

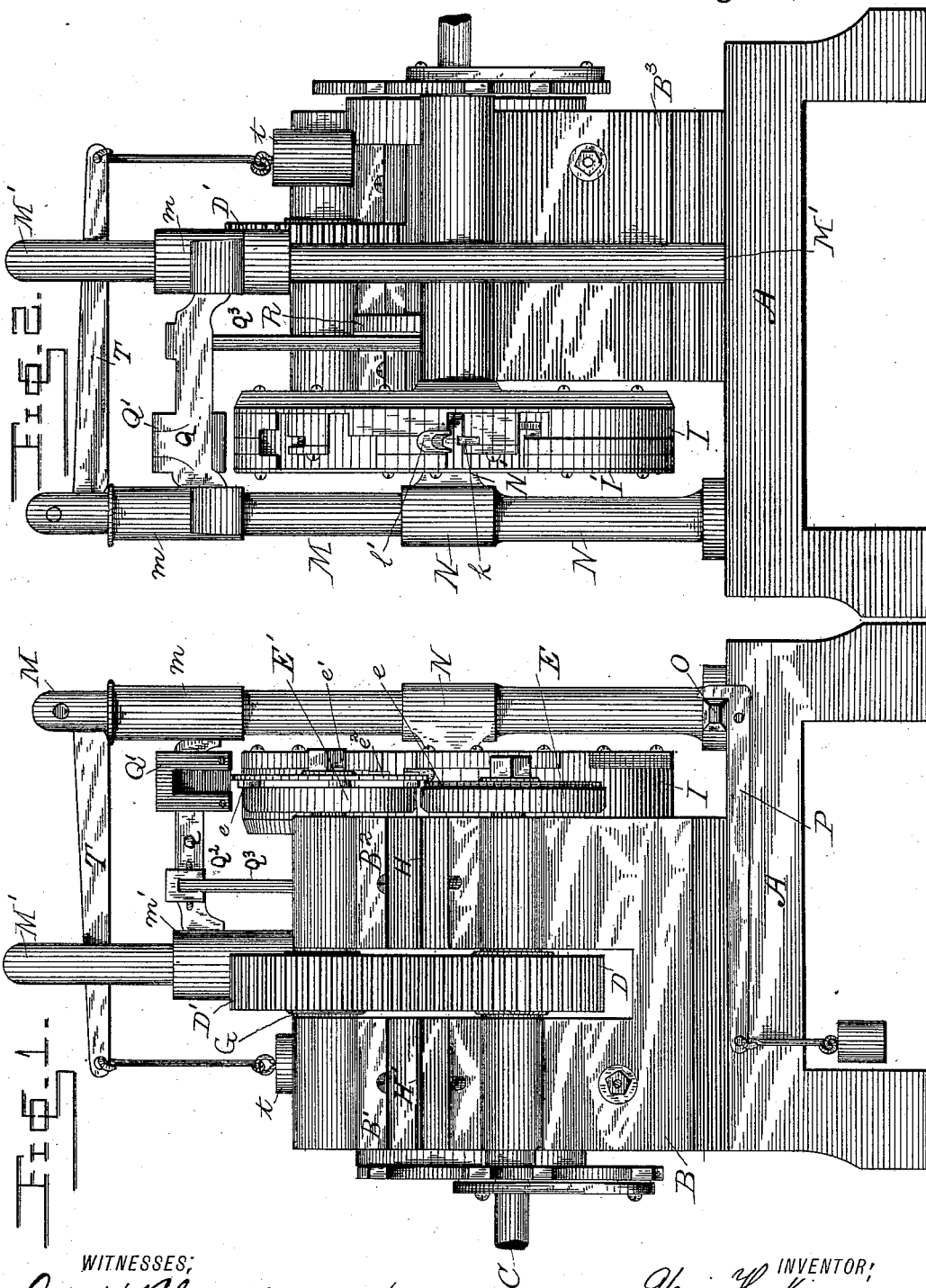
(No Model.)

2 Sheets—Sheet 1.

U. HASKIN.  
SPIKE MACHINE.

No. 347,295.

Patented Aug. 10, 1886.



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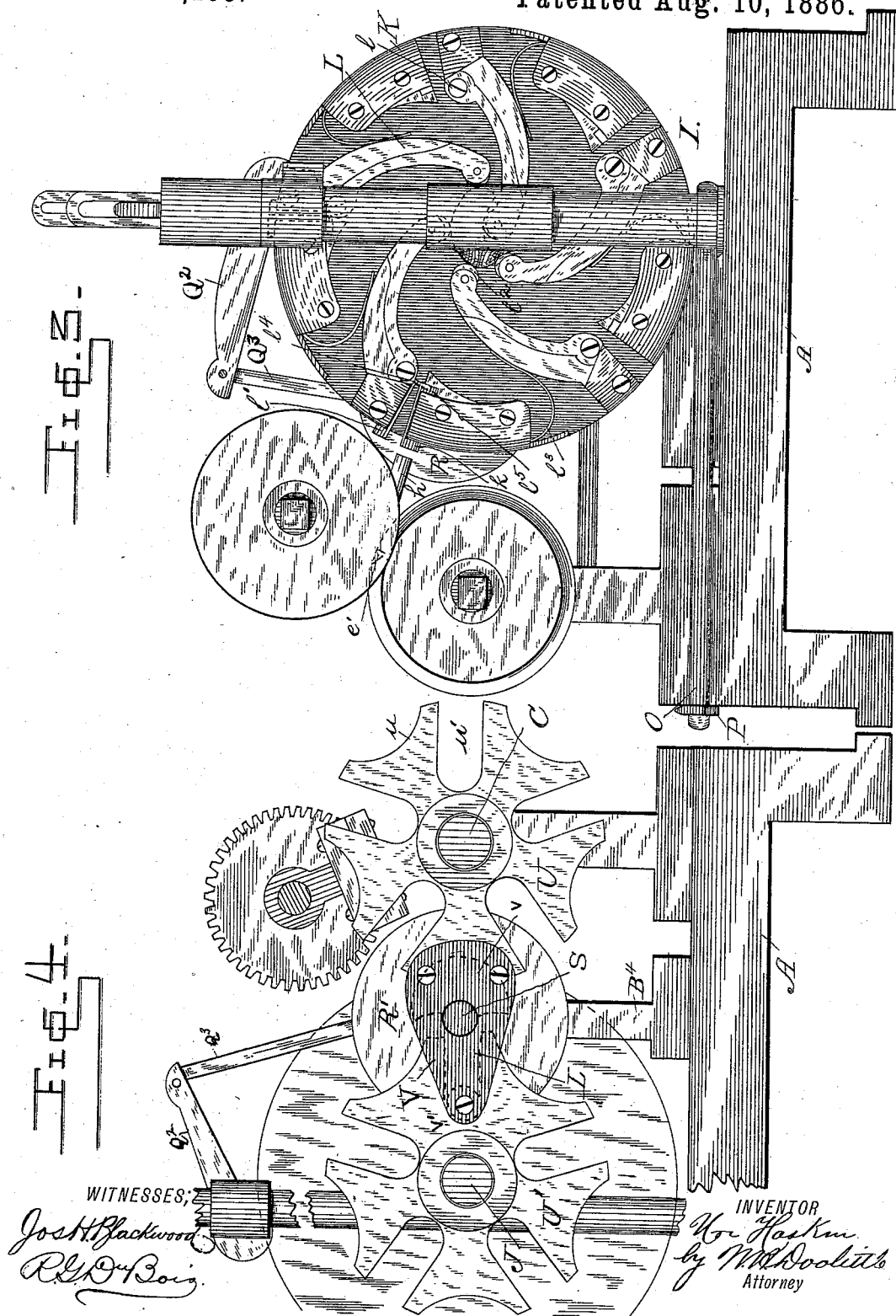
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# UNITED STATES PATENT OFFICE.

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## SPIKE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,295, dated August 10, 1886.

Application filed January 2, 1886. Serial No. 187,340. (No model.)

*To all whom it may concern:*

Be it known that I, URI HASKIN, a citizen of the United States, residing at McDonald, in the county of Bradley and State of Tennessee, have invented certain new and useful Improvements in Spike-Machines; 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 appertains to make and use the same.

My invention relates to certain improvements in spike-making machines; and the objects of my invention are to simplify and cheapen the construction of this class of machines, and also to provide means for automatically relieving certain parts from undue strain, thereby avoiding danger of breakage.

Referring to the accompanying drawings, Figure 1 is a front elevation of the machine, and Fig. 2 is a rear elevation. Fig. 3 is a side view of the machine with the face-plate of the die-disk removed. Fig. 4 is also a side view of the machine, taken from the side opposite to that shown in Fig. 3.

In the accompanying drawings, A represents the bed-plate of the machine, upon which, at its front end, is secured a pillow-block, B, as shown in Fig. 1. In this pillow-block is mounted a shaft, C, which carries at about its center a gear-wheel, D, and at one end one of the pointing-wheels E, and at the other end a device for giving intermittent movement to the shaft.

On top of pillow-block B are secured two other pillow-blocks, B' B<sup>2</sup>, in which is mounted a shaft, G, carrying a gear-wheel, D', gearing with wheel D, and a pointing-wheel, E', for operation in connection with wheel E on shaft C. One of the pointing-wheels E has a portion of its periphery reduced in diameter, as at *e*, and on the other wheel, E', outside its tread, there is a series of pointing-teeth, *e'*, placed such a distance apart as will give the required length to the unfinished spike. Wheel E' is provided outside these teeth with a flange, *e''*, which overlaps wheel E, and serves as a side support for the material being operated upon.

H, Fig. 1, represents a strip of metal secured between blocks B and B'. This metal strip at its outer end is formed into a trough, *h*, Fig. 3, in line with the pointing-wheel, the purpose of which will be hereinafter stated.

Block B' is raised to a level with block B<sup>2</sup> by a strip, H', of any suitable material, placed between it and block B.

I represents the die-disk carried on a shaft, J, mounted in a pillow-block, B<sup>3</sup>. Upon the face of this disk is a series of fixed die-boxes, K, equal in number to the pointing-teeth on wheel E', usually five, provided with dies *k*, (only one of which is shown.) The die-disk is also provided upon its face with a series of gripping-levers, L, equal in number to the box-dies, fulcrumed as at *l*, and of the shape shown in Fig. 3. The short arms of these levers are provided with gripping-dies *l'*, (only one of which is shown,) which operate in connection with the box-dies *k*, and their long arms, provided with friction-rolls *l''*, are pressed by springs or guard-plates *l'''*. Each movable die is provided at its bottom with a forwardly-projecting pin, *l<sup>4</sup>*, which enters a recess, *l<sup>5</sup>*, at the bottom of the fixed die, as seen in dotted lines in Fig. 3. This pin serves to limit the spike-blank's inward movement between the jaws, and thereby prevents it from becoming wedged in the jaws. Secured to the disk is a face-plate, I', perforated at its center to admit a cam, hereinafter described.

M represents a standard rising from the base-plate of the machine in front of the die-disk. Upon this standard is placed a sleeve, N, whose enlarged upper end carries a cam, N', preferably integral therewith, which extends through the face-plate of the disk and into the path of the long arms of levers L, as seen in dotted lines in Fig. 3. Rigidly secured to the lower end of sleeve N is a horizontal movable lever, O, whose outer end is engaged by a weighted latch-lever, P.

Rising from the base-plate in rear of the die-disk is another standard, M', upon which is a sliding sleeve, *m'*, and upon standard M, directly opposite sleeve *m'* on standard M', is another sliding sleeve, *m*, which stands higher

than sleeve  $m'$ . Into these sleeves is journaled a bent header-bar,  $Q$ , with which the header  $Q'$  is preferably integrally formed. To header-bar  $Q$  is connected a lever,  $Q^2$ , to which is pivotally secured a link,  $Q^3$ , pivoted eccentrically to a disk,  $R$ , on the driving-shaft  $S$ . By this construction the header has a swinging motion imparted to it by the rocking of the header-bar through the medium of lever  $Q^2$ , link  $Q^3$ , and disk  $R$  on the main shaft. Standards  $M$  and  $M'$  are slotted at their upper ends, and in the slot in the former is pivoted one end of a bent lever,  $T$ , the bottom of which rests on sleeve  $m$ , the other end of the lever passing through the slot in standard  $M'$ , and being perforated for the attachment of a weight,  $t$ , the purpose of which will presently appear.

The machine may be driven by any suitable mechanism adapted to give the requisite intermittent movement to the pointing-wheels, die-disk, and header. I have illustrated and will now describe a mechanical movement admirably adapted to this purpose; but it is to be distinctly understood that I do not herein claim such mechanism, as I have made it the subject of another application for patent filed December 29, 1885, Serial No. 187,069.

$U$   $U'$  represent two star-wheels, which are divided into concave arcs  $u$ , equal in number to the sets of dies on disk  $I$ , by means of radial slots  $u'$ , the bottoms of which slots are rounded. Wheel  $U$  is secured to shaft  $C$ , and wheel  $U'$  is secured to shaft  $J$ .

$R'$  is a disk rigidly secured to the driving-shaft in such position as to be close to the inner sides of the star-wheels.

$V$  is a crank or crank-disk secured to the driving-shaft  $S$ , which shaft is mounted in a pillow-block,  $B'$ , located between blocks  $B$  and  $B^3$ . To the back of the upper portion of this crank or crank-disk, between it and the disk  $R'$ , is secured a sector,  $v$ , (shown in dotted lines, Fig. 4,) and at the point of the crank or crank-disk, between it and the die-disk, is attached a friction-roller,  $v'$ , (also shown in dotted lines, Fig. 4.) It is evident a fixed pin can be substituted for the friction-roller.

The operation of my machine is as follows: Power being applied to the driving-shaft  $S$ , the crank or crank-disk  $V$  is revolved. Assuming friction-roller  $v'$  will be in one of the radial slots  $u'$  of star-wheel  $U'$ , sector  $v$  will be in engagement with one of the concave arcs  $u$  of star-wheel  $U$ . Then in the rotation of the crank  $V$  motion will be imparted to wheel  $U$ , and consequently to shaft  $C$  and the mechanism operated thereby, which wheel will continue to rotate until the friction roll or pin has passed out of its radial slot, when it will stop, no motion having been given in the meantime to wheel  $U'$ , by reason of the sector turning in the concave arc, and consequently both wheels and their shafts will remain idle until the crank  $V$  has made so much of a revolution as to bring its friction roll or pin into engagement with one of the radial slots in wheel  $U'$ , when that wheel will be turned in the same manner as

was wheel  $U$ , the latter wheel in the meantime being held rigid because of the sector being in engagement with one of its concave arcs. Thus it will be seen there is an intermittent motion given to the operating-shafts of the machine. First the shafts operating the pointing-wheels are revolved, then a slight pause, after which the shaft carrying the die-disk is given its requisite revolution, and so on. A bar of metal fed between wheels  $E$   $E'$  will be pointed by one of the teeth  $e'$  on wheel  $E$ , meeting at the same time a tooth on wheel  $E'$ , cutting a point at such a distance from the first as will give the unfinished spike its correct length, it being understood that in the formation of the point the spike blank is severed from the bar by the tooth. After the blank is severed it is conducted by trough  $h$  down into die-box  $k$  on die-disk  $I$ , the gripping-die  $l'$  being then in its open position. Now motion will be given to shaft  $J$ , and through it to die-disk  $I$ , when the friction-roll  $l'$  on the long arm of gripping-lever  $L$  will ride up on cam  $N'$  and cause die  $l'$ , carried in the short arm of the lever, to firmly grip the blank against die  $k$  in die-box  $K$ .

In order that the gripping-levers shall be subjected to no unnecessary strain, I weight the latch-lever  $P$  according to the requirements of the work in hand. When the strain on the acting gripping-lever is too great, the cam will swing around horizontally, and thus relieve the strain on the lever, for it will be understood that the cam is held in the path of the levers by the weighted latch-lever through the medium of the horizontally-movable lever  $O$  and sleeve  $N$  on standard  $M$ .

When the die-disk has completed one of its movements, the spike-blank will be in position to be struck by the header  $Q$  as it is brought down by lever  $Q'$ , operated by shaft  $S$ . After the spike has been headed the die-disk will be again moved, and then as the friction-roll on lever  $L$  rides down the incline of cam  $N'$  the spring  $l'$  will operate to open the gripping-die, when the spike will be free to drop from the machine.

It will be noticed that the header-bar  $Q$ , on which the header  $Q'$  is formed, is journaled in sliding sleeves on standards  $M$   $M'$ , and that a bent lever,  $T$ , (the bottom of one end of which rests on the top of one of the sleeves,) is pivoted at one end in a slot in one standard, while its other end passes through a slot in the other standard, and is perforated for the attachment of a weight. The object of this construction is to avoid danger of overstraining the header, and that can be done by attaching just sufficient weight to the end of lever  $T$  to permit the proper degree of pressure to be given by the header, and then on exerting a pressure greater than that the sleeves in which the header-bar is journaled will rise on the standards.

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

1. The combination, with a rotary disk provided with fixed die-boxes and pivoted gripper-levers, of a swinging cam for closing the gripper-levers, said cam being adapted to automatically swing out of the path of a lever exerting more than a predetermined pressure upon it.

2. In a spike-making machine, the combination of a standard rising from the base of the machine, a sleeve upon said standard, a cam upon the sleeve, a lever attached to the sleeve, and a weighted latch-lever for engaging with the lever on the sleeve.

3. In a spike-making machine, the combination, with a header-bar provided with a header, sliding sleeves mounted on standards in which the header-bar is journaled, and suitable mechanism for rocking said bar, of a lever pivoted at one end in one of said standards and bearing on one of the sleeves, and having a weight attached to its other end, substantially as described, and for the purpose set forth.

4. In a spike-making machine, the combination, with two standards, each provided with

a sliding sleeve, of a bent header-bar provided with a header, said bar turning in journals on the sleeve, and having an actuating-lever, a bent lever, one end of which is pivoted in one of the standards and rests on the sleeve on said standard, the other end passing through a slot in the opposite standard, and a weight attached to the free end of the bent lever, the whole operating together to relieve excessive strain on the header, as set forth.

5. In a spike-making machine, the combination, with a fixed die-box containing a die and a gripping-lever, of a movable die inserted in said lever, and provided at its bottom with a forwardly-projecting pin, for limiting the spike-blank's inward movement between the jaws, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

URI HASKIN.

Witnesses:

EDWARD NICHOLS,  
BEN B. DALE.