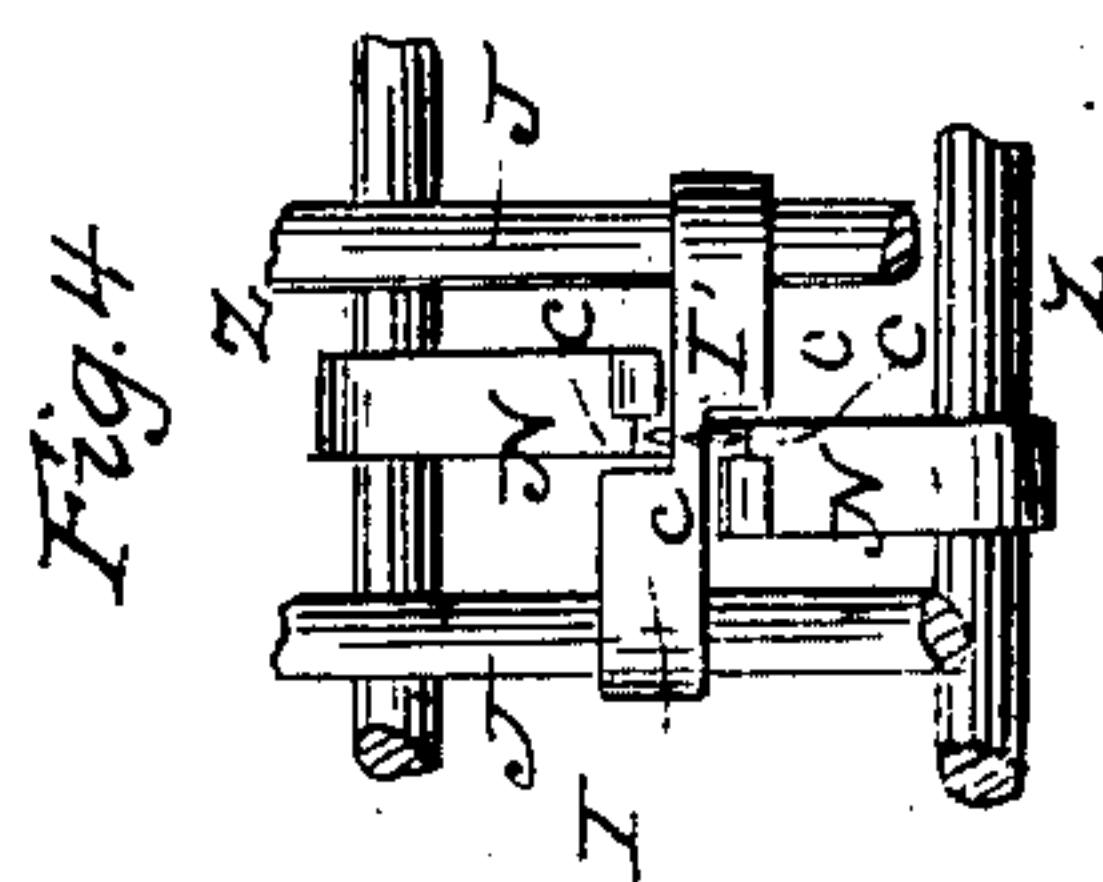
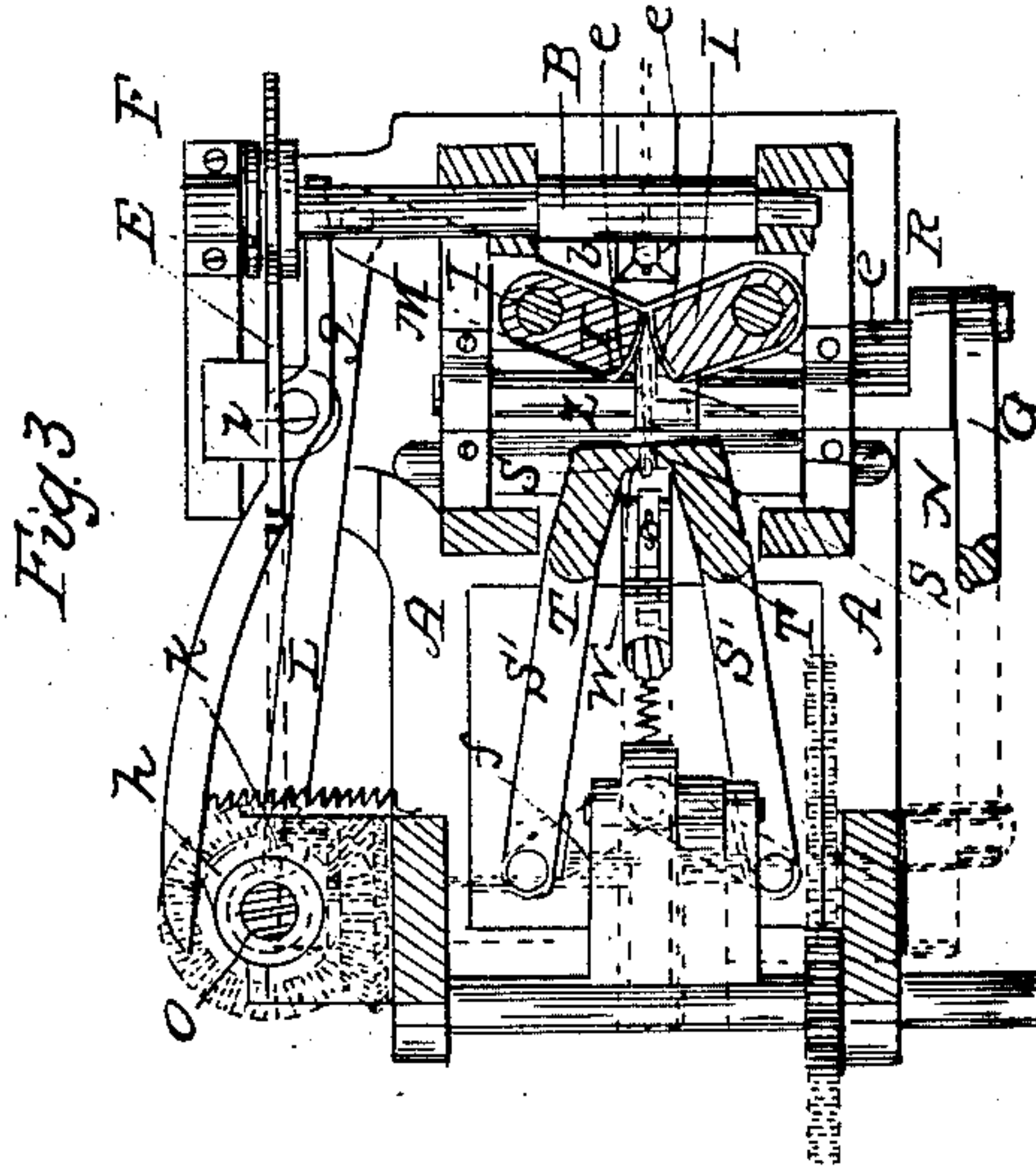
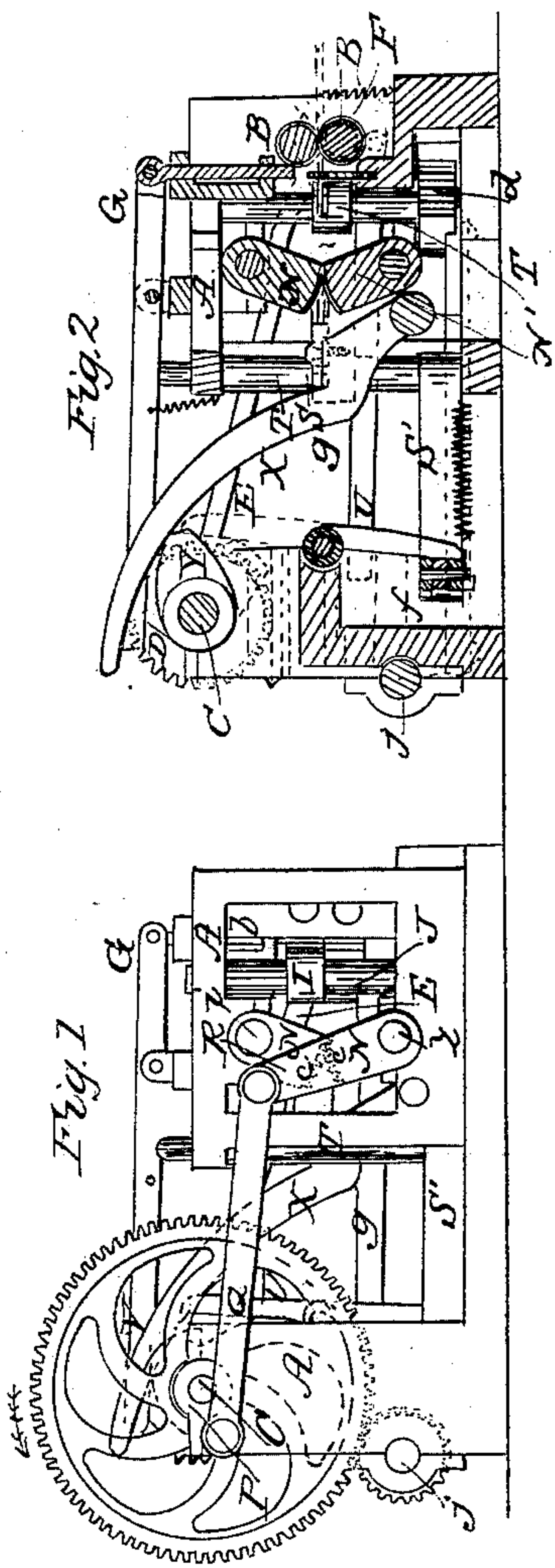


J. WOOTTON.  
Nail and Spike Machine.

No. 11,628.

Patented Aug. 29, 1854.





# UNITED STATES PATENT OFFICE.

JOHN WOOTTON, OF BOONTON, NEW JERSEY.

## NAIL-MACHINE.

Specification of Letters Patent No. 11,628, dated August 29, 1854.

*To all whom it may concern:*

Be it known that I, JOHN WOOTTON, of Boonton, in the county of Morris and State of New Jersey, have invented a new and  
5 Improved Machine for Making Nails and Spikes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of  
10 this specification, in which—

Figure 1, is a side elevation of my improved machine. Fig. 2, is a longitudinal vertical section of the same. Fig. 3 is a sectional plan of the same in a plane passing  
15 through the center of the working parts. Fig. 4, is a front view of the rolls. Fig. 5, shows the description of nail or spike produced by the machine.

Similar letters of reference indicate corresponding parts in the several figures.

This machine is intended chiefly for the purpose of manufacturing square nails or spikes tapered on all sides to a point; an operation which has never to my knowledge  
25 been successfully performed by machines which effect the drawing out or tapering by means of rolls. My invention consists in a certain combination and arrangement of rolls whereby spikes of the above form or  
30 other forms can be manufactured in a very perfect manner.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

35 A, is the framing of the machine. B, B, are two feed rolls having V shaped grooves, which when united form a square. These rolls receive from the main shaft C, through the united agency of a crank on the said  
40 shaft (not shown) a hooked rod, E, connected therewith and a studded wheel, F, on the lower roll, an intermittent rotary motion; the distance of each movement being sufficient to feed through a suitable quantity of  
45 the rod (a) of iron, from which the nails or spikes are to be made, to make one nail or spike. The rollers are held secure after every feed by means of a stud on the side of a lever (g) which works on a fixed fulcrum  
50 (i) on the framing the said stud entering one of a series of holes in the side of the wheel, F, but at the proper time for the feed the stud is withdrawn by the action upon the lever (g) of a cam (h) on a vertical shaft,  
55 O. Close behind the feed rolls are a pair of shears (b, b') the lower portion (b) of

which is stationary, but the upper part (b') is suspended from a lever, G, at the top of the machine which receives a motion from a cam, H, on the main shaft, C, in such manner and at such intervals, that immediately  
60 after each feeding movement of the rolls ceases, a piece of the rod (a) which has been seized between a pair of rolls, I, I', whose shafts J, J, occupy a vertical position side  
65 by side in the machine.

The condition of the machine represented in Fig. 2, is that when the shears have just cut off the piece. The rolls I, I', have taper  
70 V shaped grooves (c, c) which as the rolls move in contact with each other form a die whose transverse section is a square, the size of the back part of the said grooves being  
75 such as to receive the full size of the rod (a) and the front part terminating nearly in a point. The dies are geared together by toothed segments (d, d) and receive a  
80 reciprocating circular motion through a crank K, on a vertical shaft O, which gears by bevel gearing with the main shaft C, and a connecting rod, L, connecting with  
85 an arm, M, on the shaft of the roll, I'. The rolls I, I', receive the piece of rod as they move forward, and as they retreat, draw it out nearly or quite to a point, but can not  
90 be made to leave those corners which have been formed in the angles of the dies without fins or feathers, and therefore another pair of rolls, N, N', similar to I, I', are employed to finish the drawing and pointing  
95 of the nail, the latter rolls being immediately behind the first, but having their shafts z, z, placed horizontally in the machine one above the other so that the position of the nail in them, is the reverse of what it was in  
100 the first rolls, and the corners which were formed in the angles where the rolls I & I' unite will be in the backs of the grooves of the rolls N N' and the fins, feathers, or rags left on the corners by the first rolls will be  
105 rolled down. The rolls N, N' are geared together by toothed segments (e, e) and have like I, I' a reciprocating circular motion, which they receive from a crank, P, at one end of the main shaft, C, and a connecting  
110 rod Q, which connects the said crank with an arm, R, on the shaft of the lower roll N'. The rolls N, N', move back at the time the rolls I, I', move forward, and thus when the latter have finished their operation the former seizes the blank and takes it from them and immediately after commences to



retreat and during this retreating motion they finish drawing and pointing the nail and deliver it into the heading dies, S, S, which close upon it at the instant the retreat  
 5 of the rolls terminates. The heading dies S, S, are attached to two levers S' S' whose fulcra consists of two vertical shafts, T, T, and they are operated by means of a toggle joint (f, f) and a lever, U, which is actuated  
 10 by a cam V, on the main shaft, C. Immediately after the nail is seized by the heading dies, the header, W, comes into operation and heads it. The arrangement and manner of operating the header is the same  
 15 as in many other machines it being attached to a lever, X, which is attached by a cam, Y, on the main shaft.

The main shaft, C, receives rotary motion by spur gearing from a shaft (j) which is  
 20 driven by any suitable motive power.

It will be observed on reference to the drawings that in this machine the rolls instead of being as in the nail and spike machine in common use employing rolls, complete cylinders, are only segments of cylinders, and the length of their surface in the  
 25 direction of their motion is only about equal to the length to which they draw out the nail or spike. The object of thus making the rolls of segments is, that they may be so arranged as to allow those, N, N', to take the  
 30 partly finished nail or spike from those I I' which could not be done by cylindrical rolls as it is necessary that the rolls N, N' 35 when thrown forward to receive the partly

finished nail or spike should be opposite those I I' as shown in Fig. 3. Neither could this be conveniently effected by the segments with a rotary motion and for that reason I give them a reciprocating motion upon their  
 40 axes of an extent only just sufficient to produce the required action.

In order that the rolls may perform their operation without interfering with each other, it is desirable that they should be as  
 45 narrow as possible on their faces, but the back parts of the rolls nearer their axis may be wider as represented so as to give sufficient strength. In practice it will be desirable to make the rolls of cast iron and to  
 50 secure to them steel dies, as in other rolling-nail and spike machines, and then the rolls should be made wide enough for strength, and the dies may be made narrow enough  
 55 for convenient operation.

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

The two pairs of segmental rolls, I, I', and N, N', combined arranged, and operating, substantially as described so that the first  
 60 pair bring the nail or spike, nearly or quite to the desired form, and the second may complete it, and by their reversed position finish off the finned, feathered or ragged corners, which were formed by the junction  
 55 of the former rolls, as herein set forth.

JOHN WOOTTON.

Witnesses:

GEORGE W. ESTEN,  
 CHARLES B. NORRIS.