

T. W. Frost,
Belt Shifter.

N^o 76,739.

Patented Apr. 14, 1868.

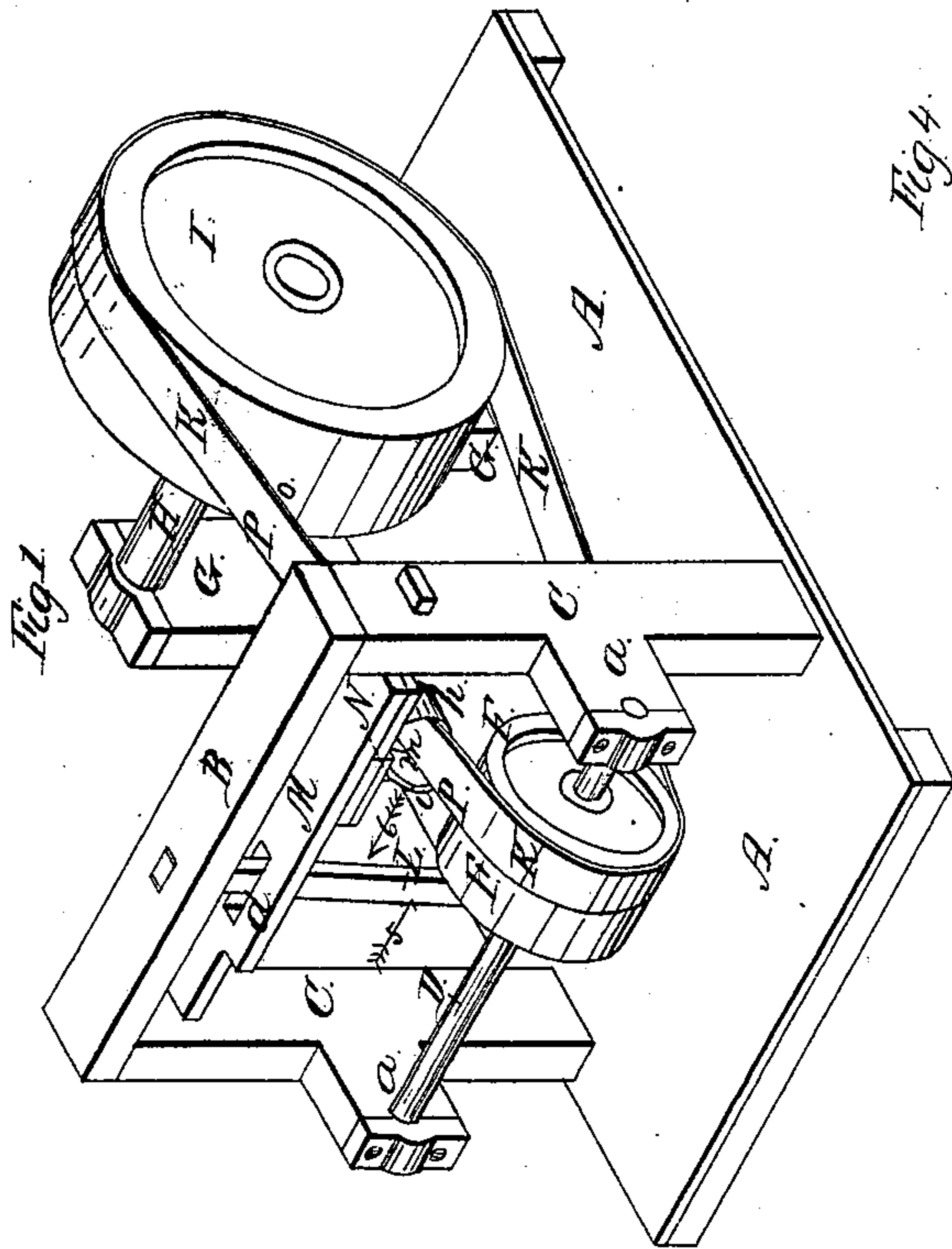
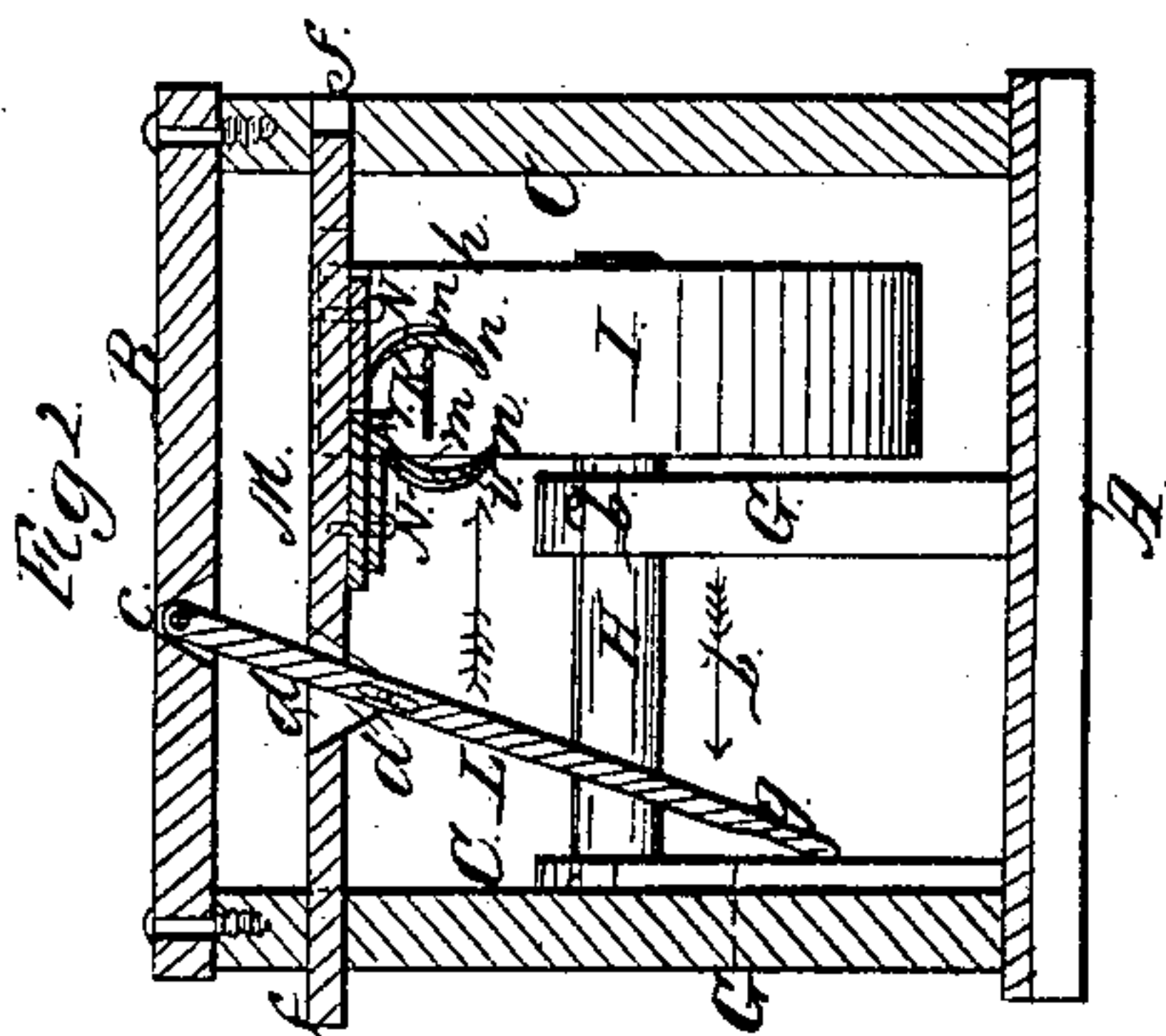
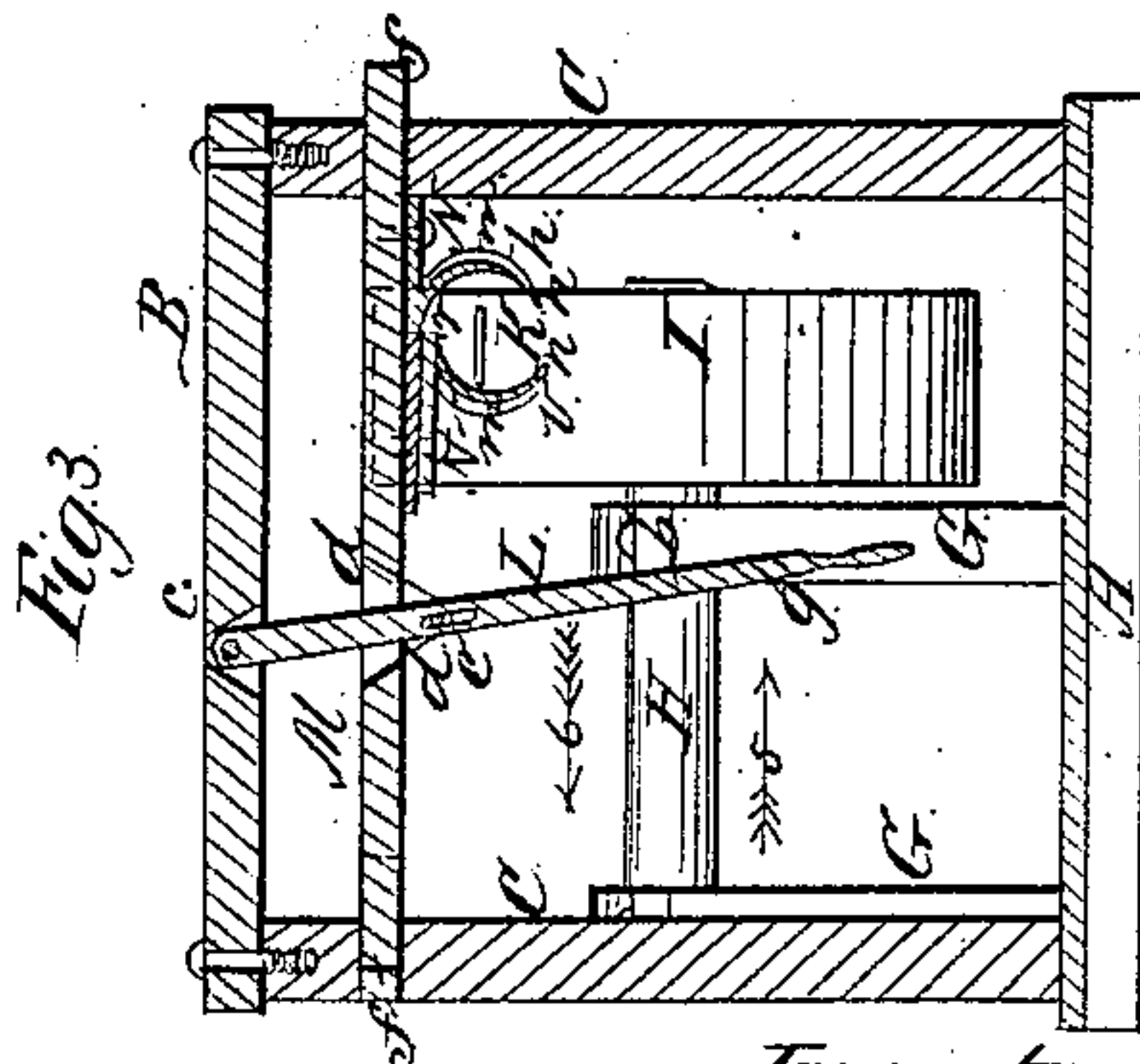


Fig. 4.
K. L. M. N. O. P. Q. R. S. T. U. V. W. X. Y. Z. a. b. c. d. e. f. g. h. i. j. k. l. m. n. o. p. q. r. s. t. u. v. w. x. y. z.



Witnesses.
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THOMAS W. FROST, OF DORCHESTER, ASSIGNOR TO HIMSELF AND J. B. KENDALL, OF MILTON, MASSACHUSETTS.

Letters Patent No. 76,739, dated April 14, 1868.

IMPROVED SHIPPERS FOR SHIFTING BELTS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS W. FROST, of Dorchester, in the county of Norfolk, and State of Massachusetts, have invented certain Improvements in Shippers for Shifting Belts, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view, illustrating my improved shipper in a position for throwing a belt from a fast to a loose pulley.

Figure 2 is a transverse vertical section through the same.

Figure 3 is a transverse vertical section, in which the shipper is shown in a position for throwing the belt from the loose to the fast pulley.

Figure 4 is a horizontal section, on the lines *x x* of figs. 2 and 3.

The means ordinarily employed for shifting belts from fast to loose pulleys, or *vice versa*, are objectionable for the reason that considerable time is occupied in the operation—a very serious objection in case of the disarrangement of the machinery, or where the life or limb of an individual is endangered by coming in contact and being entangled with the running-gear. To remove the above-mentioned objection is the purpose of my invention, which consists in a guide, made in one or more pieces, and attached to a bar or rod which is made to slide in a direction at or nearly at right angles to the belt, by operating an ordinary lever, or otherwise; the guide being placed in a position near to the said pulleys.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the floor of any room occupied by shafting; B is one of the beams, and C C are upright standards, extending between it and the floor.

To the side of the standards C C are secured bearings, *a a*, which support the ends of a shaft, D, upon which are placed, side by side, a fast pulley, E, and a loose pulley, F. G G are two standards, rising from the floor A. To the tops of these standards are secured bearings, *b b*, for the driving-shaft H to revolve in. One extremity of this shaft H projects outside its standard G, and is provided with a drum or cylinder, I, over which, and the fast pulley E, is carried a belt, K, which thus communicates motion to the latter. L is a shipper or lever, the upper end of which is pivoted, at *c*, to the beam B. This shipper L passes down through a slot, *d*, formed in a horizontal bar, M, to lugs *d'*, on the under side of which it is secured by a pin, *e*. The ends, *f*, of the bar M pass through slots cut in the upper portion of the standards C C, and the bar is thus free to slide in either direction by operating the handle, *g*, of the shipper, which extends down within reaching distance of the floor. To the under side of the sliding bar M is secured a guide, N, made in two pieces, *h i*, of the form shown in section, figs. 2 and 3. Within this guide runs the belt K, which is prevented from being thrown off the pulley which it drives by coming in contact with the inside of one of the pieces *h i*, the curvature of which is such that it flares inward from the points *k l* to the point *m* at its centre, (see fig. 4,) so that the edge of the belt comes in contact therewith at this point only, thereby materially reducing the friction, and preventing much of the wear incident to the ordinary form of shippers.

The curvature of the portion *h*, from the centre, *m*, downward in the same vertical plane to a point, *n*, figs. 2 and 3, is such that the belt may be shifted instantly from the fast to the loose pulley by the surface *m n* being brought up against the edge, *o*, of the belt, which is caused to ride up toward the centre, *m*, while the edge, *p*, of the belt is depressed, and slides readily down on to the loose pulley F of a smaller diameter than the fast pulley E, and stopping the machine to which it is attached. When it is required to start the work again, it is simply necessary to press the shipper L in the direction of the arrow 5, when the curved portion of the piece *i*, from *r* to *m*, is brought against the edge *p* of the belt, depressing it and raising the edge *o*, as required, so as to allow it to ride upward on the periphery of the fast pulley E, the curvature of the piece *i*,

from *r* to *m*, inclining downward and outward, and the point *r* first striking the edge *p* of the belt, so as to guide it downward, as the incline *r m* passes over it, (fig. 3.) Where the diameter of the fast pulley is much larger than that of the loose pulley, the incline *r m* should commence lower down than that shown, and the degree of its curvature should be increased or made sharper in order to give a greater cant upward to the edge *o* of the belt, and thus insure its being readily thrown upon the pulley *E*.

In case of any accident occurring which requires the immediate stoppage of the work, the shipper may be pressed in the direction of the arrow *G*, so as to bring the piece *h* against the edge of the belt, and thus instantly shift it on to the loose pulley *F*, (fig. 2.)

In a variety of machines an unexpected resistance to the power or increased strain is brought upon the belt, which has a tendency to be thrown off its fast pulley, which tendency, however, is effectually counteracted by my improved guide, the curvature of its interior being such as to bring the belt back to its normal position, as required.

It is evident that the guide *N* may be formed in one piece instead of in two, as shown, without departing from the spirit of my invention.

Claim.

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

The within-described guide *N*, formed in one or more pieces, and secured to a sliding bar, *M*, for giving the belt a lateral inclination, as and for the purpose set forth.

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Witnesses:

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