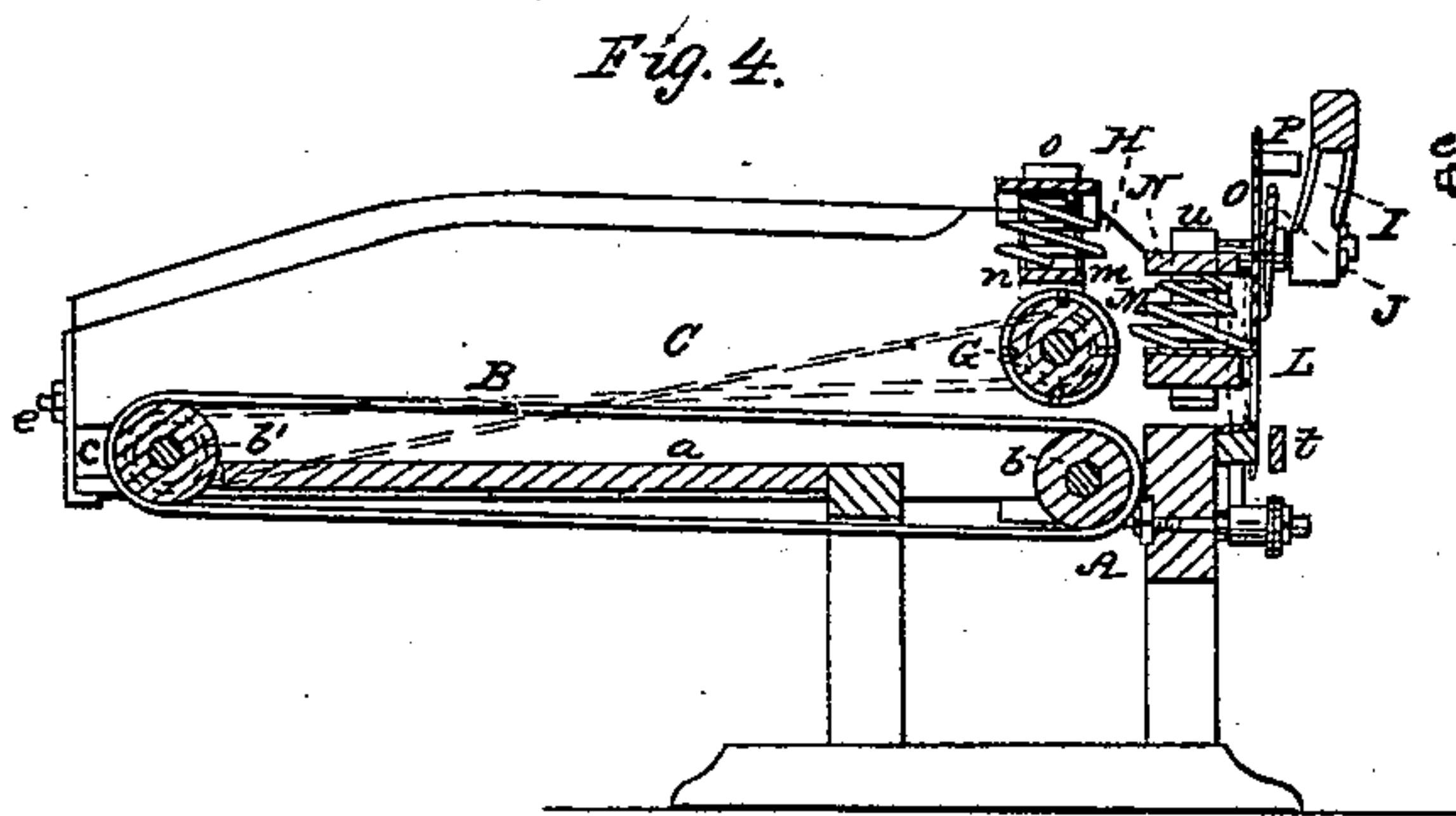
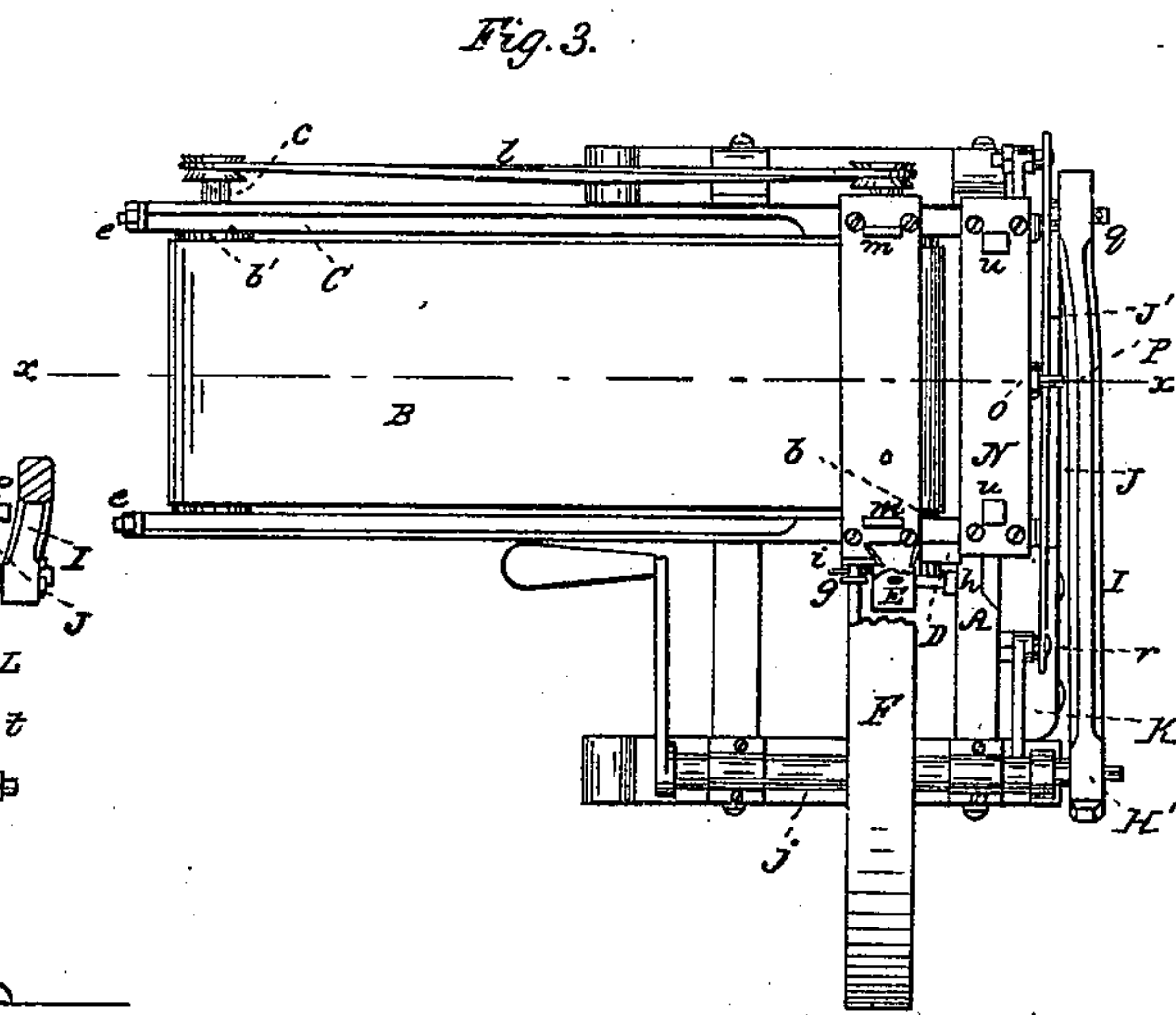
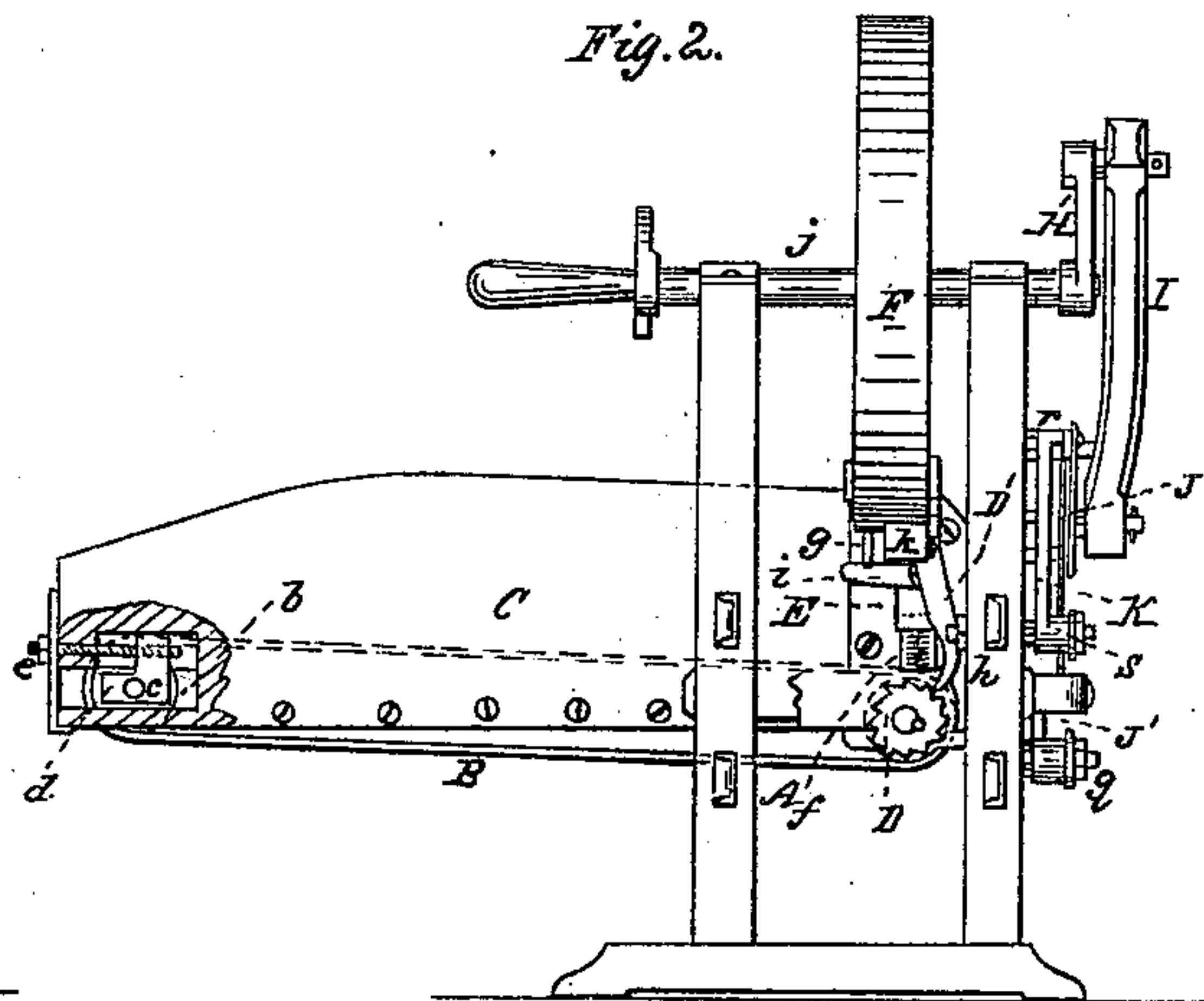
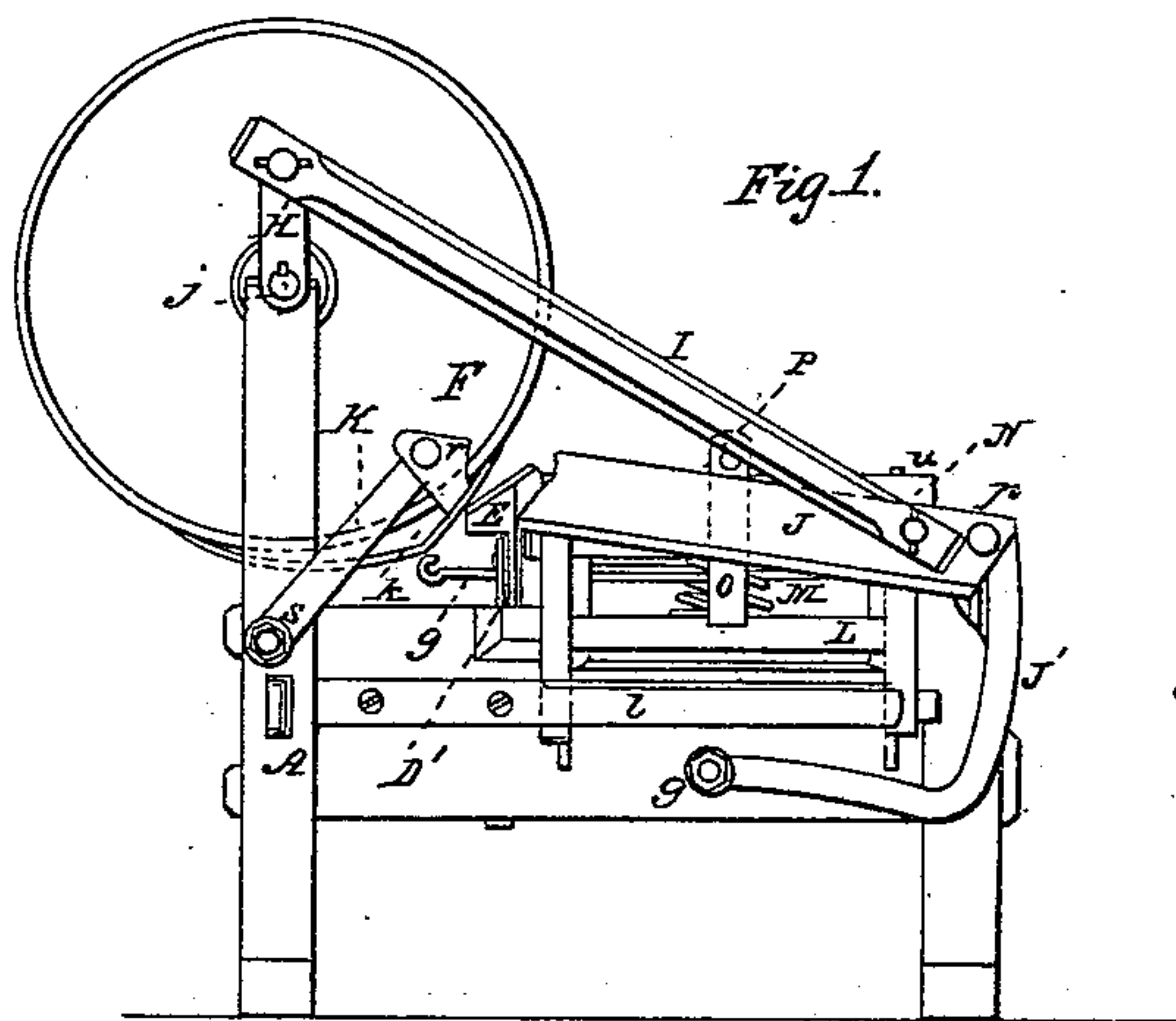


T. HAZARD.
Hay and Straw Cutter.

No. 43,988.

Patented Aug. 30, 1864.



Witnesses:
John C. Smith
Henry Smith

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UNITED STATES PATENT OFFICE.

THOMAS HAZARD, OF WILMINGTON, OHIO.

HAY AND STRAW CUTTER.

Specification forming part of Letters Patent No. 43,988, dated August 30, 1864.

To all whom it may concern:

Be it known that I, THOMAS HAZARD, of Wilmington, in the county of Clinton and State of Ohio, have invented a new and Improved Machine for Cutting Hay, Straw, Stalks, &c., for Fodder; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an end view of the same; Fig. 2, a side view of the same; Fig. 3, a plan or top view of the same; Fig. 4, a side sectional view of the same, taken in the line *xx*, Fig. 3.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved fodder-cutting machine of that class in which a reciprocating knife is employed; and the invention consists in a novel means for operating an endless apron by which the substance to be cut is fed to the knife, and also in a novel means for operating the press-board, which holds or clamps the substance to be cut while the knife is acting upon it, all being arranged in such a manner that a very simple and efficient device is obtained for the desired purpose, and one which may be operated equally well by manual or other power.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the framing of the machine, which may be constructed in any proper manner to support the working parts, and B is an endless apron, which works over the bottom *a* of the feed-box C, the latter being of the usual form. The endless apron B works over rollers *b b'*, one, *b*, being at the front and the other, *b'*, at the back end of the feed-box, the roller *b'* having its shaft *c* fitted in sliding bearings *d*, which are adjusted by set-screws *e*. (See Fig. 2.) By adjusting the bearings *d d* the endless apron B may always be kept at the proper degree of tension.

To one end of the shaft of the front roller, *b*, there is attached a ratchet, D, with which a pawl, D', engages, said pawl being attached to a slide, E, which is fitted in one side of the feed-box C, and rests upon a spiral spring, *f*, which has a tendency to keep the slide E elevated, the extent of the upward movement of the slide being determined by a pin, *g*, which

may be placed higher or lower in the side of the feed-box C, or a plurality of pins, *g*, may be used, one over the other, and a greater or less number of the lower ones removed according to the length of stroke or movement designed to be given the slide E. The pawl D' is kept engaged with the ratchet D by means of a spring, *h*, and a horizontal arm, *i*, is attached to the slide E, which comes in contact with the pin *g*.

F is a wheel, the shaft *j* of which is fitted in the framing A parallel with the feed-box C. The periphery of the wheel F is provided with a cam-shaped projection, *k*, which as the wheel F is rotated comes in contact with the upper end of the slide E and depresses it, the spring *f* throwing the slide up after the cam projection *k* passes it. By this arrangement it will be seen that an intermittent feed-motion will be given the endless apron B, in consequence of the pawl D' acting upon the ratchet D each time it descends with the slide E, and it will further be seen that the length of each movement of the apron may be varied by increasing the length of the stroke or movement of the slide E, which is done by adjusting the pin *g*, previously described. The endless apron B conveys the substance to be cut to a feed-cylinder, G, which is placed in the front part of the feed-box C, and is driven by a belt, *l*, from the shaft of the roller *b'* of the apron B.

The cylinder G may be constructed in any of the known ways, and its journals have slides *m m* bearing upon them, which are connected by a cross-bar, *n*, between which and a cross-bar, *o*, on the feed box a spiral or volute spring, H, is placed, said spring having a tendency to press the cylinder down upon the substance to be cut and over the front roller, *b*, of the apron B. (See Fig. 3.) The outer end of the shaft *j* of the wheel F is provided with a crank, H, to which a pitman, I, is attached, said pitman being connected to a knife, J, the front end of which is attached by a pivot-bolt, *p*, to a curved bar, J', which works at its lower end on a pin, *q*, at the front part of the framing A, the back end of said knife being attached by a pivot-bolt, *r*, to the upper end of a straight bar, K, the lower end of which works on a pin, *s*. (See Fig. 1.) By this arrangement the knife J has a drawing-cut imparted to it, and said knife works over the front end of the feed-box C and performs its

cut between the front end of the bottom of the latter and a bar, *t*, which extends along in front of the bottom, said bar *t* serving to support the outer end of the substance to be cut and greatly facilitating the cutting operation.

L is a press-board, the ends of which are attached to slides *u u*, which are fitted and work in grooves in the inner surfaces of the sides of the feed-box. This press-board has a spiral spring, *M*, bearing upon it, said spring being between the press-board and a cross-bar, *N*, on the feed-box, and the press-board has a vertical-bar, *O*, attached to it, which bar has a horizontal rod, *P*, secured to it, against which the knife *J* acts as it rises. The knife *J*, therefore, it will be seen, when it is raised raises the press-board, the spring *M* forcing the press-board down when the knife descends, and the cam projection *k* is placed at such a point on the periphery of the wheel *F* that the apron *B* will be moved while the knife *J* and press-board *L* are up, so that said parts cannot interfere with the proper feeding of the substance to be cut to the knife.

The substance may be cut into pieces of greater or less length by varying the length of the movements of the apron *B*, as previously described.

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

1. Operating the endless feed-apron *B* through the medium of the ratchet *D*, attached to the shaft of the front roller, *b*, of said apron, and a slide, *E*, having a pawl, *D'*, attached to it, together with a wheel, *F*, provided at its periphery with a cam-shaped projection, *k*, all arranged to operate substantially in the manner as and for the purpose set forth.

2. Raising the press-board *L* through the medium of the knife *J*, the latter as it is raised striking against the rod *P*, substantially as described.

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Witnesses:

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