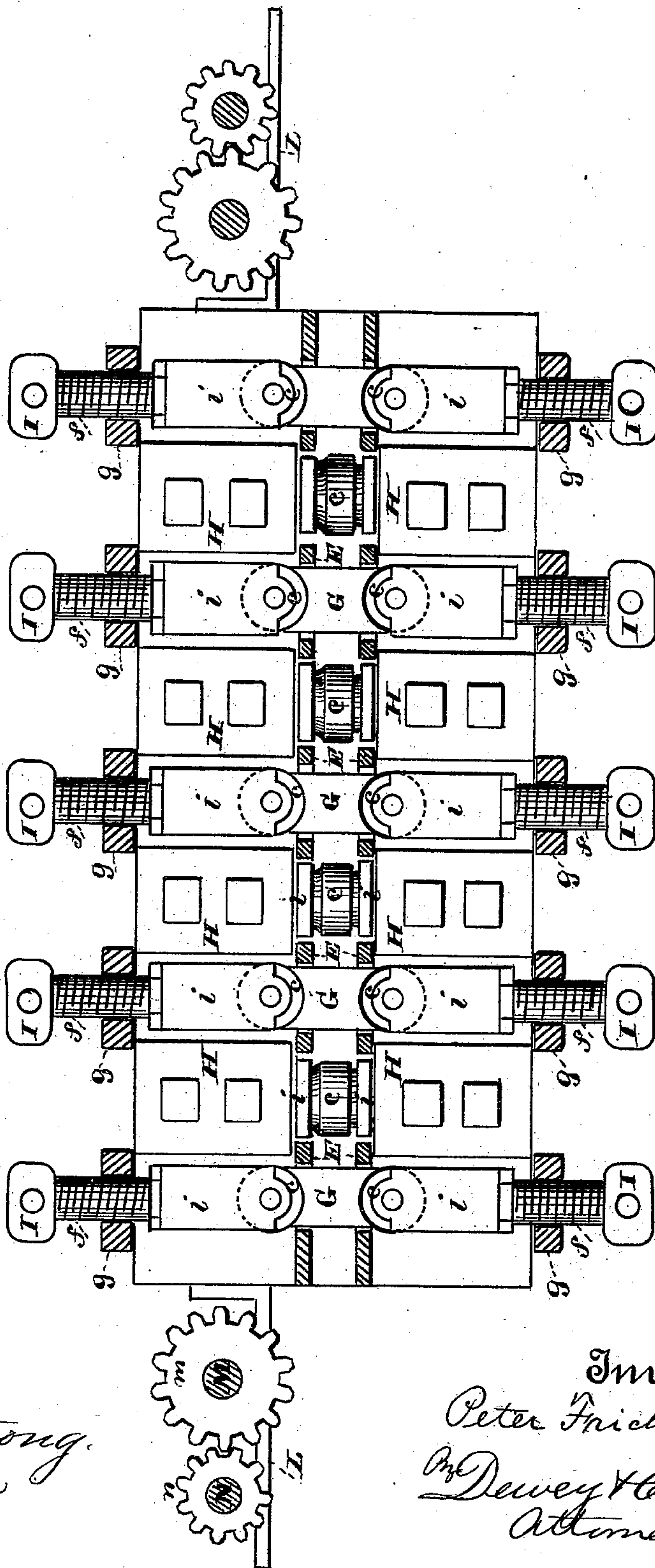
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Fig. 2.



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Fig. 3.

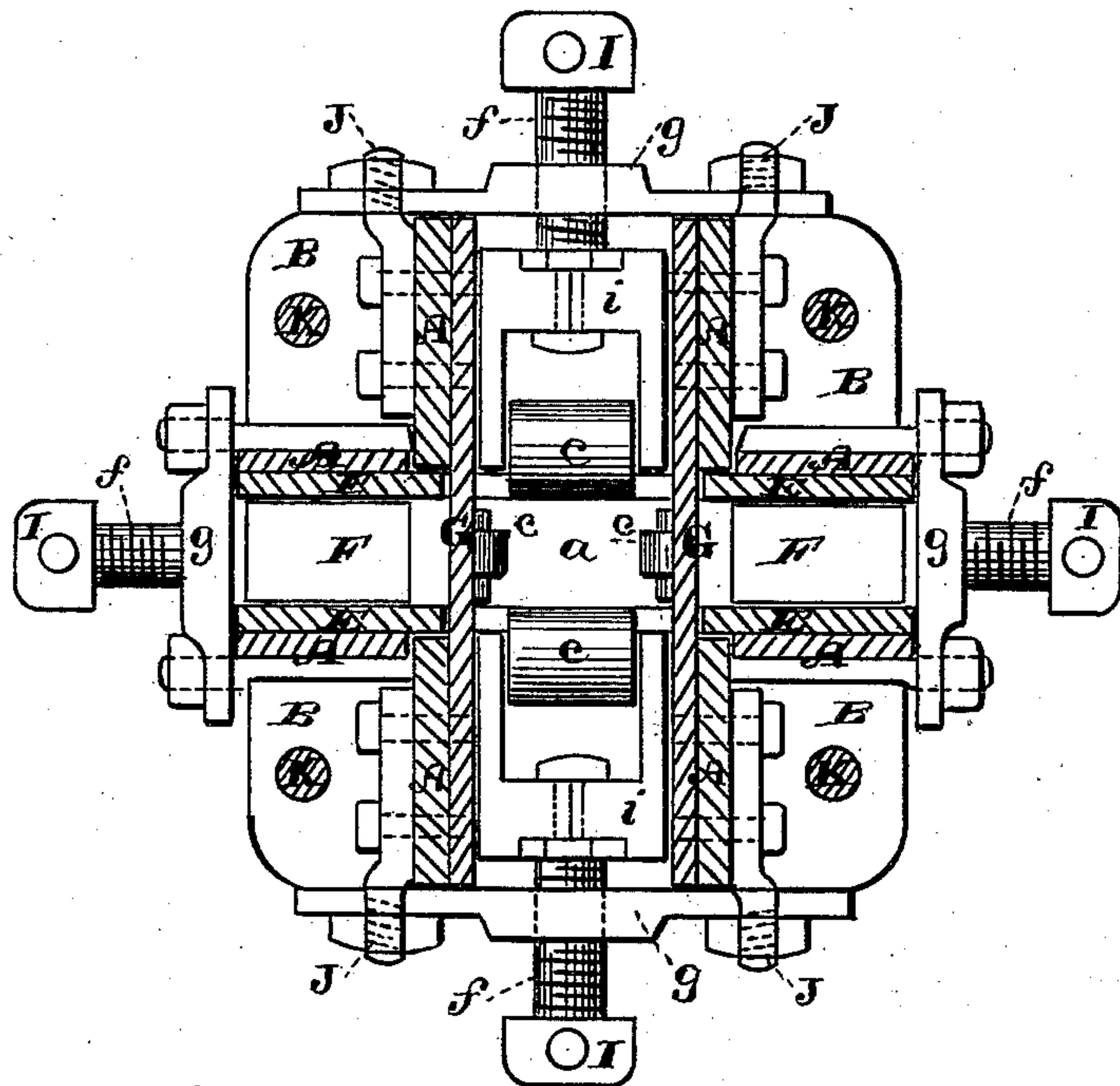


Fig. 5.

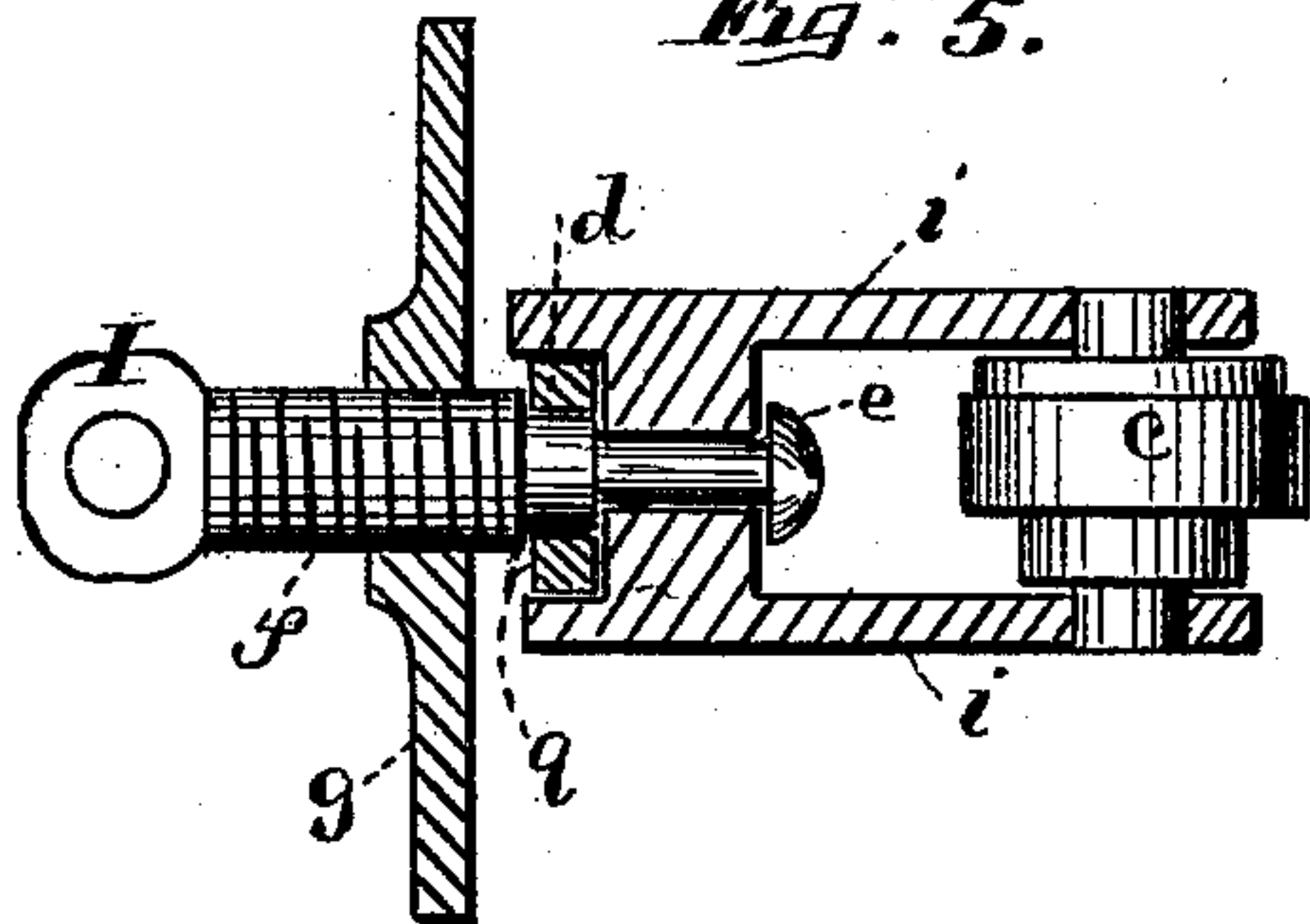


Fig. 4.

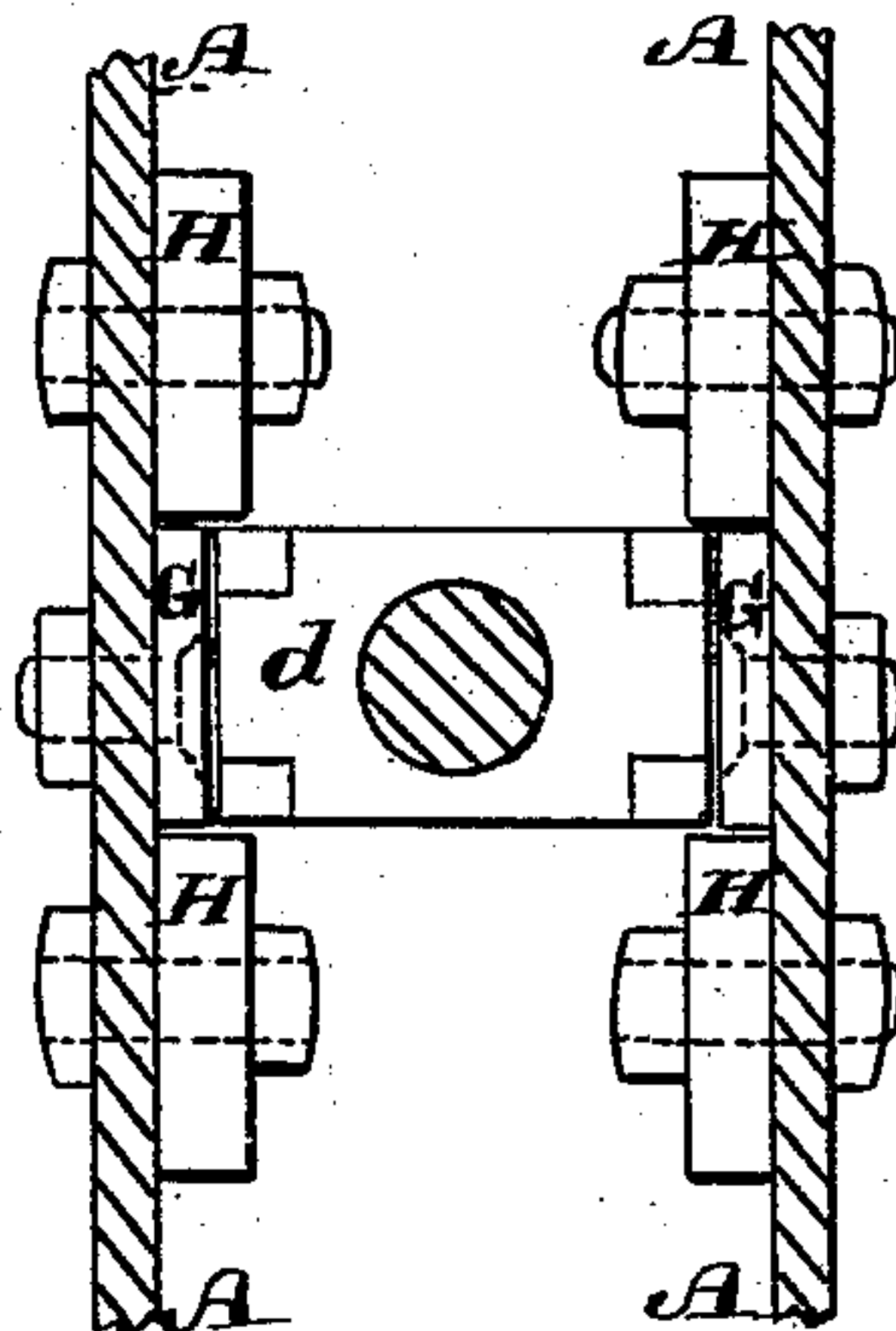
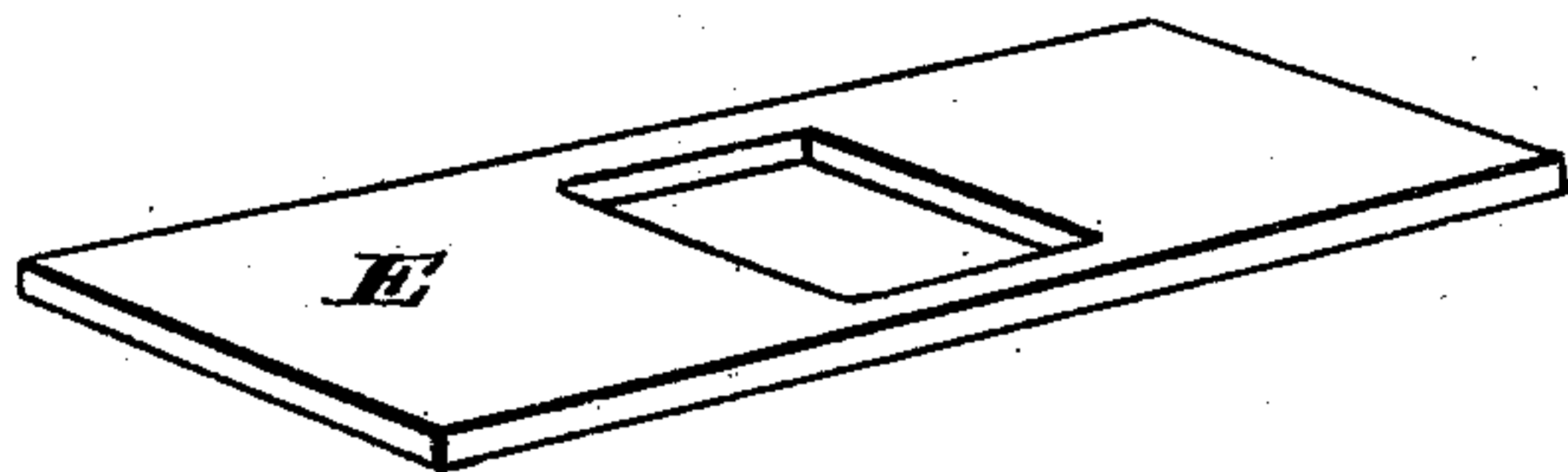


Fig. 6.



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# UNITED STATES PATENT OFFICE.

PETER FRICHETTE, OF SHERIDAN, CALIFORNIA.

## MACHINE FOR STRAIGHTENING OR BENDING RAILS.

SPECIFICATION forming part of Letters Patent No. 273,353, dated March 6, 1883.

Application filed September 2, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, PETER FRICHETTE, of Sheridan, county of Placer, State of California, have invented an Improved Machine for Straightening or Bending Rails; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a new and useful machine for straightening or bending the rails of a railroad; and it consists in the details of construction and combination of devices hereinafter fully described and claimed, in combination with a frame having a central longitudinal passage, to which are directed the pressure ends of a number of screw-jacks extending through the top, bottom, and sides of the frame.

Referring to the accompanying drawings, Figure 1 is a perspective view of my machine. Fig. 2 is a longitudinal vertical section of same. Fig. 3 is a vertical cross-section. Fig. 4 is a detail plan, looking down. Fig. 5 is an enlarged view of the screw-jack. Fig. 6 is a view of slotted plates.

The frame of the machine consists of eight plates of about equal width and of the same length. These are marked A, four being seen in Fig. 1, and all in the vertical cross-section, Fig. 3. From this latter figure will be seen the arrangement of these plates. They are placed in pairs, one in each pair being at right angles to the other, and each pair is so separated as to form two grooves crossing each other at right angles, forming a central passage through the machine. This is marked *a*, and is shown in Fig. 3.

B are end plates, against which the plates A abut.

C are horizontal arms bolted to two of the plates A, and D are legs bolted in the outer ends of the arms, and show a means whereby the machine may be supported.

Between the horizontal plates A, both against the upper and lower ones, are plates E, extending across the machine, but having a hole cut out in their centers, as shown in Fig. 6. These plates are separated from each other, as in Fig. 1, and their connection with the main plates A may be seen in Fig. 3. They are secured to them by bolts, (marked *b* in Fig. 1,) which pass down through intervening blocks F, and are secured by nuts underneath the lower plate A. The blocks F extend but a short distance, and

serve to secure and sustain the frame-plates A in the position described.

To the plates A, lying in a vertical plane, upon their inner sides, are bolted plates G, Figs. 3 and 4, passing down through the slotted plates E, while on each side of them are bolted thicker plates H, Figs. 2 and 4, forming guides on each side of plates G. These plates H are short, and extend only to the slotted plates E, as shown in Fig. 2.

I represents a screw-jack, a view of which is shown in Fig. 5. This consists of a two-part bracket, *i*, in the ends of which a roller, *c*, is journaled. In its outer end is fitted a bearing-plate, *d*, through the center of which and through the brackets extends a headed shank, *e*, of the set-screw *f*, a shoulder, *g*, on which bears against the plate *d*. The screw *f* passes through a yoke, *g*.

To the frame-plates A are bolted strips J, having threaded ends projecting beyond the edges of the plates. Upon these threaded strips J are fitted the screw-jacks I by means of the yokes *g* being bolted thereon. These jacks extend in between the frame-strips from each side toward the center, those extending horizontally being opposite each other and those vertically likewise, though to avoid interference the two sets alternate as to position. Those which extend horizontally fit their brackets *i* between the plates E, which guide them, Figs. 1 and 2, and those extending vertically lie upon the plates G, and are guided between plates H, Figs. 2 and 4. The rollers *c* of all the jacks extend to the central passage, *a*, as will be seen in Fig. 3, though they are not opposite each other, the rollers of the vertical ones being in line with the holes in plates E and the others being between said plates. The rollers *c* of the horizontal jacks are made as shown in Fig. 5—that is, with surfaces of different diameters, to conform to the shape of the ordinary rail. The rollers of the vertical jacks are simply plain rollers, as they are intended to impinge against the top and bottom of the rail.

K, Fig. 1, represents tie-bolts passing from end to end in the angles formed by the frame-plates A, to brace the whole device.

The operation of my machine is as follows: The jacks being all screwed outward, the bent rail is put into the machine from one end. It



enters the central passage, *a*, and is moved along until its bent portion is entirely within the passage. The operator has now but to adjust the jacks. He may be guided in this operation by suitable gages or by experience. He will generally mark the place where it is most bent and bring it opposite one of the rollers *c*. Then he adjusts all his jacks but that one to impinge their rollers against the rail—top, bottom, and sides—to hold it straight. Then by working upon the jack opposite the bent portion he can press its roller against the rail and straighten it. He can use any of the jacks. If the rail is bent up or down, he will use the vertical jacks; if bent sidewise, he will use the horizontal jacks. The rollers *c*, by being made to conform to the shape of the rail on the side where they are intended to impinge, get a firm pressure and do the rail no damage.

The construction of the frame with its guide-plates, which I have thus explained, affords suitable means for the operation of the jacks against the rail in the central passage. It may be carefully centered therein by certain of the jacks and straightened by others.

It is obvious, also, that I can bend or curve rails in this machine. The adjusting-jacks would bend them to any curve in the same manner as they straighten them.

The operation of the machine as thus described would require but small force. If the rail had but one short bend in it, a single operator could manage it by marking the place of the bend, and, after having adjusted all the other jacks to center it, operating the particular jack against the bent plate; but in case a rail be badly bent it would require more force and a somewhat different mode of operation. All the jacks would first be set true, to make the passage *a* straight. Then the rail would be inserted and forced through the passage, coming out straight. Power mechanism would have to be employed to do this, and for this purpose I show the following means:

*L* is a supplementary frame, with braces *l* fitted to the end plates, *B*, and secured on the tie-bolts *K*. Such a frame is at each end of the machine. Upon this frame is a shaft, *M*, carrying gears *m*, meshing with pinions *n*, on a shaft, *N*, to which power is here shown applied by means of cranks *O*. The rail, after having its end inserted in the passage *a*, is suitably supported, and has secured to its outer end a cable, the other end of which is secured to and is adapted to be wound upon the shaft *M*. When power is applied to the shaft the cable is wound up and the rail forced through the machine.

I have not here shown the supporting devices or the cable, deeming it sufficient to refer to such means, as they will be readily understood, and I claim nothing for them.

The tie-bolts *K*, which pass from end to end of the device, prevent strain upon the machine when power is applied at one end.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for straightening or bending rails, a frame consisting of the plates *A*, placed in angle-shaped pairs, separated and secured by intervening blocks and braces to form a central passage, *a*, and horizontal and vertical guides consisting of the separated slotted plates *E*, the plates *G*, passing through them, plates *H*, extending to them, and the horizontal and vertical screw-jacks *I*, secured to the plates *A* and extending toward the center in the guide-plates *E* and *H*, and having pressure-rollers *c* upon their inner ends, all arranged substantially as and for the purpose herein described.

2. In a machine for straightening or bending rails, the frame consisting of the plates *A*, separated to form a central passage, *a*, and open top, bottom, and sides, the horizontal slotted guide-plates *E*, the vertical bearing-plates *G*, and guide-plates *H*, the threaded strips *J*, the screw-jacks *I*, each consisting of the bracket *i*, having a roller, *c*, extending within the passage *a*, bearing-plate *d*, operating-screw *f*, having a headed shank, *e*, with a shoulder, *q*, and yoke *g*, secured upon the threaded strips *J*, substantially as herein described.

3. The screw-jack *I*, consisting of the two-part bracket *i*, pressure-roller *c* in one end and perforated bearing-plate *d* in the other end, the screw *f*, having a headed shank, *e*, with a shoulder, *q*, and the stationary yoke *g*, all arranged and operating substantially as herein described.

4. In a machine for straightening or bending rails, the frame consisting of the plates *A* and other parts, arranged and secured together, as shown, to form a central passage, *a*, and the screw-jacks *I*, operating as described, the end plates, *B*, frames *L* on each end, having power mechanism for forcing the rail through passage *a*, and the longitudinal tie-bolts *K*, securing the frames and bracing the machine, substantially as herein described.

In witness whereof I hereunto set my hand.

PETER FRICHETTE.

Witnesses:

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G. W. EMERSON.