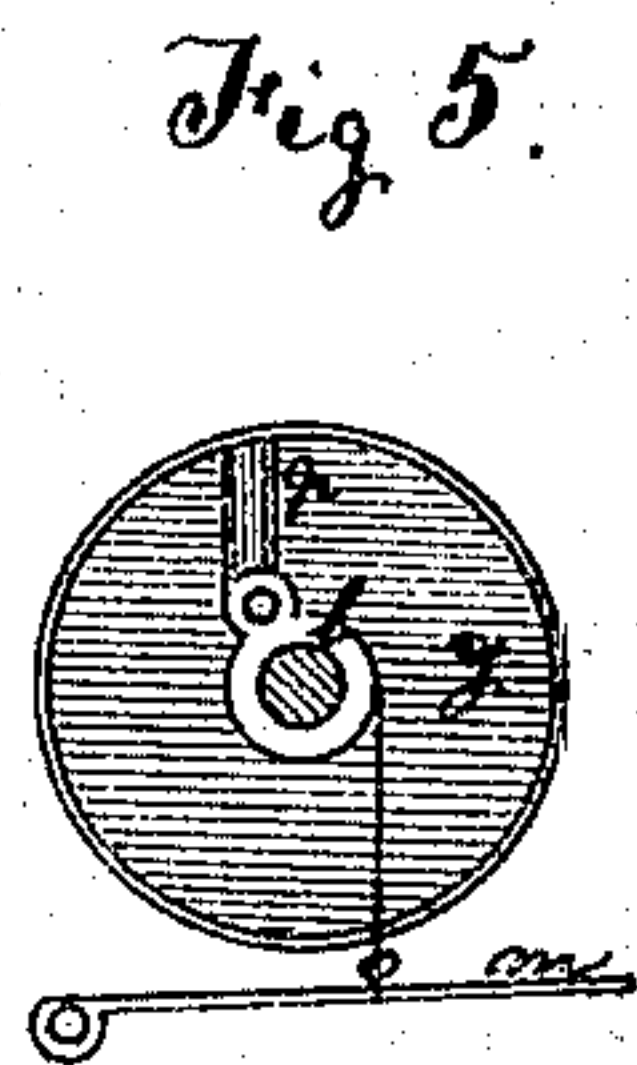
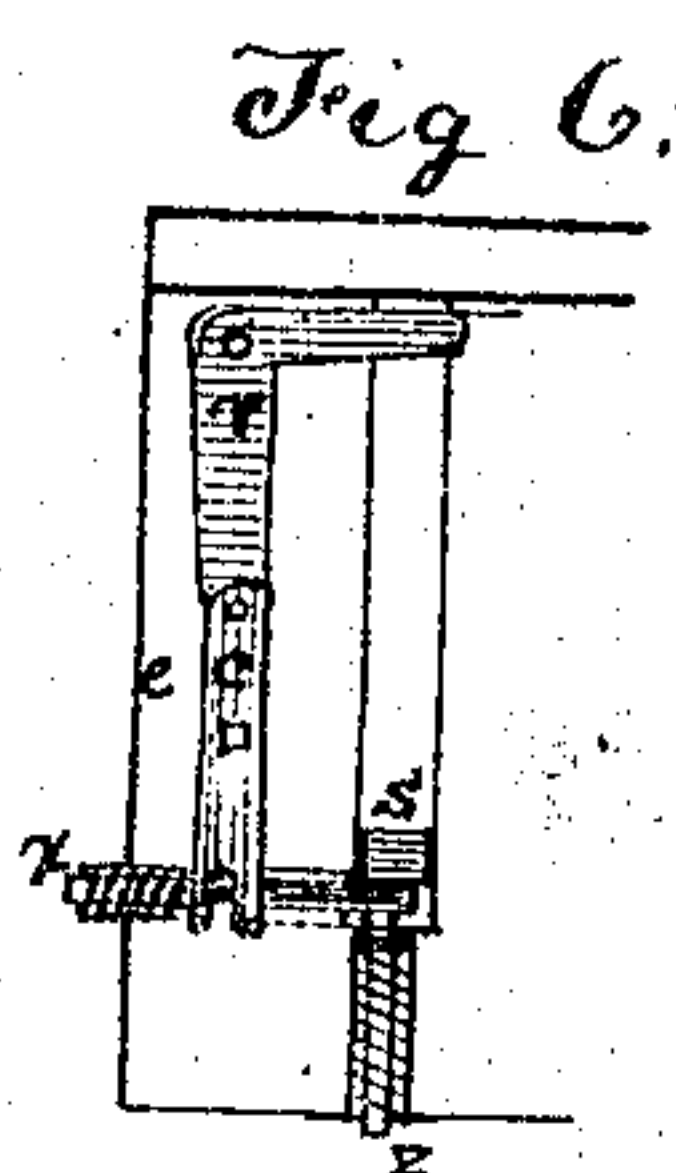
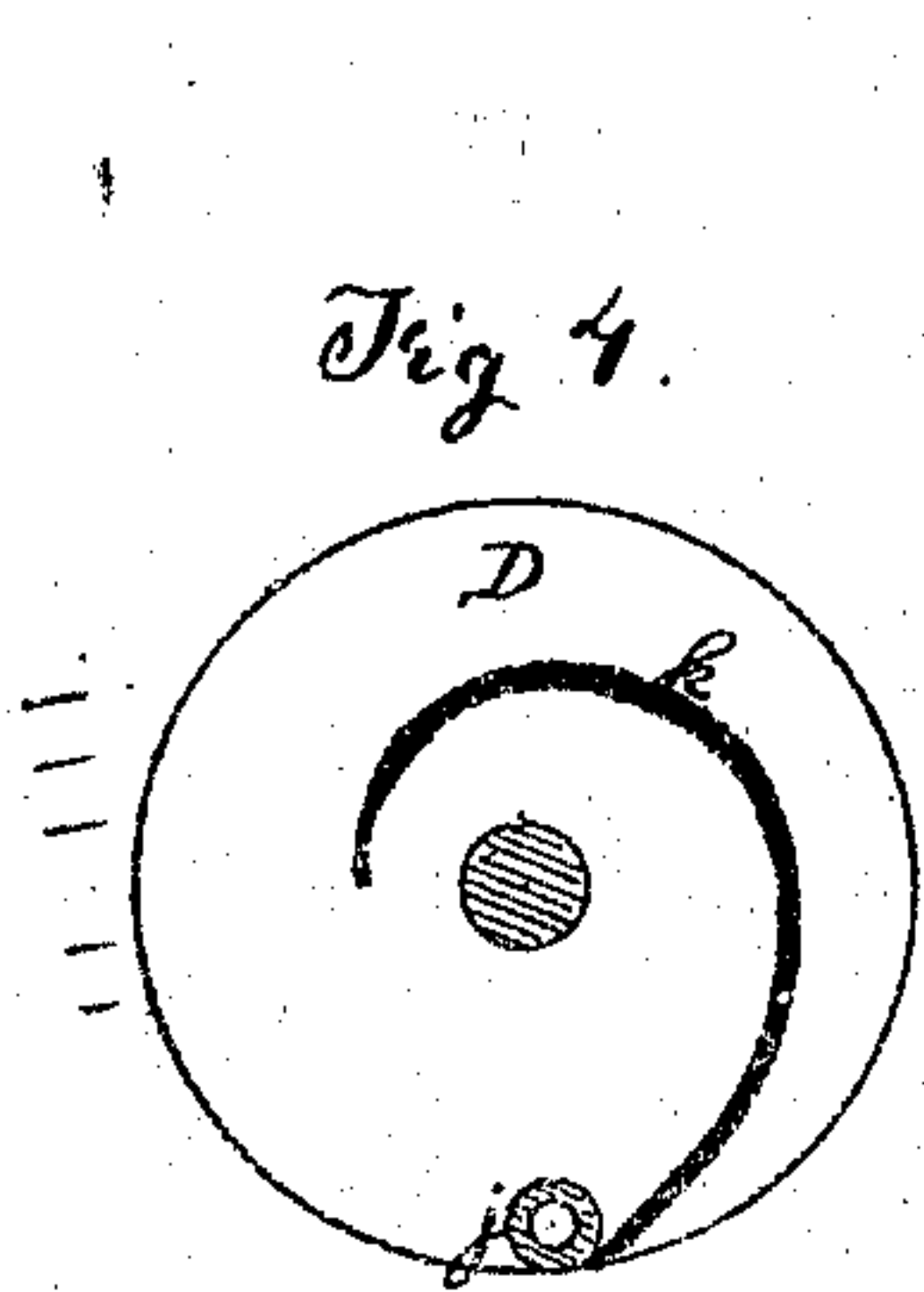
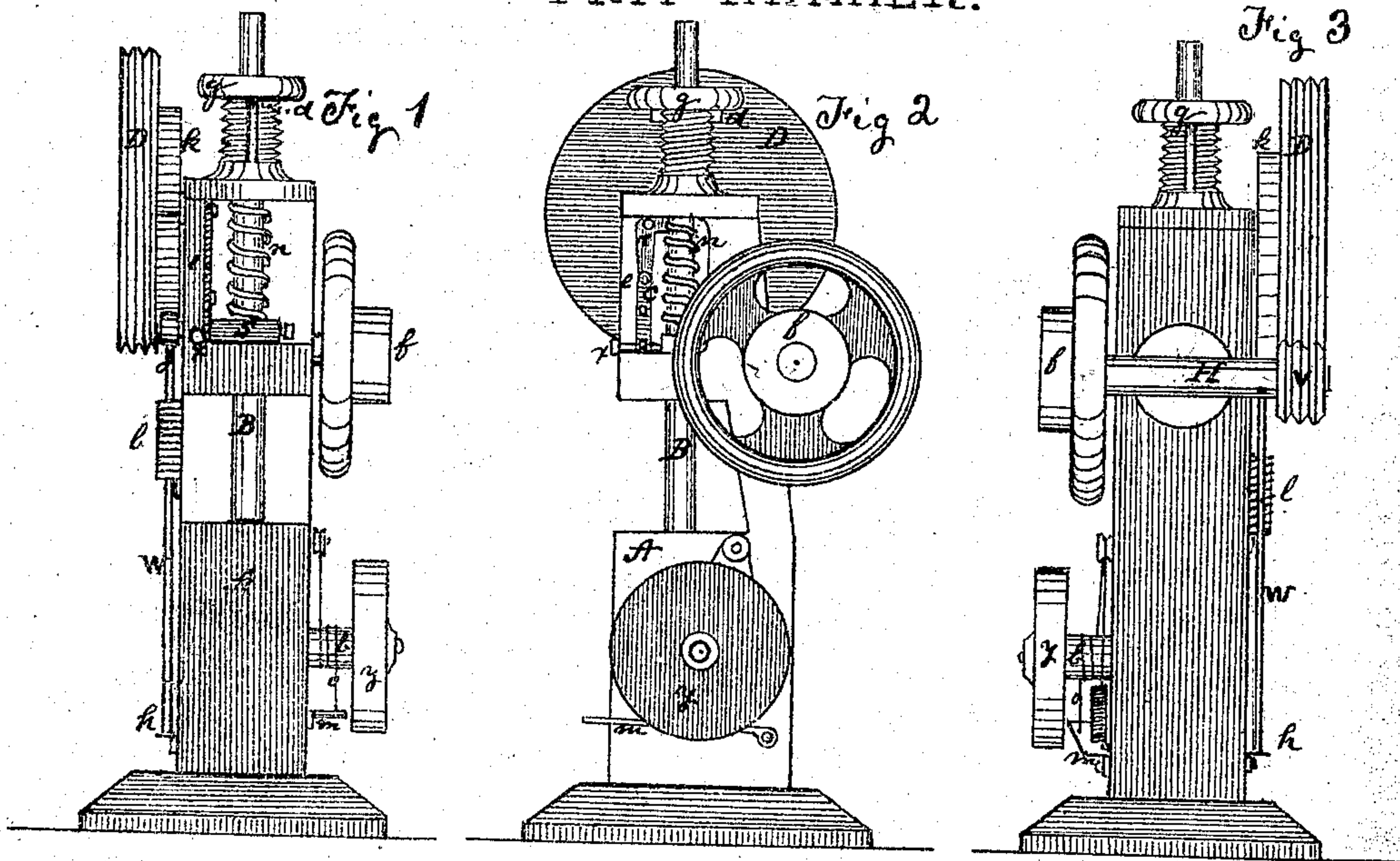


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L. L. WHITLOCK'S IMPROVED  
DROP PRESS  
and  
TRIP HAMMER.

PATENTED AUG 22 1871



Witnesses

Frank H. Arnold  
Benjamin Arnold

Inventor

Lewis L. Whitlock



# UNITED STATES PATENT OFFICE.

LEWIS L. WHITLOCK, OF NEW YORK, ASSIGNOR TO MARIA WHITLOCK, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN DROP-PRESSES AND TRIP-HAMMERS.

Specification forming part of Letters Patent No. 118,317, dated August 22, 1871.

*To all whom it may concern:*

Be it known that I, LEWIS L. WHITLOCK, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Drop-Presses and Trip-Hammers; and do hereby declare the following to be a full and correct description thereof, reference being had to the accompanying drawing making part of this specification, and to the letters and numbers of reference marked thereon, similar letters and numbers being used in all the figures to denote the same part.

In the drawing, Figure 1 shows a front elevation. Fig. 2 shows a right-side elevation. Fig. 3 shows a back elevation. Fig. 4 is a representation of the cam. Fig. 5 shows the working parts of the foot-motion; Fig. 6, the devices and their arrangement for catching the drop or hammer when it rebounds.

My invention relates to that class of machines called drop-presses, used for stamping hot or cold metal into shape between dies, and also to those known as vertical trip-hammers; and consists, mainly, in certain devices and their combinations for catching the drop or hammer upon its rebound; also, for regulating the force of the blow given, and in applying foot-power to work the machine.

That others skilled in the art to which my invention relates may be enabled to construct and use the same, I will proceed to describe it.

A is a block of metal forming the main body or anvil, and having a standard extending up from its back to hold the working parts of the machine. B is a vertical bar passing up through a projection from the middle of the standard and out through its top. It is fitted to slide closely and easily in its bearings. The lower end of the bar is intended to receive a die or the head of a hammer, according as it is to be used as a drop-press or trip-hammer. A spiral spring, *n*, is placed around the bar B where it passes through the upper end of the standard, the lower end of the spring resting against a shoulder on the bar or the arm S, which is fastened to the bar, and the upper end against the collar *d*, which has arms projecting out through slots in the top part of the standard, which is made tubular, and has a screw-thread cut on its outside, with a wheel-nut, *g*, fitted to it, so that, as the nut is screwed down, it presses on the projecting arms of the collar *d* and compresses the spring *n*, thereby in-

creasing the force of the blow given by the bar. A cam-wheel, D, is attached to the side of the standard by a stud, on which it turns. This cam (which I do not claim as new) has a projecting rib, *k*, on its side next to the standard, which catches under the friction-roll *j* on the arm S when the wheel is turned and raises the bar B. The roll, running off from the inner end of the rib, lets the bar drop, which gives the blow. This cam-wheel D has a number of grooves and ridges made on its periphery, and a shaft, H, is put in a movable bearing across the back of the standard, on one end of which is fastened a small wheel, V, with grooves and ridges on its periphery corresponding with and running in those on the cam-wheel, forming friction-gear. On the other end of the shaft H is put a balance-wheel and pulley, *f*, to drive the machine by. A foot-lever, *h*, is attached to the side of the block A under the cam-wheel, and a bar, *w*, carried up to the shaft H, so that, by pressing down the lever with the foot, the end of the shaft and wheel V will be raised into contact with the cam-wheel so as to drive it. By releasing the lever the wheel V is drawn down out of contact by the spring *l*.

It is very important in some kinds of work to catch the drop or hammer on its rebound, when it has struck a blow, to prevent its spoiling the work by a second blow. To accomplish this, I place a bolt, *x*, (see Fig. 6,) in the lower part of the side plate *e*, which bolt is provided with a spring to throw it in under the arm S when raised, and another bolt, *z*, is placed in a vertical position under the arm S, and is also provided with a spring to throw it up, the arrangement being such that when either bolt is pressed back the other bolt will spring out and hold it there. A knee-lever, *r*, is pivoted to the side plate *e*, near the top, with its upper arm extending in over the arm S, and the lower arm being connected to the upper end of another lever, *c*, which is hung by a pivot at its middle to the side plate, and has its lower end connected to the bolt *x*, so that, when the arm S is raised by the cam to give a blow, it will come in contact with the knee-lever *r* and will, by means of the lever *c*, throw back the bolt *x* and allow the bolt *z* to spring up before it and hold it. When the arm S drops it strikes the bolt *z*, driving it down and leaving the bolt *x* free to spring out under the arm S



when it rises from the rebound of the hammer, and holds it up so that it will not strike again until raised by the cam.

A foot-motion is attached to the machine, consisting of a pulley, *y*, turning on a stud in the side of the block A; a sleeve, *b*, loose on the same stud, and having a friction-clutch, *p*, pivoted to an ear on one end of the sleeve; a cord or strap, *o'*, which is fastened at one end to a foot-lever, *m*, and, after being wound around the sleeve a few times, is carried up over a pulley and down to the spring *a*. When the lever *m* is pressed down by the foot the cord will turn the sleeve, and, by means of the friction-clutch, will cause the pulley to revolve, and on lifting the foot from the lever the spring will draw it up again.

When the machine is to be operated by the foot a belt is put on the pulleys *y* and *f*; but when other power is to be applied the belt is put on the pulley *f*, and a pulley on the shaft of the driving-power.

Having thus described my improvement, what

I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the knee-lever *r*, pivoted arm *c*, spring-bolts *x* and *z*, with hammer-shaft B and arm S, substantially as described, and for the purpose specified.

2. The combination and arrangement of the friction-gear V, rocker-shaft H, rod *w*, foot-lever *h*, and cam-wheel D, when constructed and operating substantially as herein set forth.

3. The combination, with the bar B, of a cam for elevating the same, V-grooved friction-gear wheels for communicating motion to said cam, mechanism for making and breaking at will contact of said gear-wheels with one another, and a balance-wheel to graduate the velocities of the driving-gear and to accumulate power during the intervals when contact of gearing is broken, substantially as described.

LEWIS L. WHITLOCK.

Witnesses:

BENJAMIN ARNOLD,  
FRANK H. ARNOLD.