

(No Model.)

3 Sheets—Sheet 1.

J. PETZ.

MACHINE FOR MAKING BUNGS.

No. 335,955.

Patented Feb. 9, 1886.

Fig. 1.

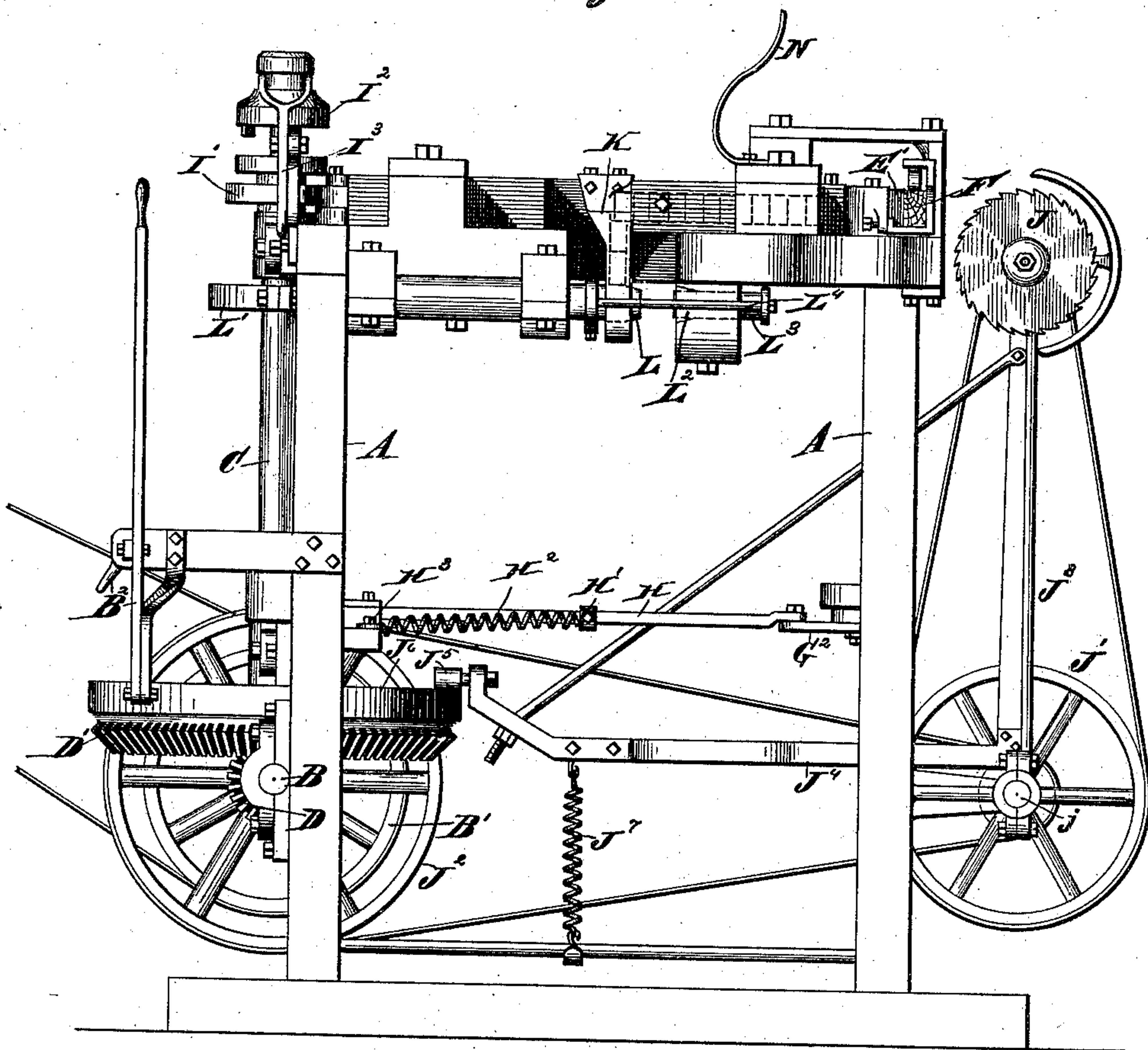
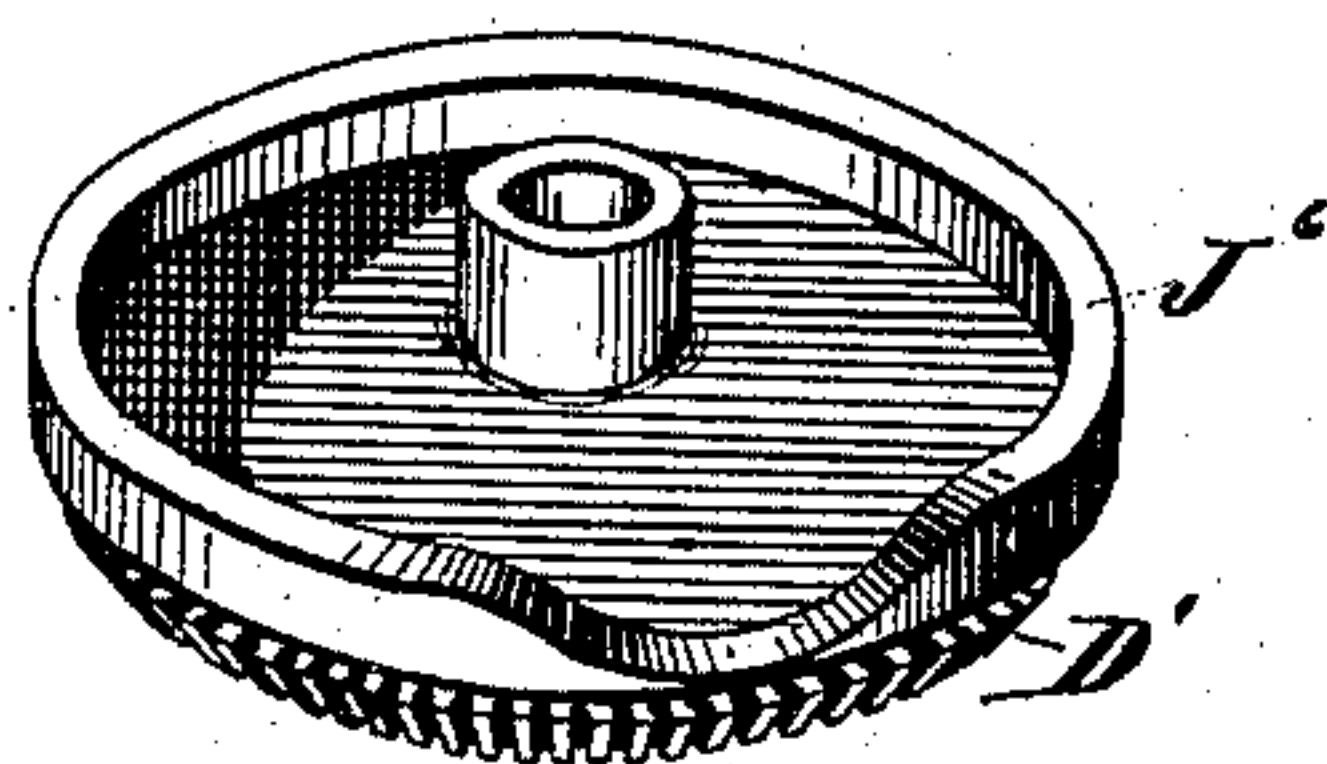


Fig. 2.



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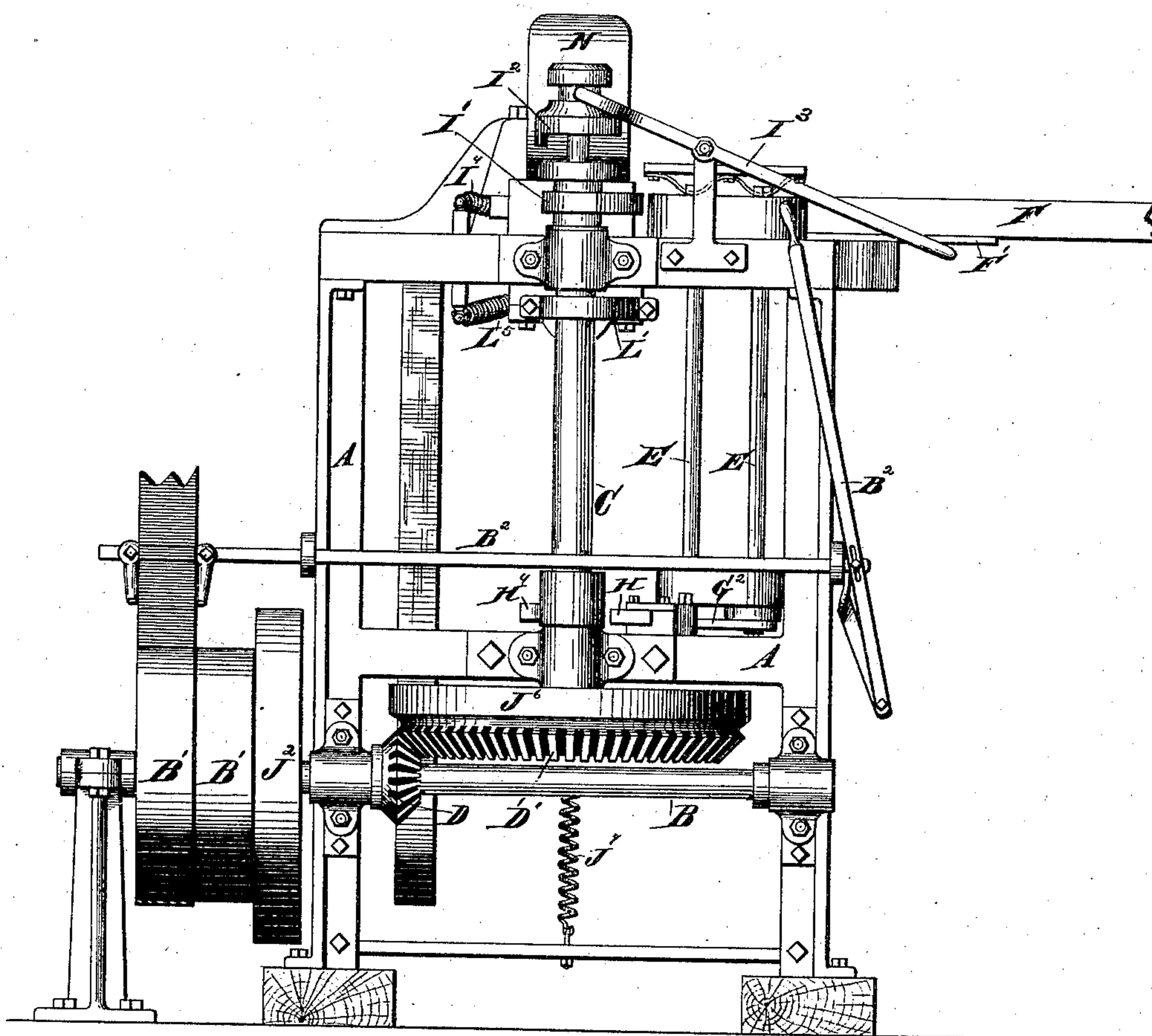
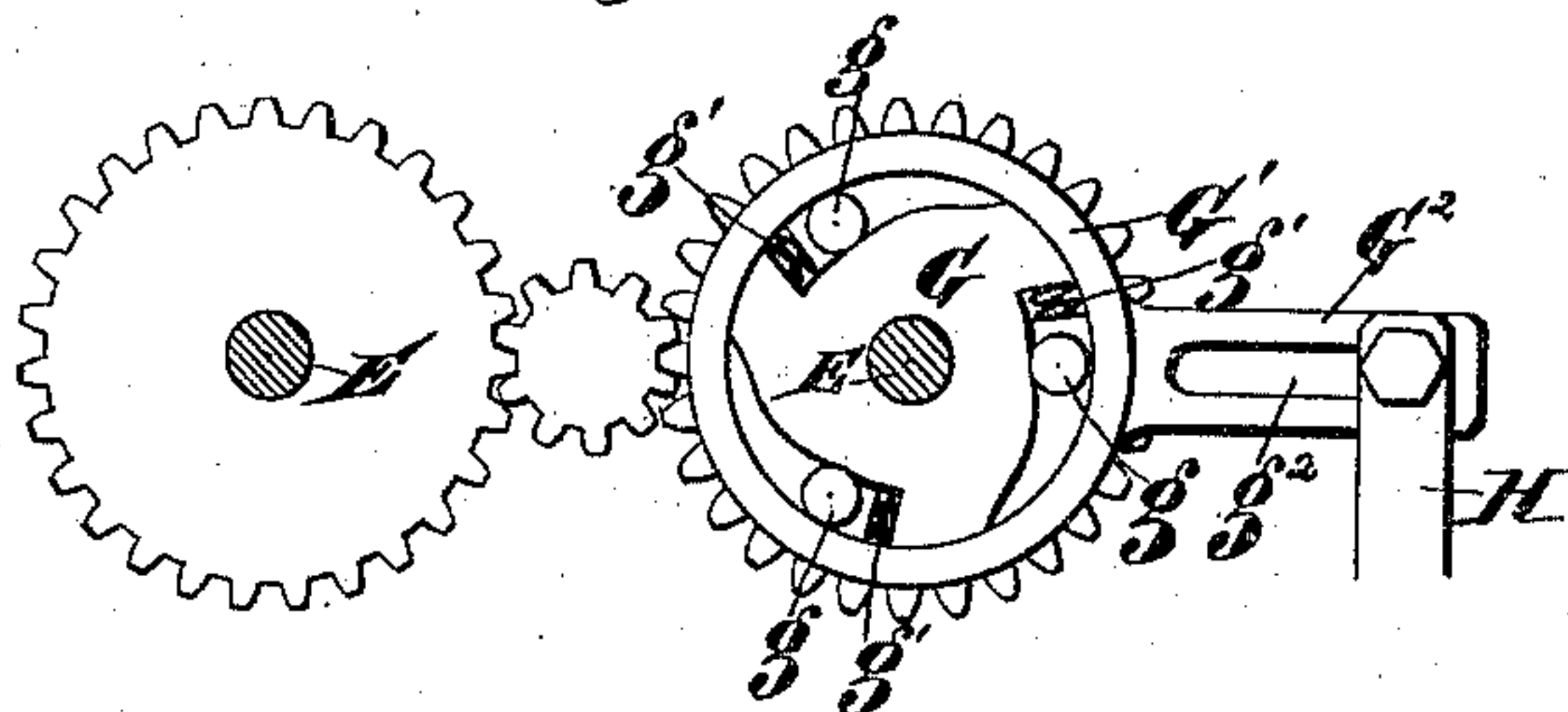


Fig. 6.



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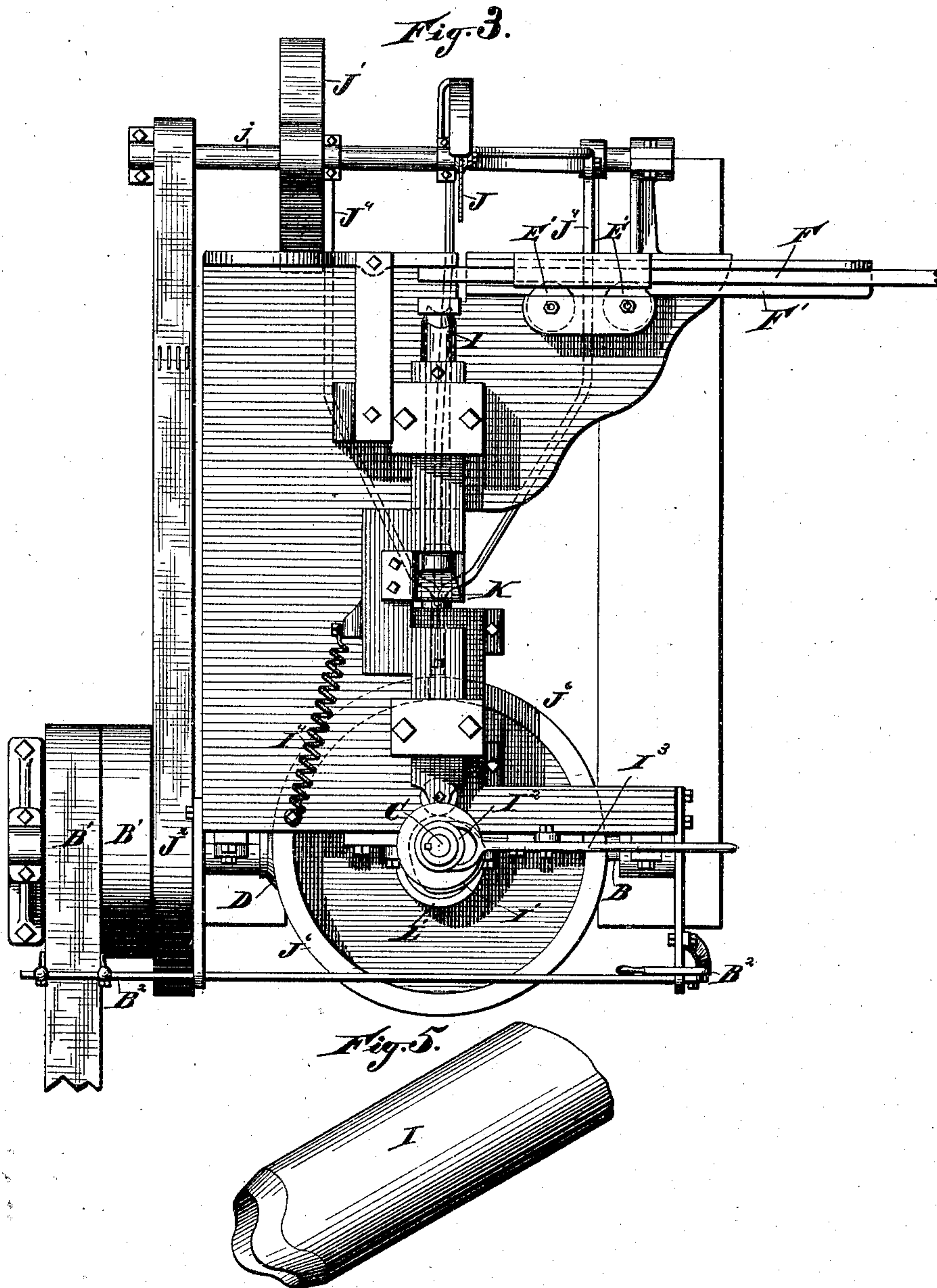
3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

JOHN PETZ, OF DETROIT, MICHIGAN, ASSIGNOR TO HIMSELF, JOHN PHIL-
LIPS, AND EDWARD W. ROWLEY, OF SAME PLACE.

MACHINE FOR MAKING BUNGS.

SPECIFICATION forming part of Letters Patent No. 335,955, dated February 9, 1886.

Application filed November 13, 1885. Serial No. 152,722. (No model.)

To all whom it may concern:

Be it known that I, JOHN PETZ, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in
5 Machines for Making Bungs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it per-
10 tains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

This invention consists of the combinations of devices and appliances hereinafter speci-
15 fied, and more particularly pointed out in the claims.

In the drawings, Figure 1 represents an ele-
vation of a machine embodying my invention. Fig. 2 is a view in elevation at right angles
20 to that shown in Fig. 1. Fig. 3 is a plan view of the same. Fig. 4 is a separate view of the cam-gear for operating the upright shaft and saw-frame. Fig. 5 is a separate view of the
25 punch which cuts the bung from the wooden strip. Fig. 6 is a separate view of the ratchet
mechanism for actuating the feed-rollers.

This invention has for its object the produc-
tion of a machine adapted to feed a strip of wood to a reciprocating punch, then set the
30 punch slightly into the strip, afterward to saw off a block of sufficient size, then to withdraw the punch with the block impaled upon its end, followed by and feeding the strip forward,
and then to complete the punching of the first
35 bung and set the punch slightly again into the strip, the operation being such that with each forward motion of the punch a bung is dis-
charged from the rear end of the punch, drop-
ping down in front of a plunger, which drives
40 it into a compressing-die, out of which it is discharged by a follower as the plunger re-
cedes.

The invention consists more particularly in the machine and combinations of mechanism
45 for accomplishing these results by a continuous and uninterrupted motion of the driving-shafts.

In carrying out the invention, A represents the frame of the machine.

B is a horizontal driving-shaft, connected

preferably with the power by fast and loose 50
pulleys B' and a belt-shifting mechanism, B².

C is an upright shaft, and D and D' beveled
gears whereby motion is given to the upright
shaft.

E E are two shafts, bearing friction-rollers 55
E' at their top, adapted to feed forward the wooden strip F, from which the bungs are
punched. The shafts E have pinions which
mesh with an intermediate pinion at the base,
so as to cause the shafts to revolve in the same 60
direction, and to one of them is attached any
suitable pawl-and-ratchet mechanism.

I have found it convenient to employ the
mechanism shown in Fig. 6, in which G is a
ratchet-disk connected with one of the shafts E. 65

G' is a sleeve surrounding the same.

g represents balls or cylinders within the
ratchets, and g' springs back of the said pawls
or cylinders. It is thus seen that as the lever
G² is forced in one direction the balls or cyl- 70
inders g will instantly engage and cause a cor-
responding rotation of the shafts E and feed-
rollers E', while by the reverse movement of
the lever G² the sleeve G' will ride back freely
around the ratchet-disk G. 75

H is a push-bar, having one end connected
with the lever-arm G² of the ratchet device,
and its other end projects to a point near the
upright shaft C. A clip, H', is fastened to the
bar, and a spring, H², extends from this clip 80
to a bolt or other fastening, H³.

Upon the upright shaft C is a sleeve from
which projects a lug, H⁴, in such relation with
the push-bar H that as the shaft revolves this
lug will impinge against the end of the push- 85
bar and actuate the said bar longitudinally,
thus giving a motion to the shafts E and the
feed-rollers E' sufficient to feed the strip for-
ward enough for one bung, and for larger or
smaller sizes of bungs the feed may be regu- 90
lated by adjusting the end of the push-bar in
the slot g² of the ratchet mechanism.

I is the punch for cutting the bung from the
strip of wood. It is at its cutting end pref-
erably shaped in arc form, so as to enter gradu- 95
ally with a shearing cut, and also for the pur-
pose of readily engaging the wood, in order
to hold it impaled upon the end of the punch

before the punch has advanced to any considerable extent. This punch is connected with a sliding frame, which is actuated by a punch-cam, I', on the upright shaft C. This punch-cam it is preferable to engage loosely with the upright shaft and in connection therewith to provide a clutch, I², which turns with the shaft, and which may be shifted into or out of engagement with the cam by a clutch-lever, I³, so the punch may be thrown into or out of operation at the will of the operator without checking the operation of the other parts. By this means if the strip of wood should at any point present imperfections, so as not to be suitable to work into bungs the punch can be thrown out of gear until the strip has fed past the defective portion.

J is a saw operated by a belt and a pulley, J', which is in turn driven by the shaft B from the pulley J². The saw-frame J³ is pivoted to the shaft i. This frame is in the form of an elbow or bell-crank lever. Its horizontal arm J⁴ is provided with a roller, J⁵, which rests upon the revolving cam J⁶. (Shown more particularly in Fig. 4.) A spring, J⁷, serves to hold the roller down in contact with the face of the cam. It is apparent, therefore, that as the cam revolves the roller will enter the depression in the cam, thus tilting the saw-frame about the shaft j and bringing the saw into contact with the wooden strip at the proper moment to saw off a length suitable for one bung. At the opposite end of the punch I is a hopper, K, into which the bungs successively drop.

L is a plunger geared to the shaft C by an eccentric, L'. This plunger plays through the lower end of the hopper.

L² is a compressing-die, and L³ a follower attached to supporting-rods L⁴, which connect it with the plunger, so that the same will move therewith.

L⁵ is a spring for retracting the plunger of the compressor.

I⁴ is a spring for retracting the bung-punch.

F' is a guide for holding the strip of wood F against the feed-rollers and for guiding the strip. It is made adjustable to and from the rollers to suit different thicknesses of wood, thereby adapting it for different lengths of bungs.

M is a fender or shield to prevent sawdust or refuse from the saw being thrown over the machine and to direct the same to a suitable point.

The punch I, the plunger L, and the compressing-die L² are all made removable, so as to be changed to correspond with different sizes of bungs, and the plunger L is preferably provided with the business-card or other matter in relief or countersunk, so as to make a corresponding impression on the end of the bung.

The operation of the device will now be understood. The guide F' having been adjusted with respect to the feed-rolls so as to admit a strip of wood, F, suitable for the bungs to be

cut, the corresponding punch, I, is secured in place, as also the corresponding plunger, L, and compressing-die L². The machine being now set in motion and the punching-cam I' engaging with the revolving clutch I², the projection H⁴ on the shaft C will strike the push-bar H, and so actuate the feeding mechanism through a space corresponding with one bung. The strip F, having been thus fed forward, comes to a standstill. The punch advances and enters partially into the wood at the same moment, the roller J⁵ of the saw-frame drops into the depression in the cam-ring J⁶, thus tilting the saw-frame and causing the saw J to saw off from the strip that piece adjacent to the punch of a size sufficient for a bung. At this moment the punch-cam, having passed around, releases the punch, and it is retracted by the spring I⁴, bringing back with it the section that was severed by the saw, this section being impaled upon the end of the punch. The same operation is now repeated, causing the strip to be fed again forward a bung-length. The punch again advances, and in advancing the block impaled upon its end comes into contact with the strip, and the punch is driven through the block and into the strip, and the outer ring of the block as it passes on over the punch is split apart and falls into a receptacle beneath, while the bung has passed into the punch. The saw then advances, cutting off the new block, and the punch recedes with it impaled upon its end. The repetition of this operation soon fills the punch with a series of bungs, and they finally begin to drop out one by one from the rear end of the punch into the hopper K. A bung dropping into this hopper is directed down and rests upon the top surface of the plunger L. Now, as the punch again advances, carrying with it the hopper K, the lower end of the hopper is stripped off from the end of the plunger L, and the adjacent bung drops down into the bottom of the hopper in front of the plunger. At this moment the plunger is caused by its eccentric L to drive forward and forces the bung into the compressing-die L², thus pressing it into the form of a tapering bung and imprinting any suitable characters upon its end. The plunger then recedes, and the rods L⁴ cause the follower L³ to expel the bung from the compressing-die, and it drops complete into a suitable receptacle beneath. There has therefore been produced a machine by which, with a continuous and uninterrupted motion of the machine in one direction, the bungs are successively cut from a strip, the strip sawed off, the bung delivered to the compressor, compressing and discharging all in a single passage through the machine and without handling.

It will be observed that the ratchet mechanism is adapted to engage the shaft without regard to the distance to which it may be rotated and subsequently retracted. This is of considerable importance, because if the ordinary toothed ratchet were employed with the ordinary pawl it would be necessary to

retract the same far enough for the pawl to engage behind some particular ratchet, and this would materially interfere with a close adjustment of the throw of the ratchet to correspond with different sizes of bungs, resulting generally in a considerable waste of material; but by the mechanism shown, or by an equivalent mechanism which will instantly engage regardless of the distance through which the mechanism is retracted, the feed of the bar can be regulated and adjusted very closely for the different sizes of bungs and so result in sawing off the blocks from the strip of wood so close to the punch as to avoid practically all waste of material. This may be accomplished by any of the various devices, generally friction devices, which are adapted for instant engagement by a motion in one direction yet disengaging by a movement in the opposite direction, and by the term "friction mechanism" I would have it understood as embracing any such device which does not require to be retracted through a fixed limit in order to take a new hold.

It should be understood that wherever springs are employed in this device the same may be displaced by weights adjusted to act in the same direction.

What I claim is—

1. In a machine for making bungs, the combination, with a saw mounted in an intermittently-oscillating frame, a tubular reciprocating punch, and a frame for supporting and guiding the strip or blank, of rollers for feeding the strip forward, rotary shafts for carrying said rollers, said shafts being connected by pinion-gearing, a pawl-and-ratchet mechanism mounted on one of said shafts and provided with a sleeve, G' , and lever G^2 , a push-bar having an adjustable connection with said lever, and a rotary shaft carrying a lug for actuating said push-bar, and a cam for actuating the saw-frame, substantially as described.

2. In a machine for making bungs, the combination of a reciprocating tubular punch, a rotary shaft carrying a fixed clutch, and a loosely-engaged cam for actuating said punch, a spring for retracting the punch, a saw

mounted in an oscillating frame, and rollers for intermittently feeding the bung-strip, substantially as described.

3. In a machine for making bungs, the combination, with a saw mounted in an oscillating frame, a tubular reciprocating punch, a frame for supporting and guiding the bung-strip, and rollers for feeding said strip forward, of a hopper for receiving the cut bungs from the punch, a compressing-die, a plunger for forcing the bungs from the hopper into said die, and a follower for ejecting them from the die, substantially as described.

4. In a machine for making bungs, the combination, with a supporting and guiding frame and rollers for feeding the bung-strip, of a saw mounted in an oscillating frame, a tubular reciprocating punch, a rotary shaft carrying a fixed clutch, and a punch-actuating cam loosely mounted on said shaft in proximity to the said clutch, whereby the punch may be thrown into and out of operation independently of the feed to permit a defective portion of the strip to be fed past the punch, substantially as described.

5. In a machine for making bungs, the combination of the frame A, having guide F' for supporting the bung-strip, the intermittent feed-rollers E' E' , the rotary shaft C, carrying cam J^6 , the saw J, an oscillating saw-frame carrying a roller, J^5 , for engaging said cam, the reciprocating tubular punch I, the cam I' , mounted loosely on the shaft C and adapted to be engaged with a clutch fixed to said shaft, the hopper K, for receiving the bungs from the punch, a compressing-die, L^2 , a reciprocating punch, L, to force the bungs from the hopper and into said die, springs for retracting the punch and plunger, and a follower, L^3 , for ejecting the bungs from the die, said follower being actuated by rods L^4 from a cam, L' , on the shaft C, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOHN PETZ.

Witnesses:

N. S. WRIGHT,

M. B. O'DOHERTY.