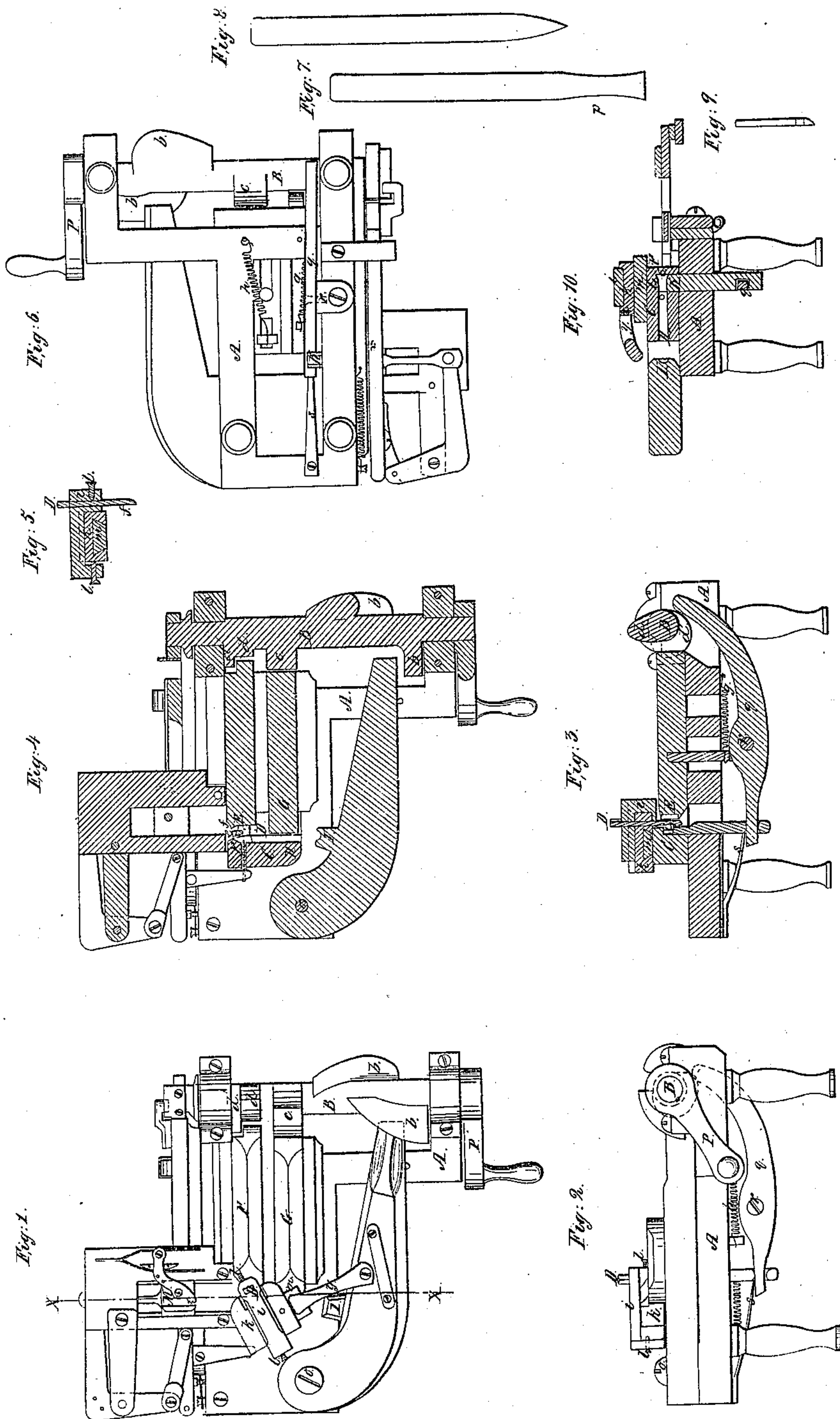


M. BELKNAP.
SPIKE MACHINE.

No. 15,468

Patented Aug. 5, 1856.



UNITED STATES PATENT OFFICE.

MOODY BELKNAP, OF BOSTON, MASSACHUSETTS.

SPIKE-MACHINE.

Specification of Letters Patent No. 15,468, dated August 5, 1856.

To all whom it may concern:

Be it known that I, MOODY BELKNAP, now or late of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machinery for Making Spikes; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, of which—

Figure 1, is a top view of my improved spike machine. Fig. 2, a side elevation of it; Fig. 3 a vertical section taken through the cutter or knife D, and the pointing dies; Fig. 4, a horizontal section taken through the knife, and the heading and pointing dies. Fig. 5, is a longitudinal section of the knife holder and carriage. Fig. 6 is an underside view of the machine. Figs. 7 and 8, are side views of the kind of spike manufactured by said machine.

In such drawings, A, exhibits the frame or table for supporting the operative parts of the mechanism to be hereinafter described; B is the driving shaft which is sustained in suitable boxes arranged at one end of the machine as seen in Fig. 1, the said shaft being provided with a series of cams *b, b, c,* and *d, d,* disposed upon it as shown in said figure. Near to the opposite end of the machine is the die block or head C, the same being formed with a stationary vertical cutting edge as seen at *e,* in Fig. 4, this cutting edge operating in conjunction with a movable knife or cutter D, arranged with respect to it and the die block as shown in Figs. 3, and 4.

In Fig. 9, is represented an inner side view of the movable knife, D, wherein such knife is shown as formed with a rectangular recess *f,* arranged in advance of its cutting edge. The vertical height of said recess should be made equal to the vertical depth of the spike rod, so that when the knife is performing the operation of severing a blank from the rod—(which is done by cutting through the rod in a diagonal or slanting direction) the spike rod shall be embraced both on its upper and lower sides, at its end or part where the cut is made and so as to prevent the said end from which the blank is taken from being upset or formed with projecting fins which would otherwise be likely to result. The recess or chamber, *f,* also serves to prevent the end of the rod from having a ragged cut or appearance.

In my machine, the movable knife D, as it advances toward the stationary knife *e,* makes a cut in a slanting direction through the spike rod as hereinbefore mentioned, the same being for the purpose of preparing the spike blank for the cutting dies, which in case the blank is to be made somewhat tapering at its end, will operate with less power to produce a wedge shaped point on the spike than would otherwise be the case.

In the drawings E and F, are the pointing dies, or those by which the tapering end of the spike blank is bent around so as to stand with respect to the rest of the spike as shown in Fig. 7. Of these dies E, F, the former, viz. E, is movable, while the latter, or F, is stationary and formed in or makes part of the die block C. The movable die E, is driven forward by means of a cam *d,* and drawn backward by a spring, *g,* arranged as seen in Figs. 3 and 6.

In connection with the machinery for pointing the spike or cutting diagonally or in a slanting direction through the spike rod in the manner described, I make use of gripping dies G, H, the former of which, viz. G is movable while the latter is stationary and formed in the block C. The movable die G, is pressed forward by the cam *c,* and drawn backward by a spring *h* (see Fig. 6). The said gripping dies are arranged in front of the pointing dies as seen in the drawings, and they should be made to operate so as to seize the spike blank before it is severed from the rod, and hold it firmly while it is being severed by the cutter passing through it diagonally as specified. In order to accomplish this, the gripping dies, require to be arranged in manner as described, and when so arranged and made to operate, they perform such a function. And besides this, they perform another function, or that for which they are commonly employed, viz, that of holding the spike blank, while the header, I, is driven forward or up to it, and makes the head upon it.

The movable knife D, is supported by a holder, *i,* which embraces a sliding carriage, *k,* and is arranged thereon as seen in Figs. 1, and 5, the holder being supplied with adjusting screws *l, l,* by which it may be moved so as to adjust the movable knife in a proper manner with respect to the block C. The carriage *k* slides on a V, or dove-

tailed rail, *m*, fixed on top of the block C, and said carriage is connected to the header, I, by means of connecting rod, *y*, jointed to both, the knife carriage being moved by
 5 and with the header, to which an intermittent, reciprocating motion on its fulcrum, *o*, is to be imparted by the cams *b*, *b*, suitably formed and applied to the driving shaft.

0 In Fig. 10, is shown a vertical and transverse section of the machine taken on a line X X, of Fig. 1, or that in which the spike blank is made to enter the machine. In this figure are shown the extra dies, K, L,
 5 or those which form the pointed end of the spike, with recesses, *p*, *p*, in rear of its wedged end as seen in Fig. 7, the same imparting to said end of the spike a dove tail or flaring form on two of its opposite sides.
 0 The object of so making the spike is to enable it to take a firmer hold of the wood into which it may be driven than would be the case were its opposite sides made parallel, or, not recessed. One of said extra
 5 dies, viz L, is formed in the die block C, (see Fig. 10). The other die or that marked K, being movable and supplied with machinery, by which at a proper time or times, it may be forced upward toward the die L
 0 in order to compress the spike, and give form to it, or make it with the recesses, *p*, *p*, as hereinbefore mentioned. Such movable die K receives its upward movement by the action of the cam, *d'*, fixed on the driving
 5 shaft and acting on a lever *q*, arranged as seen in Figs. 2, and 6, and made to turn on a fulcrum placed at *r*, as represented in the latter of said figures. The return or downward movement of the die, K, is pro-
 0 duced by a spring, *s*.

In Fig. 1, I have delineated the feeder at M, such feeder being operated with an intermittent reciprocating motion and so as to seize the spike rod and impel it forward

into the dies as occasion may require. As 45 the feeding apparatus of my invention or machine does not differ essentially from such as are in common use in various other machines, and as it forms no part of my invention, it is not necessary for me to go 50 into a further description of it.

In consequence of the peculiar action of the movable knife D, or in other words, by its being made to pass in a diagonal or slanting direction through the spike rod, there 55 is a tendency to force the said rod backward, and for the purpose of counteracting this, I cause the spike blank to be thoroughly gripped and held by the gripping jaws, E, E. Unless the blank is so sustained, at 60 the time it is severed from the rod, there will be a variation, as the rod cools, it being understood that when it is inserted in the machine, it is in a heated state, or that it is heated to redness. 65

In machines of this nature, or those wherein the spike blank is effected by a slanting cut through the rod, the blank has not been gripped (near the end where it is to be headed) during the action of the cut- 70 ter, and in consequence thereof, the spike blanks would vary more or less in size and so as to prevent uniformity in the size of their heads. This difficulty is obviated by my machine. 75

What I claim as of my invention, is—

The improvement of making the movable knife, D, with a rectangular recess, *f*, for the purpose and to operate substantially in manner as hereinbefore explained. 80

In testimony whereof I have hereunto set my signature this twenty fourth day of March A. D. 1856.

MOODY BELKNAP.

Witnesses:

R. H. EDDY,
 F. P. HALE, Jr.