

(No Model.)

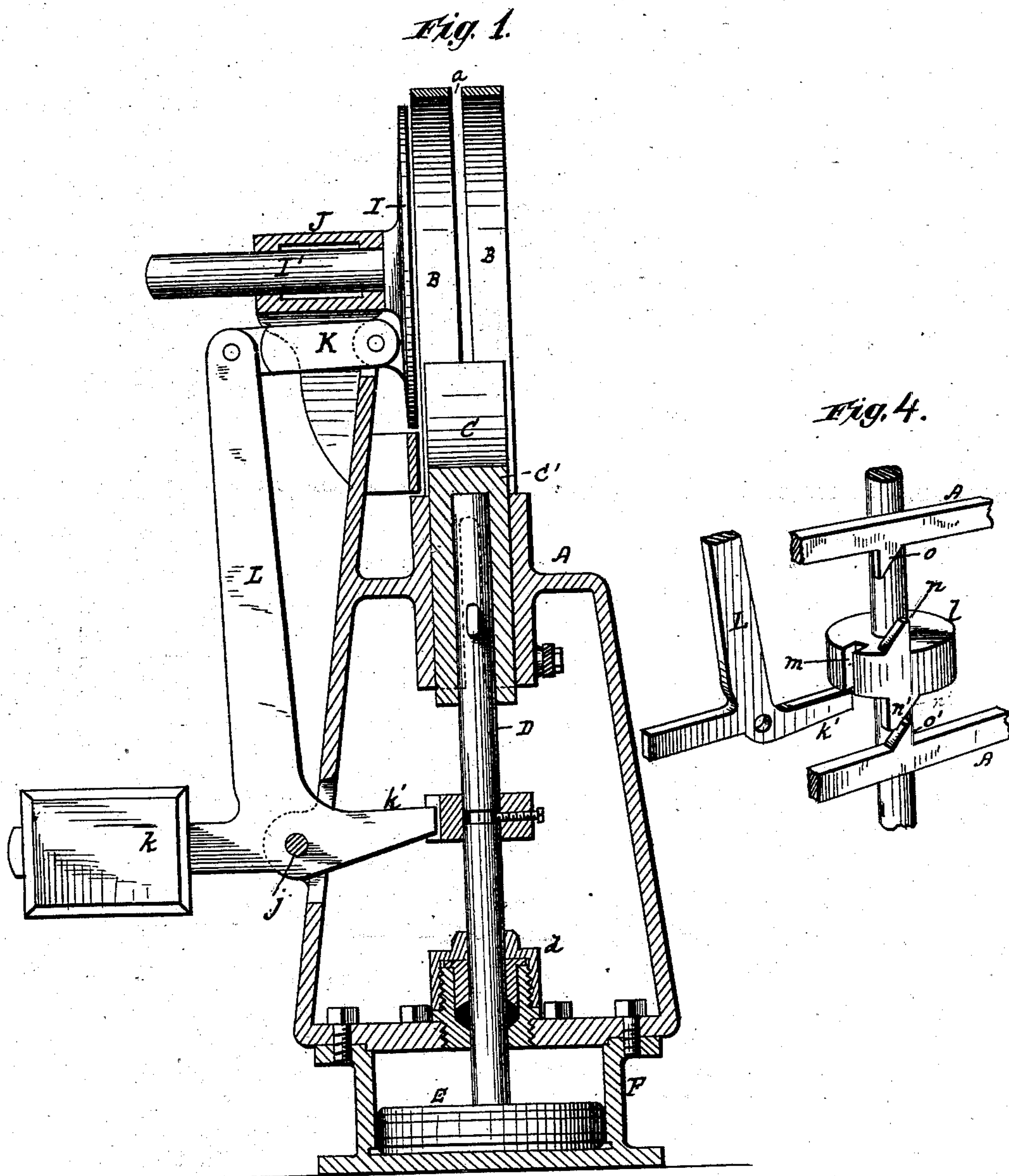
2 Sheets—Sheet 1.

M. J. SHAW.

MACHINE FOR BUNDLING KINDLING WOOD.

No. 282,381.

Patented July 31, 1883.



Witnesses.

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E. A. Dick

Inventor.

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By Maxwell Barry
his atty.

(No Model.)

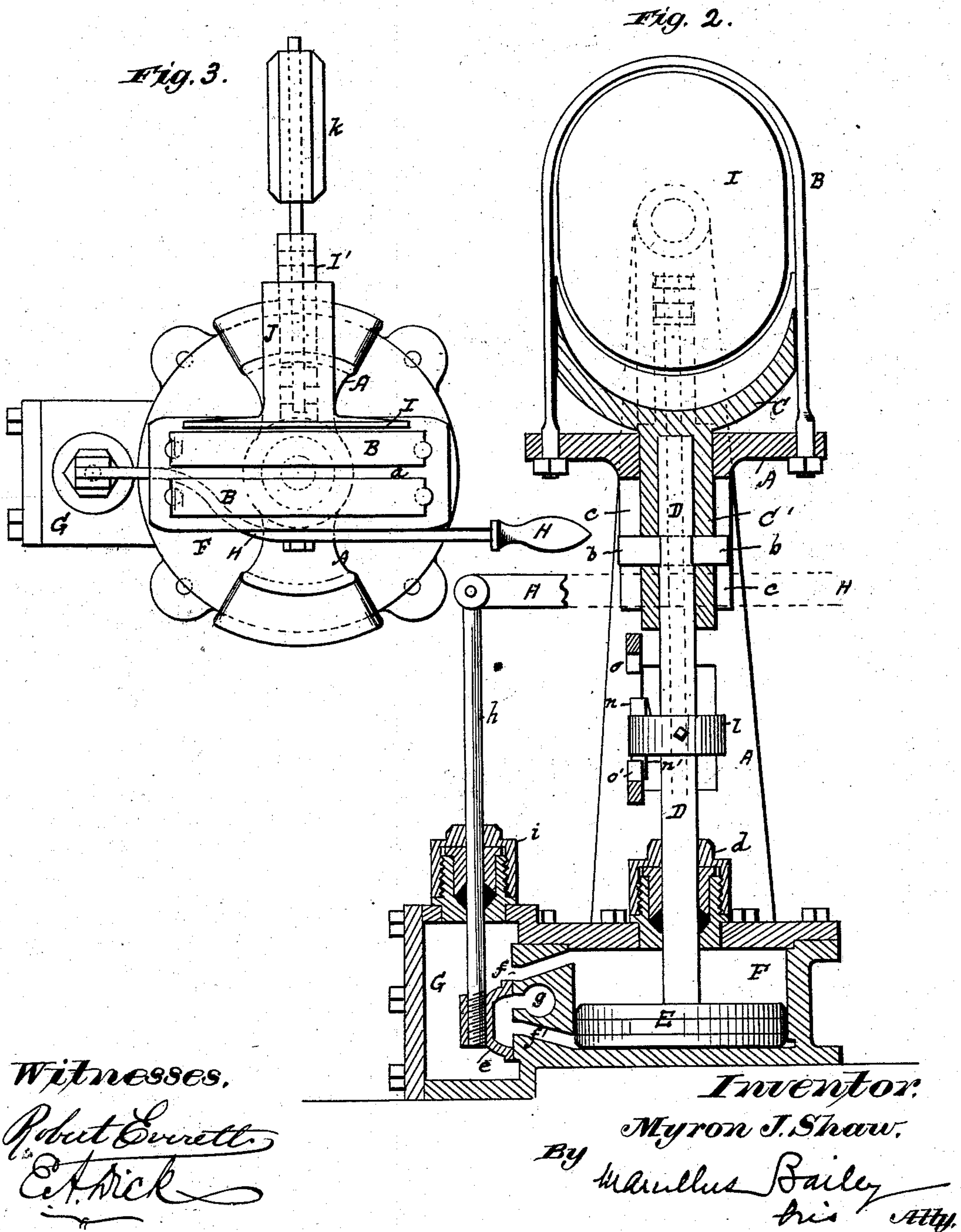
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UNITED STATES PATENT OFFICE.

MYRON J. SHAW, OF WILLIAMSPORT, PENNSYLVANIA.

MACHINE FOR BUNDLING KINDLING-WOOD.

SPECIFICATION forming part of Letters Patent No. 282,381, dated July 31, 1883.

Application filed April 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, MYRON J. SHAW, of Williamsport, Lycoming county, in the State of Pennsylvania, have invented certain new and useful Improvements in Machines for Bundling Kindling-Wood, of which the following is a specification.

My invention relates to that class of machines for bundling wood and similar material in which a compartment for holding the wood to be packed is combined with a follower or presser, by which the wood is pressed into as small compass as possible, and is thus held until the bundle is tied.

My improvements have reference to the means for operating the presser or follower, and to the means for operating the ejector—that is to say, the device which throws out from the machine the bundle after it has been completed. I operate the presser directly by steam-pressure, connecting it to the piston-rod of the steam-piston, so that it shall move in unison with the piston; and I provide the reciprocary piston-rod with a rotary collar or tappet, which is operated on by cams in such manner that when the piston-rod recedes, so that the presser is caused to release the bundle, the collar or tappet will first act on the ejector mechanism to cause the same to eject the bundle from the machine, and will then release said mechanism and permit it to resume its original position.

The nature of my invention and the manner in which the same is or may be carried into effect can best be explained and understood by reference to the accompanying drawings, in which I have represented a machine embodying my improvements in their preferred form.

Figure 1 is a vertical central section of the machine from front to rear. Fig. 2 is a like section in plane at right angles to the plane of section in Fig. 1. Fig. 3 is a plan of the machine. Fig. 4 is a perspective view of the collar or tappet hereinbefore referred to, together with its operating-cams and the lower end of the lever that carries the ejector.

A is the frame of the machine, which carries the working parts. The compartment or receptacle for holding the wood to be bundled

is composed of two steel straps, B, and the presser or follower C. The straps form the sides and top of the compartment. They are placed about three-eighths of an inch apart, so as to leave between them a slit or opening, *a*, for the passage of the cord or wire used to tie up the bundle, and their lower ends are bolted fast to the top of the frame A. The inner edges of these straps are in practice rounded or beveled.

The presser or follower C forms the bottom of the receptacle, and is adapted to move up and down between the upright portions of the straps B. For this purpose it is provided with a tubular stem or neck, C', which is supported in suitable bearings in the top of the frame, and fits upon the upper end of the piston-rod D, to which it is attached by a key, *b*. The outer ends of this key project into guide-slots *c* in the frame A and form guides, which prevent the presser from turning or getting out of place as it moves up and down.

The piston-rod D extends down through a stuffing-box, *d*, and is attached to a piston, E, which works in a steam-cylinder, F, formed in the base of frame A.

On one side of the steam-cylinder is a steam-chest, G, in which is a slide-valve, *e*, which governs the admission and discharge of steam to and from the cylinder F through steam-ports *f f'* and exhaust-port *g*. The valve is provided with a stem, *h*, which passes out from the steam-chest through a suitable stuffing-box, *i*, and is connected to a hand-lever, H, by means of which the operator shifts the valve from one position to the other.

The operation of the parts thus far described is as follows: They are shown in Figs. 1 and 2 in the position which they occupy when the machine is ready to receive wood to be bundled, the piston is in its lowest position, live steam being admitted above it through port *f*, and port *f'* being in communication with exhaust-port *g* through the valve *e*. While the parts remain in this position the pieces or sticks of wood to be bundled are put into the compartment or receptacle and rest upon the presser or follower C. A piece of cord having first been entered through the slit or opening *a*, so as to extend across the

compartment and be on the presser, with its ends hanging down on the outside of the compartment, as soon as the proper quantity of wood has been introduced into the compartment, the operator, by means of handle H, shifts the valve *e*, so as to permit steam to enter the cylinder below the piston through port *f'*, and at the same time to permit the steam already in the cylinder above the piston to exhaust through ports *f g*. The piston at once rises, and moves with it the presser C, which, as it ascends, is forced against the wood, so as to bring the latter into the condition of a compact bundle. While the wood is thus held by the upward pressure of steam acting upon the follower C through the intermediary of the piston and piston-rod, the operator gathers up the ends of the string, carries them up over the bundle through the slot *a*, and ties them tightly. This completes the bundle-tying operation. The valve is then shifted, so as to cause the presser to descend, and the bundle of wood is thus released and can be removed from the machine.

In order to automatically eject the completed bundle from the machine, I make use of the following arrangement of parts: At the rear of the compartment is a disk, I, which is capable of sliding in the compartment from front to rear, and also forms a backing for the compartment. This disk or plate I term the "ejector." It is supported by a stem, I', mounted and adapted to slide horizontally in the bearing J on the back of the frame, and it is connected by a link, K, to a T-lever, L, pivoted at *j* to the frame of the machine. The outer horizontal arm of this lever carries a weight, *k*, which tends to draw back the ejector and hold it in the position shown in Fig. 1. The other horizontal arm, *k'*, of the lever projects inwardly toward the piston-rod D, so that its inner end will project into the path of a collar or tappet, *l*, on the piston-rod. This collar is provided with a peripheral notch or opening, *m*, on the side adjoining the T-lever, and is capable of limited rotary movement on the piston-rod, so as to throw this notch into and out of register with the end of arm *k'* of the lever L, as desired. These movements of the collar are automatically effected during the rise and fall of the piston-rod by means of cams or inclines *n n'* on the upper and lower faces, respectively, of the collar, which are adapted to work against corresponding stationary cams or inclines, *o o'*, on the frame A. The cams *n' o'* operate, when the piston has about completed its descent, to throw the notch *m* into line with arm *k'*, in which position they are shown in Figs. 1 and 2. When the piston-rod rises, the collar remains in this position until the rod nears the upper end of its stroke, at which time the cam end comes against cam *o*, with the effect of partly rotating the collar in a direction opposite to that in which it was before moved by *n' o'*. Consequently when the piston-

rod descends, the solid portion of the collar is opposite arm *k'*, and thus when the downward movement of the rod is nearly completed the collar, as indicated in Fig. 4, will bear upon and depress the arm *k'*, with the effect of throwing forward the ejector, and the latter in this way will be caused to eject the completed bundle from the machine. By this time the cams *n' o'* will have come together, and by their action will have rotated the collar in a direction to bring the notch *m* opposite to arm *k'*. The ejector-lever L consequently is released from the control of the collar, and the weight *k* at once returns the ejector to its normal position.

It is manifest that in lieu of forming a peripheral notch, *m*, in a collar the latter may be made with a toe or lateral projection, which can be brought into and out of the path of the ejector-lever with the same result, or that the collar may be otherwise formed for the same purpose.

Having described my improvement and the best way known to me of carrying the same into effect, what I claim as new and of my invention is—

1. In a machine for bundling wood, the combination of the wood-containing compartment or receptacle, the reciprocatory steam-piston and its cylinder, and the presser or follower adapted to slide in said compartment and connected to the piston, so as to move in unison therewith, substantially as hereinbefore set forth.

2. In a machine for bundling wood, the combination of the steam-cylinder, the reciprocatory piston therein, the piston-rod connected to and moving with said piston, the wood-containing compartment or receptacle, and the presser or follower mounted on and carried by the piston-rod, substantially as and for the purposes hereinbefore set forth.

3. In a machine for bundling wood, the steam-chest, the steam-valve, and the valve-shifting lever-handle, in combination with the steam-cylinder, the reciprocatory piston therein, the piston-rod, the presser or follower carried by and moving with said piston-rod, and the wood-containing compartment or receptacle, for joint operation substantially as hereinbefore set forth.

4. In a machine for bundling wood, the combination, with the ejector and the ejector-lever, of the piston-rod, the rotary notched or equivalently-formed collar thereon, and cams on said collar and frame of the machine, respectively, whereby the solid portion of the collar is brought into and out of the path of the lever by and during the reciprocatory movement of the piston-rod, substantially as and for the purposes hereinbefore set forth.

5. In a machine for bundling wood, the reciprocatory piston-rod, the presser or follower carried by and moving with the same, and the wood-containing compartment or re-

ceptacle, in combination with the ejector, the
ejector-lever, the notched or equivalently-
formed collar carried by and adapted to ro-
tate on the piston-rod, and the collar-shifting
5 cams formed on or attached to the collar and
the machine-frame, respectively, these parts
being timed in their movements relatively to
one another, and having the mode of oper-
ation substantially as hereinbefore set forth.

In testimony whereof I have hereunto set to
my hand this 30th day of March, 1883.

MYRON J. SHAW.

Witnesses:

J. E. SHAW,
ADDISON CANDOR.