R. G. McKAY.

MACHINE FOR MAKING SPIKES.

No. 68,222. Patented Aug. 27, 1867.

Fig. 1.

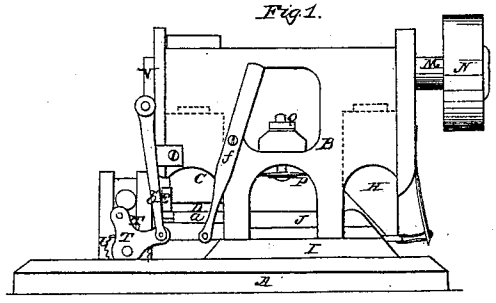


Fig. 2.

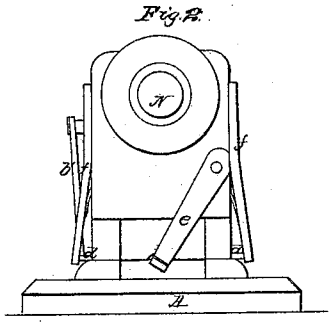


Fig. 3.

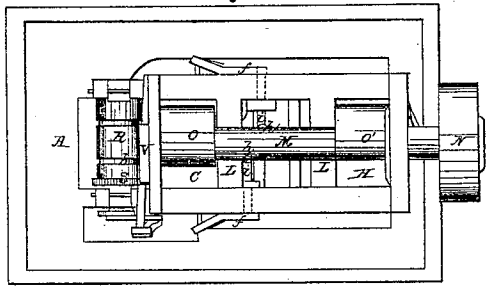


Fig. 4.

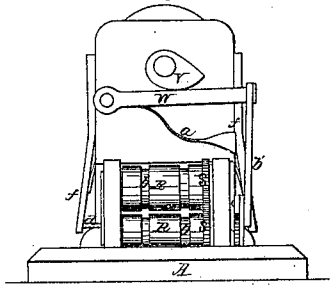


Fig. 5.

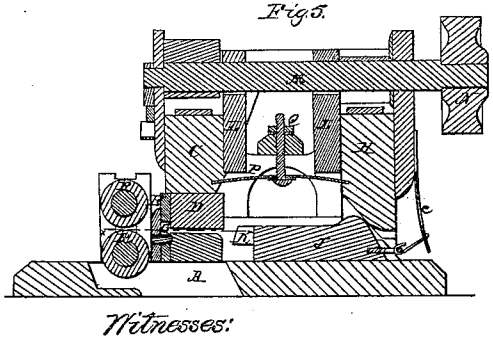


Fig. 6

Fig. 7.

Fig. 8.

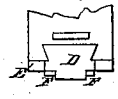
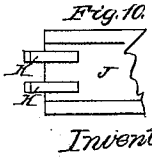


Fig. 9.

Fig. 10.



Witnesses:

Frank S Atlee.

I Holmes

Inventor:

Robert G McKay

United States Patent Office.

ROBERT G. McKAY, OF CLEVELAND, OHIO.

Letters Patent No. 68,222, *dated August* 27, 1867.

IMPROVEMENT IN MACHINES FOR MAKING SPIKES.

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, ROBERT G. McKAY, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Spike Machine; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the machine.

Figure 2, an end view.

Figure 3, view of the top.

Figure 4, a front end view.

Figure 5, a vertical section.

The small figures are detached sections, to which reference will be made

Like letters of reference refer to like parts in the views presented.

A, fig. 1, is the base on which B, the frame of the machine, stands. Within this frame are arranged the several parts of the machine, in the order as follows, viz: In the front end of the frame is fitted an iron head, C, fig. 1, a vertical section of which is shown in fig. 5. To the lower end of this head is fixed, by dove-tailing or otherwise, a steel or chilled-iron swage, D, fig. 9, across the front end of which is fixed a plate, E, provided with two cutting edges, F, fig. 8, the bias of which falls inward, as seen in fig. 1. The bed, or stationary die, immediately under the swage, is so constructed as to conform to the shoulders on the swage, so that when the swage is down, for a purpose hereafter shown, the two are closely correlative. The bias of the cutting edge, referred to, is also met with a corresponding bias, G, fig. 5, on the bed or die of the swage, to which reference will hereafter be made. In the opposite end of the frame, and corresponding in position with the head and swage, is a cam, H, fig. 5, and which is operated conjointly with the head C, in the manner and for the purpose hereinafter shown. Upon the bottom of the frame, within the raised sides I, fig. 1, is a set, J, fig. 5, the front end of which is provided with two short arms, K, fig. 10. The distance these arms are apart and their position is such that they correspond to and are in line with the shoulders *a*, fig. 1, to which the bevelled cutting edges G are secured, and with which the cutting edges F of the swage agree. It will be observed that the ends of the arms just referred to are not square or vertical, but that they slant upward and backward, as seen in fig. 5, the purpose of which will hereafter be shown. Longitudinally across the top of the frame, and journalled in the cross-stays L, is a shaft, M, fig. 3, on the projecting end of which is keyed a pulley, N, to which the power for driving the machine is applied. Also on this shaft are two cams, O O′, fig. 3. An end view of the same is shown in figs. 6, 7. It will be seen that these cams are immediately over the head C and vertical cam H, and by which the head and cam are operated downward, but which are reacted by the spring P, secured to the centre of the frame by the screw and nut Q. On the front end of the machine is arranged a pair of feed-rollers, R, fig. 4, provided with deep grooves, *b*. The distance apart and position of these grooves are such as to bring the opening between the rollers, made by the grooves, in line with the cutting edges G F and cams K on the set J, referred to, as indicated by the line *x*, fig. 5. These rollers are geared to each other by the cog-wheels S, fig. 4, and are made to revolve by the lever T, operating the pawl and ratchet-wheel T′ U. On the projecting end of the shaft M is a cam, V, fig. 4, which, as it revolves, depresses the end of the lever W, but which reacts by the tension of the spring *a′*. To the free end of this lever is connected the pawl-lever T, by the link *b′*, and by which the pawl and ratchet are made to operate and turn the rollers by the co-operation of the cam V and spring *a′*.

Having thus described the construction and arrangement of the several parts of the machine, the practical operation of the same is as follows, viz: Rods of heated iron of the proper size are inserted in the grooves of the rollers, by which they are drawn under or between the cutters F G, until the ends reach the point *x*. This decides the length of the spike, which, on being thus introduced, is then cut off by the descending cutter F, which is driven downward by the action of the cam O, exerted upon the head C. As the spike is being cut off the end at the same time is flattened down to a wedge-like shape, on the upper side by the bias of the cutter, and on the under side by the bias or bevel G on the shoulder of the swage-die. Thus the two sides of the spike are brought down to a proper taper at once. The spike is now tightly held between the shoulders referred to, and

the swage. At this instant the revolving cam O drives down the cam H, the slanting end of which strikes against the miter-end of the set, and thereby propels it forward in the direction of the end of the spike, and which the slanting end of the arms K strikes, thereby forcing the end of the spike upward by virtue of the slant or bias of the end, thus forming the offset or head of the spike, which, on being done, the set is drawn back by the spring *e*. At this moment the spike is free from the grasp of the shoulder and swage, and is forced from between by the rods *d*, fig. 2, which pass through the sides of the shoulders on which the spike lies and pushes it off, which then drops through the bottom of the machine. These push-rods *d* are operated by the levers *f*, which are loosely pivoted to the sides of the machine. On the shaft M are two lugs *h*, which, as the shaft revolves, strike against the pins *i*, which pass through the sides of the frame to the upper end of the lever, and thereby push them out, which, as a consequence, throws the lower end of the lever in against the side of the frame, but which are again thrown out by the spring *m*, and so on, as often as the spikes are cut, pointed, and headed, they are pushed from the shoulders by the rods, lever, and lugs, in one continuous operation.

This machine can be used singly, if so desired, and also for the purpose of heading bolts, rivets, &c., with a like facility and advantage; and when operated in its double capacity, as above described, it will perform its work with great rapidity and completeness.

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

1. The cutting, pointing, and griping-die D, bed-die D′, header K, and spring P, all constructed and arranged as and for the purpose set forth.

2. The sliding-cam H, header J, and springs P *e*, in combination with the dies, as and for the purpose described.

3. The described arrangement of the rollers R, lever W, cam V, spring *a*, pawl and ratchet, for the purpose specified.

ROBERT G. McKAY.

Witnesses:

W. H. BURRIDGE,

J. H. BURRIDGE.