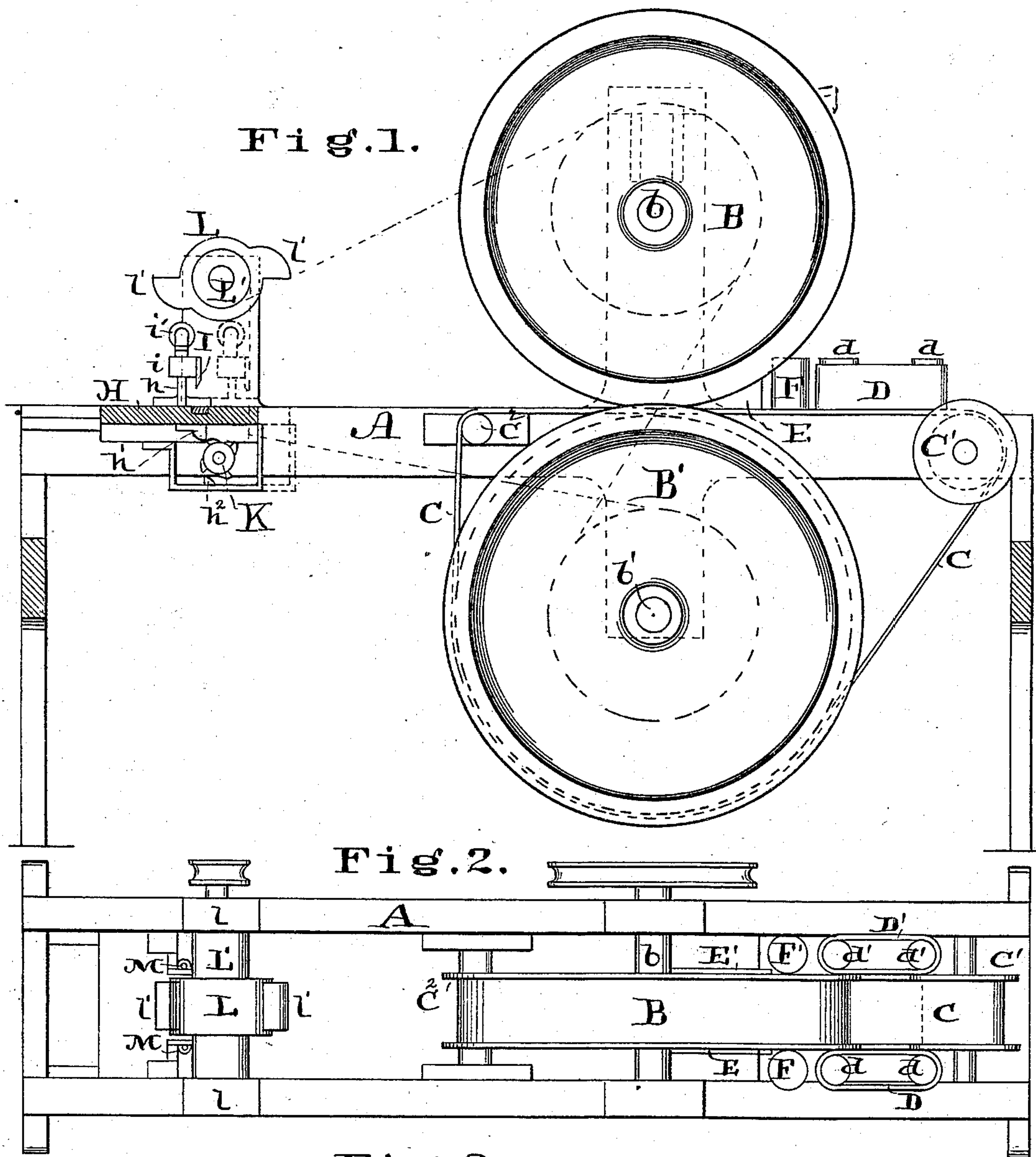


G. S. MYERS.  
Plug-Tobacco Machine.

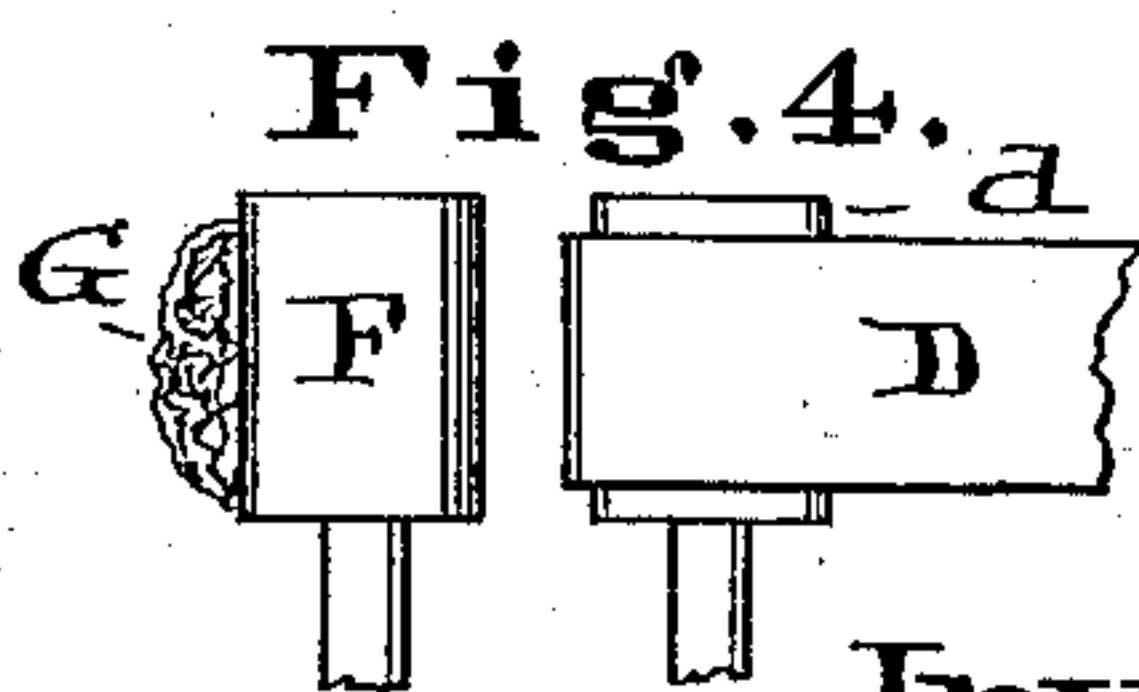
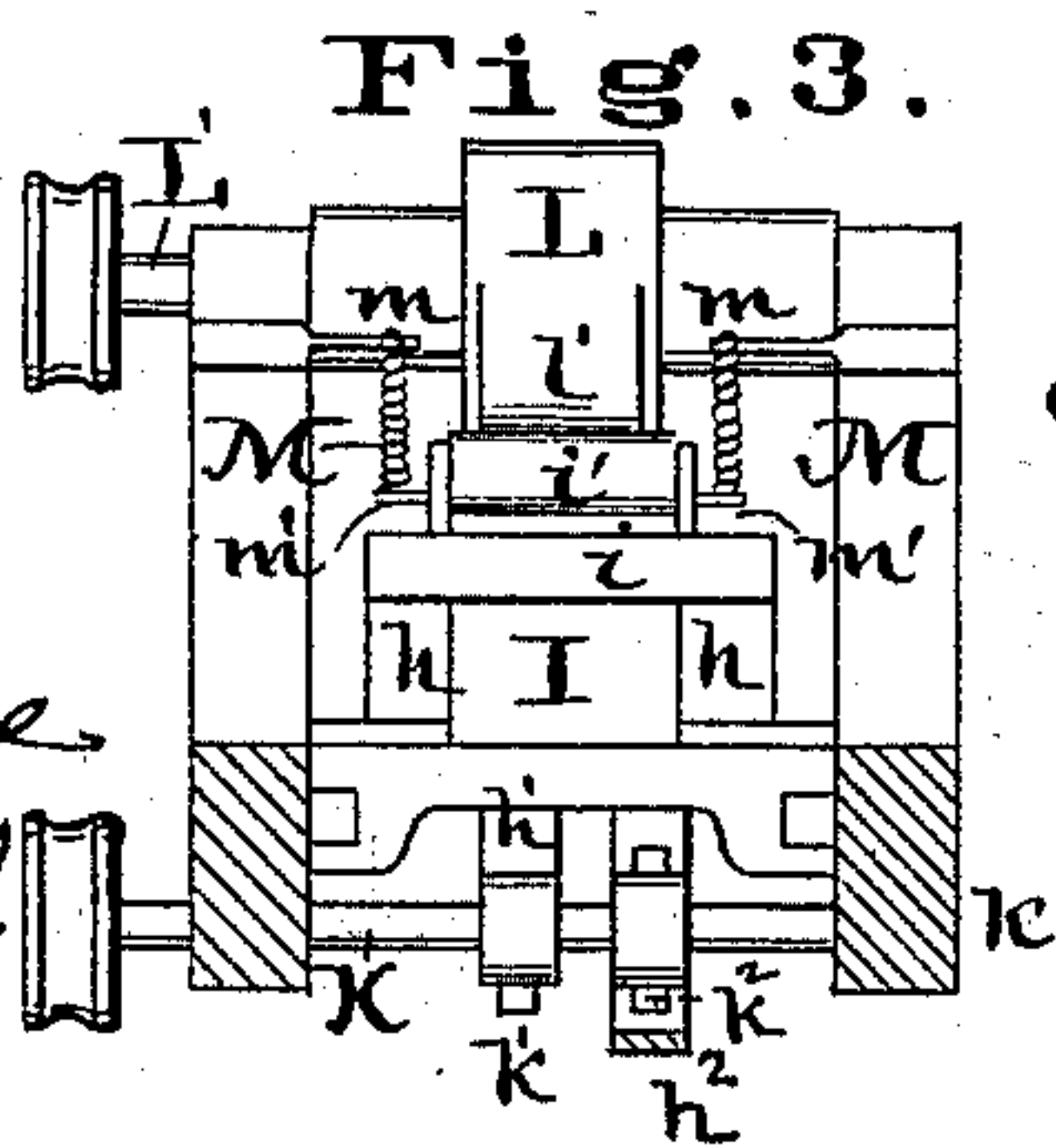
No. 215,473.

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Attest.

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*att'y.*



# UNITED STATES PATENT OFFICE.

GEORGE S. MYERS, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN PLUG-TOBACCO MACHINES.

Specification forming part of Letters Patent No. **215,473**, dated May 20, 1879; application filed January 29, 1879.

*To all whom it may concern:*

Be it known that I, GEORGE S. MYERS, of the city of St. Louis, Missouri, have made new and useful Improvements in Plug-Tobacco Machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation, partly in section, of the machine having the improvements; Fig. 2, a plan of the same; Fig. 3, a vertical transverse section taken immediately in front of the knife; and Fig. 4, a detail, being a side elevation, showing one of the lubricating-rolls and a portion of the mechanism immediately adjacent.

The same letters denote the same parts.

This invention relates to improvements in that class of machines wherein the loose tobacco is carried by a belt to a pair of compressing-rolls, by which it is compressed into a strip that is afterward cut into plugs. It has special reference to the means employed for more readily feeding the tobacco to the compressing-rolls, and to the means for cutting the plugs squarely from the strip without interrupting the movement of the latter.

Referring to the drawings, A represents the frame of the machine. B B' represent the compressing-rolls, journaled at *b b'*, respectively. C represents the main belt, used in feeding the tobacco to the rolls, passing over the lower roll, B', the roll C<sup>1</sup>, and the bearing C<sup>2</sup>. D D' represent the belts passing around the vertical bearings *d d'*, and forming the sides of the trough through which the tobacco passes to the rolls, all as in the usual manner, saving that the belts D D' do not extend quite to the jaws E E' of the compressing-rolls, space being left between such jaws and the belts D D' for a pair of rolls, F F<sup>1</sup>.

Hitherto difficulty has been experienced in delivering the tobacco from the belts D D' directly to the compressing-rolls. The belts cannot be made to work so closely to the compressing rolls and jaws as to prevent the tobacco from spreading immediately at that point and clogging the machine to such an extent as to require it to be stopped at frequent intervals and cleaned. The use of the rolls F F' is to obviate this difficulty. They are

arranged vertically at the sides, respectively, of the trough, in line with the belts D D' and close to the jaws E E'. They are rotated by any suitable means, and in the direction to deliver the tobacco to the compressing-rolls.

The tobacco is fed into the machine by means of the belts C D D'. As it leaves the space between the belts D D', it is received and confined between the rolls F F', whence it is fed into the jaws E E'. By reason of the proximity of the rolls F F' to the jaws E E', the tobacco is kept from spreading and clogging the working of the machine. It is desirable to lubricate the tobacco just as it passes into the compressing-rolls, say, with a solution of glycerine and water. By placing a sponge against the rolls F F', as indicated at G, Fig. 4, and holding it there by any suitable means, (not shown,) and allowing the lubricant to drop upon the sponge, the lubricant is spread upon the rolls, and thence transferred to the tobacco.

The second principal feature of the invention is the device by which the knife which cuts the strip into plugs is enabled to make a vertical cut and cut the plugs squarely off without interfering with the movement of the strip as the latter comes from the rolls. To accomplish this the knife must move directly downward at right angles to the strip until the cutting is completed, and at the same time the knife must be carried forward—that is, from the compressing-rolls—at the same rate at which the strip is moving through the machine.

The means by which this is effected are preferably as follows: H represents a table, upon which the strip is received from the rolls. I represents the knife for cutting the strip into plugs. The knife-head *i* is arranged to be moved up and down at right angles to the table, and upon guides *h h*, that are attached to the table. As the strip passes beneath the knife the latter is caused to descend at the proper intervals, and cut the plugs off. So far as the table is concerned, the movement of the knife is only in a direction at right angles thereto. The table, however, is movable, and as the cut is being made it is moved along evenly with the strip. This movement of the table is initiated slightly in advance of the



downward movement of the knife, and it is continued until the cutting is completed and the knife withdrawn, when the table is returned to the original position for the next cutting to be made.

To this end the table, on its under side, is furnished with two stops,  $h^1$  and  $h^2$ . A shaft, K, is journaled in the frame of the machine, and is provided with arms  $k^1$   $k^2$ , which, as the shaft rotates, are made to encounter the stops  $h^1$   $h^2$ , respectively, and as follows: The arm  $k^1$  striking the stop  $h^1$  causes the table H to be moved forward until the arm is disengaged from the stop, after which the arm  $k^2$  encounters the stop  $h^2$  and causes the table to be moved back to its original position, at which time this arm will have become disengaged preparatory for the first-named arm to come into position to repeat its action and move the table forward again, and so on, one arm,  $k^1$ , moving the table forward, and the other arm,  $k^2$ , moving it backward.

The stops as well as the arms are suitably relatively arranged so that their movements shall not interfere, and the movement of the shaft K and arms  $k^1$   $k^2$ , and the relative position of the parts, are such as to cause the movement of the table to occur in the manner as above described. For this purpose any suitable gearing can be employed.

The movement of the knife to and from the table is effected as follows: L represents a cam attached to a shaft, L', that is journaled in the machine at  $l$ . The cam is provided with projections  $l'$   $l''$ , one or more, according to the frequency of the cutting to be made. The parts are arranged so that as the shaft L' rotates the projections come against the knife-head, causing the knife to descend and make

the cut. A friction-roller,  $v'$ , is preferably attached to the knife-head, to reduce the friction between the cam and knife-head. In this way the downward movement of the knife is effected without interfering with the movement of the table to and fro upon the frame of the machine, as above described, the projections  $l'$   $l''$  being shaped so that the knife will continue to be depressed until the forward movement of the table is nearly completed. The knife is then sharply drawn upward by means of the springs M M. The latter at their upper ends are attached to the frame at  $m$   $m$ , and at their lower ends to the knife-head at  $m'$   $m'$ , the connections and springs being so made as to provide for the movement of the table. As soon as the springs act the knife-head is drawn into the space in front of the face of the projections  $l'$   $l''$ , and into position to be again depressed by the next projection  $l'$ .

I claim—

1. The combination of the jaws E E', rolls B B', belt C, pulley C<sup>1</sup>, and rolls F F', for the purpose described.

2. The combination of the rolls F F' B B', jaws E E', bearings C<sup>2</sup>  $d$   $d'$ , belt C, pulley C<sup>1</sup>, and belts D D', substantially as described.

3. The combination, in the frame A, of the shaft K, arms  $k^1$   $k^2$ , movable table H, stops  $h^1$   $h^2$ , guides  $h$   $h$ , knife I, shaft L', and cam L, substantially as described.

4. The combination of the frame A, rolls B B' F F', shaft K, arms  $k^1$   $k^2$ , table H, stops  $h^1$   $h^2$   $h^2$ , belt C, pulley C<sup>1</sup>, guide  $h$   $h$ , knife I, shaft L', and cam L, substantially as described.

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Witnesses:

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