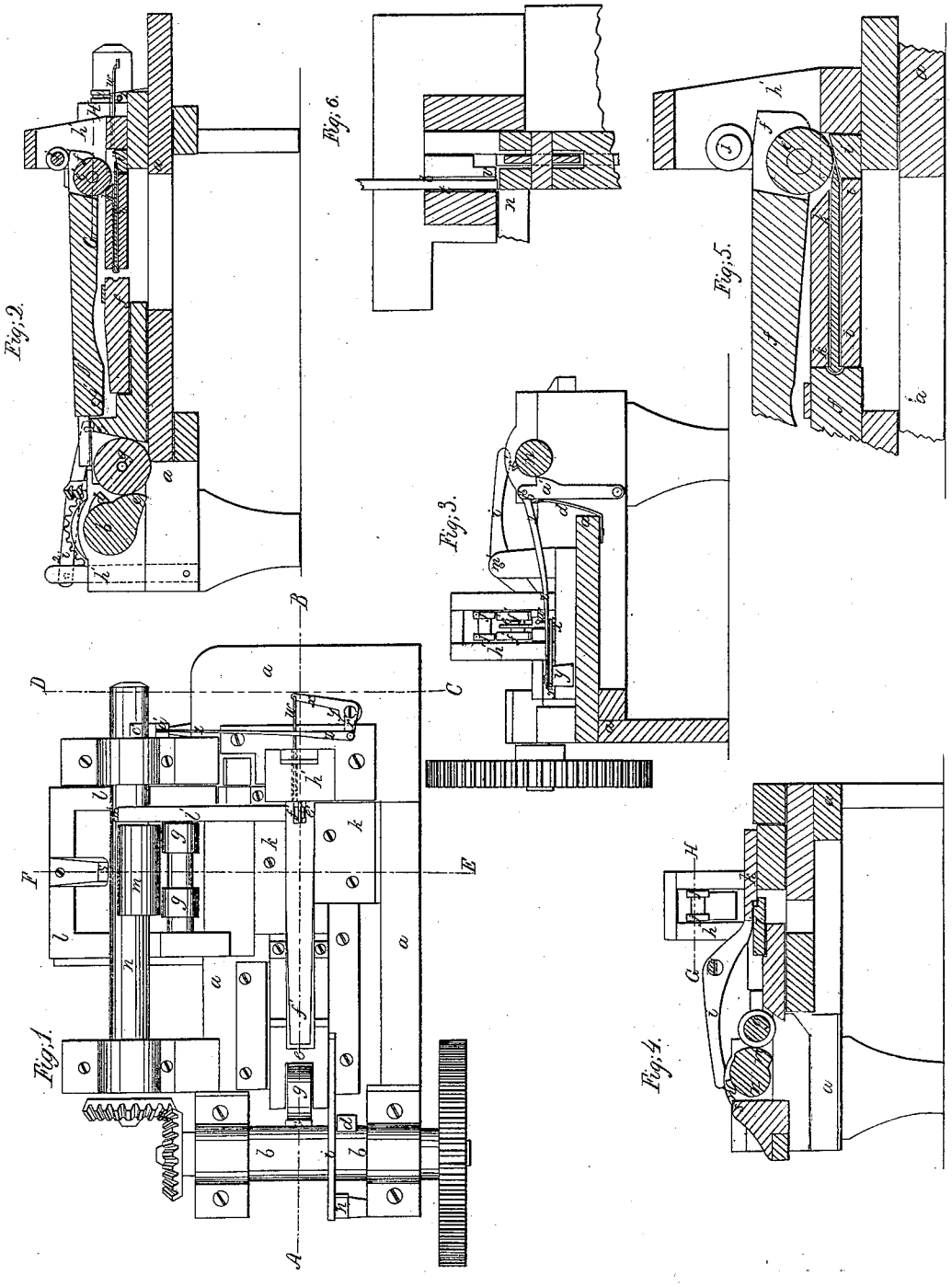
A. Whittemore.

Making Spikes.

No. 13,535. Patented Sept. 4, 1855.



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UNITED STATES PATENT OFFICE.

AMOS WHITTEMORE, OF CAMBRIDGEPORT, MASSACHUSETTS.

SPIKE-MACHINE.

Specification of Letters Patent No. 13,535, dated September 4, 1855.

To all whom it may concern:

Be it known that I, AMOS WHITTEMORE, of Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Spike-Machines, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

Figure 1 is a plan or top view of my improved machine. Fig. 2 is a longitudinal vertical section of the same taken in the plane of the line A, B, Fig. 1. Fig. 3 is a transverse vertical section taken in the plane of the line C, D. Fig. 4 is a transverse vertical section taken in the plane of the line E, F. Fig. 5 is an enlarged vertical section of a portion of the machine showing the operation of pointing. Fig. 6 is a horizontal detail section taken in the plane of the line G, H, Fig. 4.

The most essential feature of the present invention consists in an arrangement of devices for forming the point of the spike.

In the spike machines heretofore invented, considerable difficulty has been experienced in making a true and even point, and many of the spikes thus manufactured have been pointed by hand labor, after being delivered from the machine. By my improved machine, the pointing of the spike is effected in the most finished manner, and so as to require no further pointing after the spike is delivered from the machine. The pointing of the spike is also so effected by the devices in my machine, as to compress the metal at the point, and make it more dense and compact, thereby preventing the liability of the tearing or splitting of the point.

a a a in the drawings represents the supporting framework of the machine.

b b is the driving shaft, the cams *c* and *d* on which impart a reciprocating rectilinear motion to the carriage *e*, to which the header *f* is attached.

The forward motion is given to the carriage *e* by the cam *c*, which abuts against the friction roller *g*, and the return motion, by the cam *d*, which works against the arm *h* of the toggle lever *h*, i^2, shown by dotted lines in Fig. 2.

In my improved machine, the shape of the body of the spike is obtained by compressing the metal of which it is composed, between two dies *i i*, *k k*, one of which, *i i*, is stationary, and the other *k k*, attached to and moving with a carriage *l l*, to which a reciprocating rectilinear motion is imparted by a cam *m*, on the shaft *n*, to which motion is communicated from the driving shaft by the bevel gears *o*, *p*.

The forward motion is given to the die carriage *l l*, by the cam *m* abutting against the friction rollers *g'*, *g'*, turning on a proper shaft in the said carriage, and the withdrawing motion, for opening the dies, by the abutting of the cam *m* against a fixed projection *s* on the carriage *l l*. The bar or rod of which the spike is to be made, is fed into the machine at *t t*, as shown in Fig. 6, when the die *k k* is moved up as before explained, and forces the bar or rod against the stationary die *i i* and thus forms the body of the spike. At the same time that the die *k k* receives its forward motion, the bar is cut off the desired length of the spike, by the corner *n* of the traveling carriage *l l*, Fig. 6 which is formed into a cutting edge, and as it travels forward, cuts through the bar, the bar having a bearing against the fixed projection *v*. When the spike is thus cut off to the desired length, it is pushed forward in the dies, so as to give room for the drawing out of the point, as will be hereinafter explained, by means of the rod *w*, which receives a forward and back motion by means of the right angular lever *x x*, Figs. 1 and 3. This lever *x x* has its fulcrum at *y*, and is actuated so as to give the desired motion to the rod *w*, by means of a long rod *z z* attached to an arm *a'* turning on a pivot at *b'*; a cam *c'* on the end of the shaft *n*, before referred to, acts against a cam projection on the arm *a'*, and thus through the long rod *z z*, causes the lever *x*, *x* to turn on its fulcrum *y*, and thereby give a forward motion to the rod *w*. The rod *w* is drawn back after having performed its office, by means of a retracting spring *d*, as will be readily understood by inspection of Fig. 3.

The heading and pointing operations are performed at the same time, the header *f*, Fig. 1, pressing against the end of the bar which projects beyond the dies *i i*, *k k*, and

having a suitable recess or die formed in its end, to give the required shape to the head of the spike.

The pointing is effected by the peculiar operation of a roller or disk e', which turns on suitable bearings in the forked end of a beam f' f' turning on a pivot g' in the traveling carriage e, to which the header f is attached.

While the spike is firmly gripped between the dies i i, k k, and after it has been cut off and then pushed forward by the rod w, as before explained, the disk e' is moved forward in common with the carriage e, and beam f' f', and at the same time receives a downward motion by means of the small roller j' j' set in the standard h', against which rollers the beveled end of the beam f' f' strikes during its forward motion, and as the beam turns on a fulcrum at g', the disk will be forced upon the end of the spike, which will be pressed down upon the inclined or beveled face of the block i', as shown more particularly in Fig. 5. The combined forward and downward motions of the disk e' will thus draw out the metallic bar of which the spike is formed, on the inclined face of the block i, and at the same time compress and crowd the metal toward the point, rendering the metal the most compact and dense at the extreme point of the spike, where strength is most needed. The point thus produced is extremely strong and smoothly finished, and is entirely perfected by the operation of the disk e'. The spike is thus entirely finished, and is delivered from the machine by the returning of the die carriage l l, which opens the dies i i, k k, and allows the finished spike to drop out of the machine. The disk e' is drawn back after pointing the spike, by the return of the carriage and beam f' f', the beam f' f' being elevated again, as soon as it is relieved from the rollers g' g', by the abutting of the disk e' against the beveled end k of the upper die i i.

While the die k k is moving forward, and just previous to the pointing operation the spike is forced down onto the lower face of the die k k, by means of a bent lever l', turning on a fulcrum at m', and actuated by a cam n' on the shaft n. This lever l' presses the spike down upon the seat of the lower die k, and thereby prevents the end of the spike which is to be pointed, from riding up before being acted upon by the disk e', and thereby form a crooked spike.

Having thus described my improvements I shall state my claims as follows:

What I claim as my invention and desire to have secured to me by Letters Patent, is—

Pointing the spike by means of the inclined bed (i'), the advancing roller (e'), the inclined surface (f'), and the pressing roller (j), arranged and operating as herein set forth.

AMOS WHITTEMORE.

Witnesses:

JOSEPH GAVETT,

S. N. PIPE.