

W. H. Watson.

Tobacco Pressing Mach.

N^o 88,757.

Patented Apr. 6, 1869.

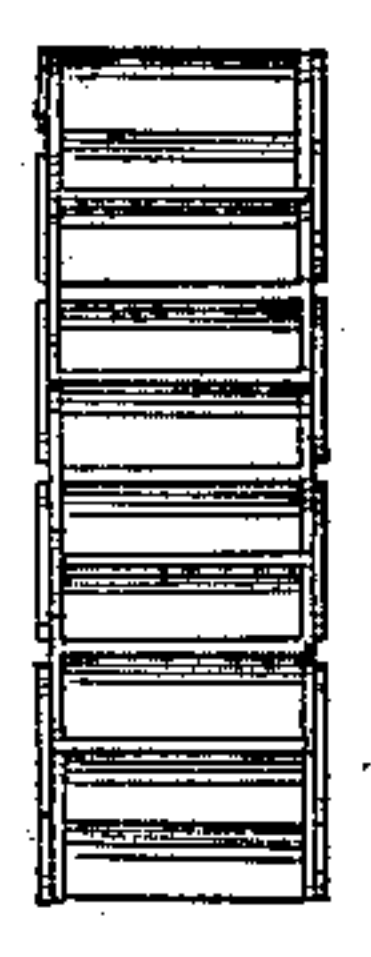
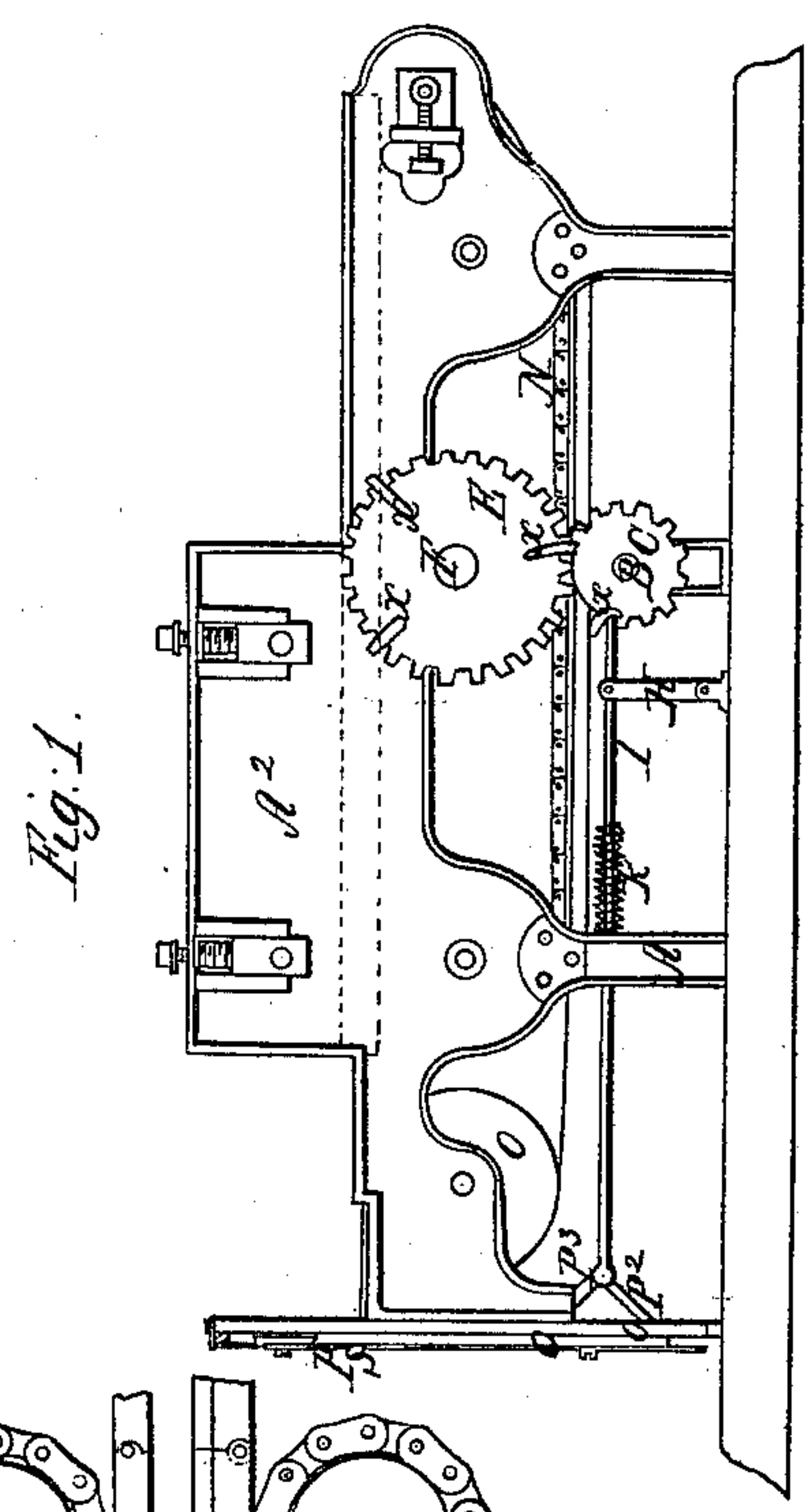
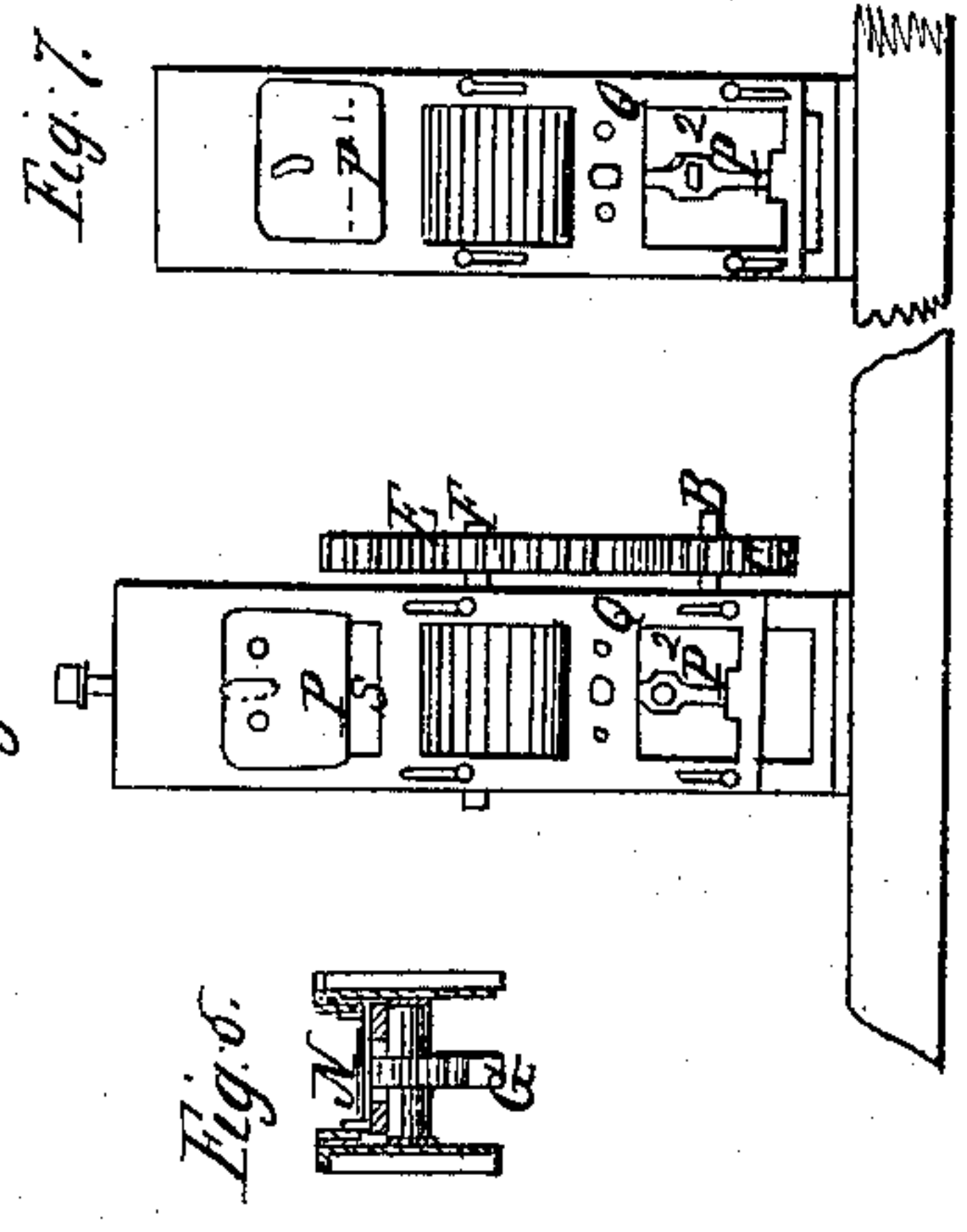
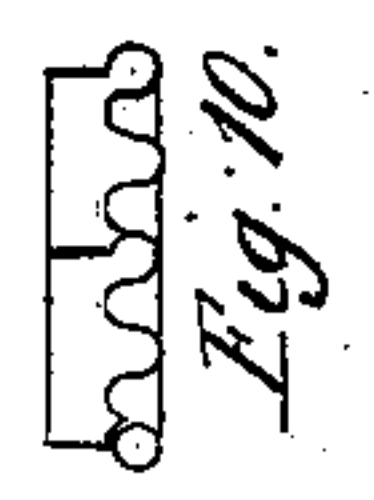
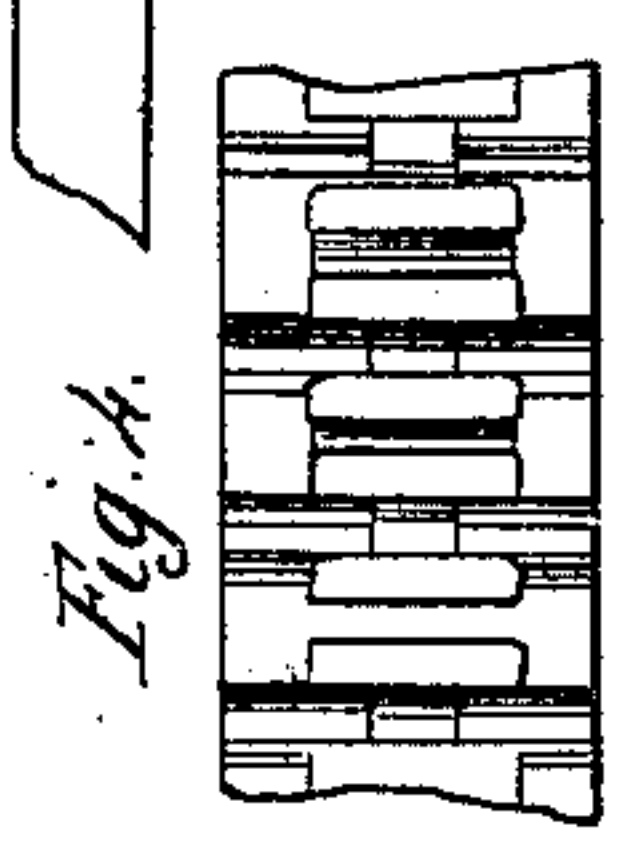
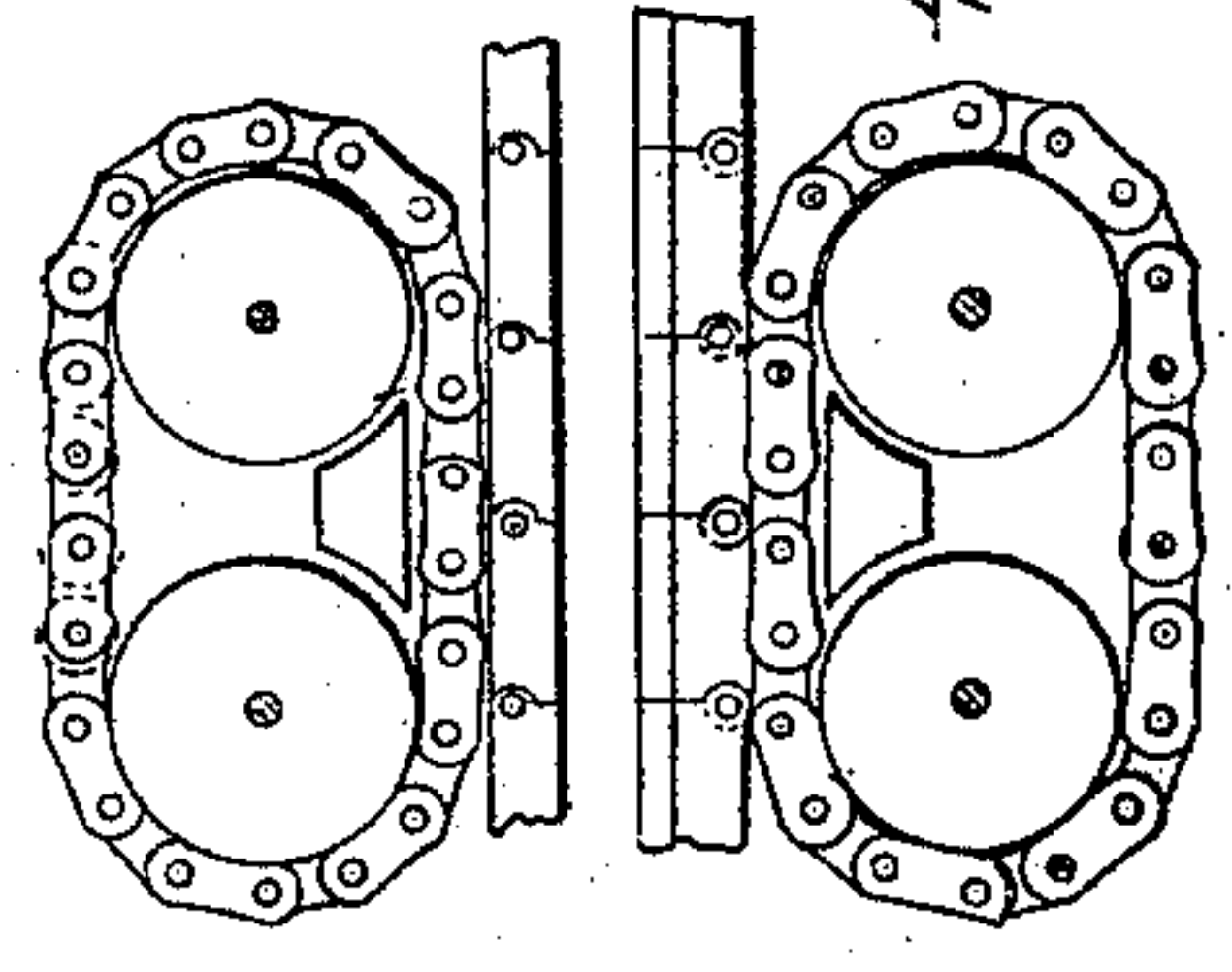


Fig. 2.



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Sheet 2, 2 Sheets

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Fig. 9.

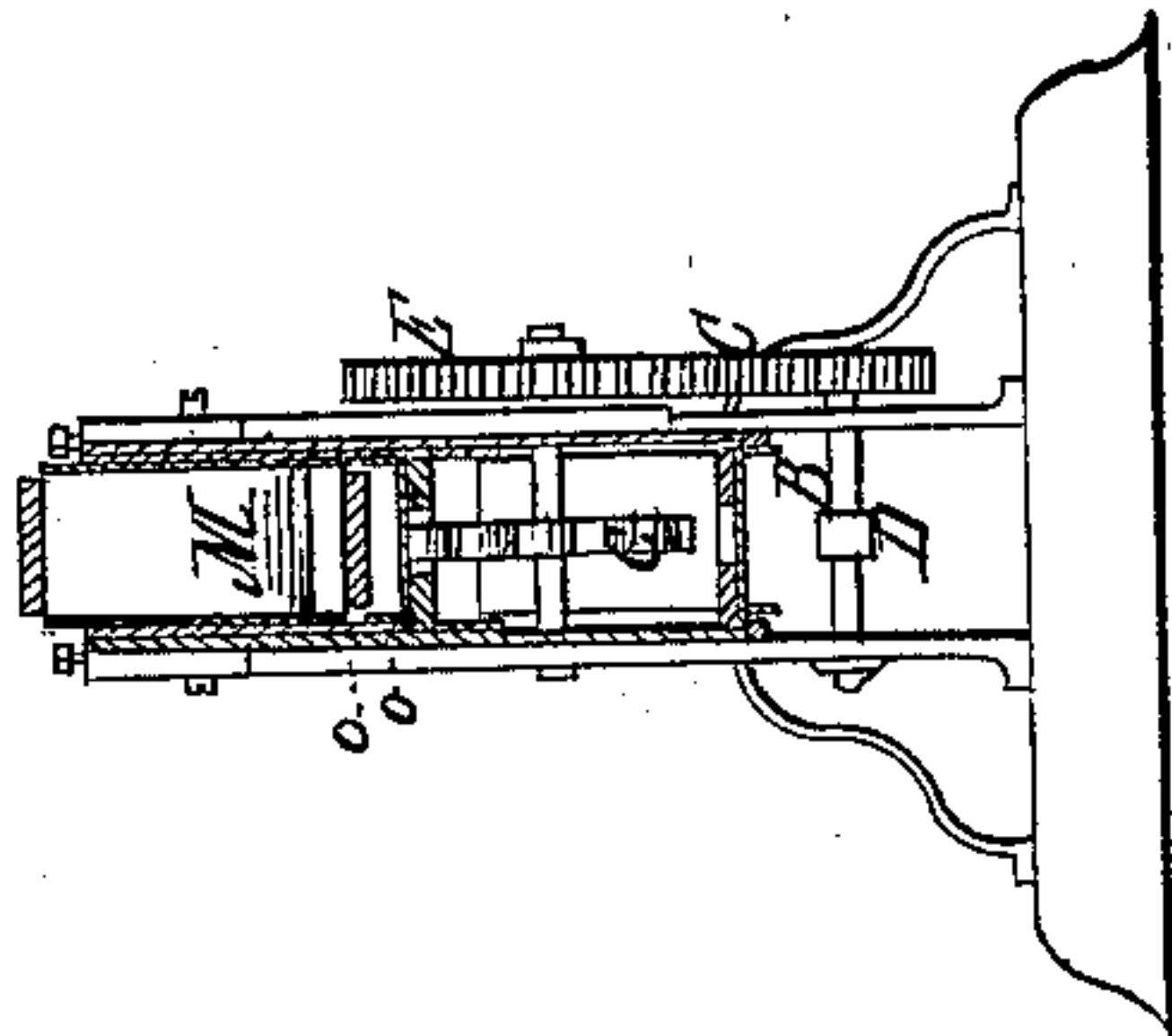
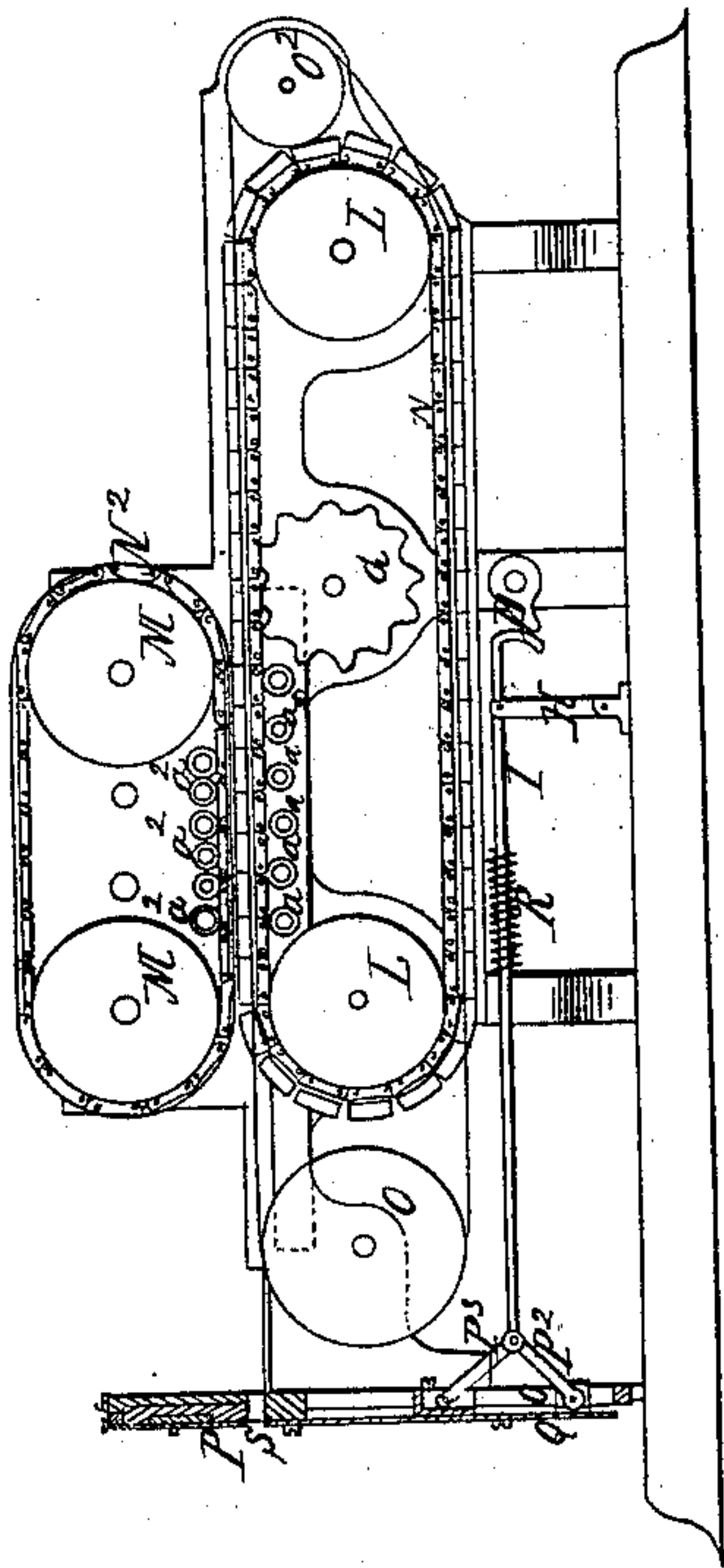


Fig. 8.



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Letters Patent No. 88,757, dated April 6, 1869.

MACHINE FOR SHEETING AND PRESSING TOBACCO.

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, WILLIAM H. WATSON, of Brooklyn, Kings county, New York, have invented, made, and applied to use certain new and useful Improvements in the construction and operation of Machines for Sheetting and Pressing Tobacco and other substances; and I do declare that the following is a full, clear, and correct description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of my improved machine.

Figure 2, a view of the links sometimes employed to form chain.

Figures 3 and 4, views of rollers, sometimes employed by me, over and under which the chains pass.

Figure 5 is a cut section of the machine, showing chain, chain-wheel, and belt.

Figure 6 is a front view of the cutting-apparatus, showing the knife raised.

Figure 7 is a front view of the cutting-apparatus, showing the knife thrown down.

Figure 8 is a longitudinal section of the machine.

Figure 9 is a cut section of the machine.

Figure 10 is a cut section of a chain, sometimes used.

In the drawings, like parts of the invention are pointed out by the same letters of reference.

The nature of my invention consists in certain improvements, as more fully hereinafter set forth, in the construction and operation of a machine for sheetting and pressing tobacco and other substances.

To enable those skilled in the arts to make and use my invention, I will describe its construction and operation.

A shows the frame for supporting the operative parts of my machine, composed of side and end pieces, bolted together, and supported by legs or feet, as shown.

B is the driving-shaft of the machine, secured in the frame A, and having upon it the partially-toothed wheel C and the surface-cam D.

E is a cog-wheel, keyed upon the shaft F, and gearing into the partially-toothed wheel C.

Both the partially-toothed wheel and the cog-wheel are provided with the lugs *x*, the purpose of which will be explained hereafter.

The shaft F is also secured in the frame A, and has upon it the cog-wheel G, secured about centrally.

H is a standard, the upper end of which is slotted, to receive the rod I, operating, through the toggle-joint, the knife of the machine. This rod is pinned within the slotted end of the standard, and has one end curved, or bent, so that the same may impinge upon the surface-cam D.

Upon this rod I is a spiral spring, K, held between a pin passed through the rod and a lug projecting from the ways on which the lower chain travels.

L are cylinders, or rollers, over which passes the

lower chain, N, of the machine, said cylinders, or rollers being supported upon journals, held in the frame A at or near the ends of the same. N shows the lower chain of the machine, composed of a series of links, secured, or coupled together, and passing over the cylinders, or rollers L, secured as just stated.

Beyond the cylinders, or rollers L, in the frame A, are the cylinders O and O², supported upon journals inserted in and having their bearing in the frame A. One of the cylinders, O², is made adjustable by allowing its journal to play in slotted boxes, the frame being cut away, to allow of the application of the same, and a set-screw being employed on each side to hold the cylinder in position when adjusted. Within the frame A, extending for a portion of its length, are the ways on which the lower chain N travels. These ways extend directly beneath the cylinders, or rollers L, and correspond in width to the lower chain, N.

The chain N is, as before stated, made up of a series of links, connected together in any suitable manner, provided with openings or projections upon one side, into which the cog-wheel fits or engages, and having secured upon their faces plates of flexible metal, the ends of which are turned up, and form, as it were, sides.

The lower chain is made considerably longer than the upper chain, N², and is passed over the cylinders, or rollers L, and travels on the ways, which assist in supporting it.

a is a series of friction-rollers, placed upon journals secured in the frame A between the cog-wheel G and the cylinders L. These rollers are free to revolve upon the journals supporting them, as the chain travels, and serve to assist the operation of the same.

A² shows the upper portion of the frame, or that portion in which the upper chain, N², moves. This upper portion of the frame is about one-half the length of the lower portion.

Within this upper portion are the cylinders, or rollers M, supported upon journals secured in the lugs in the frame, and over these cylinders or rollers the chain, N², passes. This chain, N², is composed of a series of flat links, riveted together, as in the case of the chain N.

Directly above this chain is a series of friction-rollers, *a*², of similar construction and operation as the rollers *a*, already alluded to.

The cylinders M are rendered adjustable by attaching boxes upon the ends of the journals, which boxes slide in lugs upon the sides of the frame, and, when properly adjusted, are secured by set-screws and springs, as shown, the screws being passed through the upper portion of the frame, and bearing upon the boxes.

O is the frame-work for supporting the knife-frame, carrying the knife P, for cutting the tobacco.

To the cross-brace of this frame-work is attached one end of a toggle, P³, its opposite end being attached to the end of the rod I.

The upper end of the metal forming this frame is turned over, and receives the head, or upper portion of a vertical-moving frame, Q, slotted as shown, and to the lower portion of which is attached one end of a toggle, P², its opposite end being attached to the end of the rod I.

Within the upper portion of the frame Q, slotted to receive it, plays the knife-head R, having secured to it the knife P. This knife-head is slotted obliquely, and upon the frame O is secured a pin, passing through the slot, and governing, with the toggles P³ and P², the throw of the knife.

This frame-work O is provided with an opening, S, through which the tobacco to be cut passes as it issues from between the chains N and N².

An endless belt, or band, extending over the cylinders O and O², and over the lower chain, is employed to conduct the tobacco into the machine and to the cutting-apparatus, the tension of such belt, or band being governed by the cylinder O², adjusted as already described.

The frame A is grooved on its sides, as at o, fig. 9, to receive the ends of the links forming the lower chains, for the purpose of keeping the chain in proper position while passing over the cog-wheel and through the machine.

Such being the construction, the operation is as follows:

We will suppose the lugs x upon the cog-wheel, and the partially-toothed wheel, to be engaged with each other, and that the upper chain has been properly adjusted to the lower one. The driving-shaft may be connected to any suitable motor, and, as the same revolves, all parts of the machine, save the cutting-apparatus, are set in motion.

The tobacco or other substance to be pressed is fed, by hand, upon the belt, passed over the lower chain at the point X, fig. 1, and is carried along between the flanged plates secured upon this chain, N². As it is brought into contact with the upper chain, the pressure upon the tobacco commences, and is continued until the tobacco passes beyond the centre of the cylinder, or roller L. The pressed tobacco is now carried forward in a continuous strip, and passes through the opening, S, in the frame-work O. When a sufficient quantity of tobacco has passed through this opening to form a plug of the desired length, the blank portion of the partially-toothed wheel is brought around to the gear-wheel, and these wheels become disengaged from each other, causing the chain to rest, or remain inactive while the cutting-operation is being performed. The bent end of the rod, to the opposite end of which the toggles are attached, as already described, now impinges upon the cam D, by which impingement the rod is thrown forward, the spiral spring is contracted, and the toggles are thrown forward, drawing down the knife-frame, carrying with it the knife for cutting the tobacco, the knife receiving a double movement, namely, a downward and a lateral one, the latter being given by the slot and pin already described.

As soon as the cutting-apparatus has operated, the bent end of the rod ceases to bear upon the cam, the spring relaxes, and the knife-head and knife are thrown up and away from the tobacco, through the upward movement of the frame, connected as shown. The lugs upon the partially-toothed wheel and cog-wheel now gear together, which is instantly followed by the gearing of the two wheels, and the operation described of feeding, pressing, and cutting the tobacco, is repeated.

It will be observed that I give to the chains, or pressing-part of the apparatus a period of rest, while the cutting of the tobacco is being executed. This I find a feature of great importance to the successful working of the machine. Heretofore I have been accustomed to feed the tobacco directly through the machine to the cutting-apparatus, and to make this feed constant, even while the cutting-apparatus was working; but the tendency of the chains, or of any pressing-surfaces employed, to crowd, as it were, the tobacco too rapidly to the cutting-mechanism was a source of much annoyance, and of continual expense.

By giving to the chain, at the proper time, this period of rest, the cutting-mechanism is found to operate admirably, it being required to cut only the tobacco passed through, and having a fair opportunity to do this, while the power to drive the machine is greatly reduced, and all strain or friction upon the back of the knife is prevented.

Again, it will be seen that, in feeding the tobacco to be pressed to the machine, no hopper, spouts, or feeding-mechanism is required. The tobacco is fed directly, by hand, upon the belt, or feeding-surface, thus greatly simplifying the operation, and reducing the cost of operating the machine.

By the use of friction-rollers as a bearing for the backs of the chains, constructed as shown in figs. 3 and 4 of the drawings, I am enabled to give a greatly increased pressure, the power applied being the same as if the chains were forced over a solid bearing-surface.

Having thus described my invention,

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

1. Giving to the chain, or feeding-surface N a period of rest during the operation of the cutting-mechanism, substantially as shown, for the purposes indicated.
2. The combination of the cam D, rod I, spiral spring K, and toggles P² and P³ with the movable knife-frame Q, for the purpose set forth.
3. The combination, with either of the chains N and N², of the friction-rollers a, for the purposes fully described.

W. H. WATSON.

Witnesses:

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