

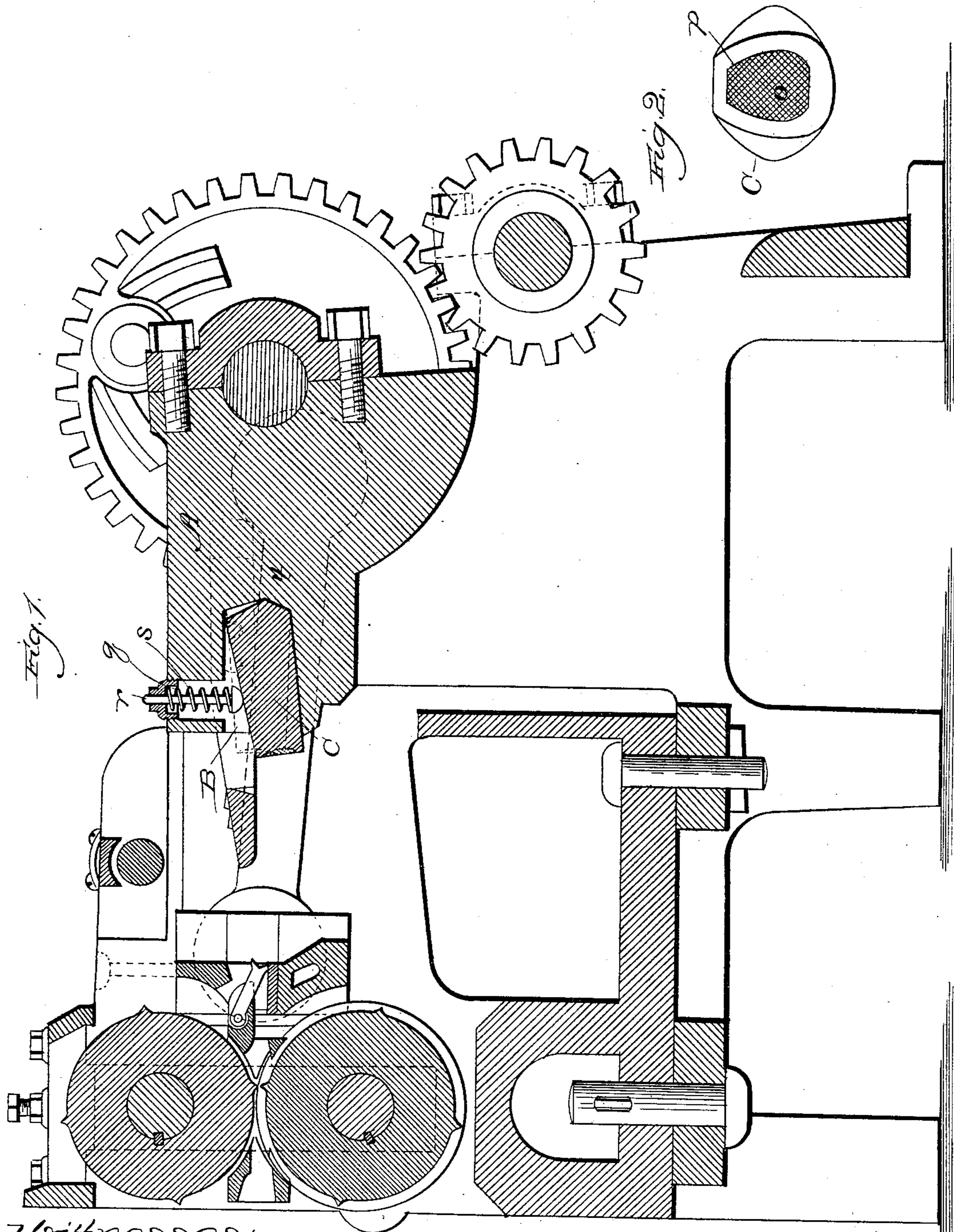
(No Model.)

J. NORTH.

MACHINE FOR MAKING SPIKES.

No. 371,472.

Patented Oct. 11, 1887.



Witnesses:  
Eas. E. Gaylord.  
J. W. Dyerforth.

Inventor:  
John North.  
By Dyerforth & Dyerforth.  
Attys

# UNITED STATES PATENT OFFICE.

JOHN NORTH, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO WILLIAM R. PLUM, TRUSTEE, OF CHICAGO, ILLINOIS.

## MACHINE FOR MAKING SPIKES.

SPECIFICATION forming part of Letters Patent No. 371,472, dated October 11, 1887.

Application filed June 17, 1887. Serial No. 241,617. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN NORTH, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented a certain new and useful Improvement in Machines for Making Spikes; and I hereby declare the following to be a full, clear, and exact description of the same.

My improvement relates to spike-machines of the general character shown, described, and claimed in Letters Patent of the United States No. 343,839, granted to me June 15, 1886.

My object is to simplify and improve the mechanism for striking up the head of the spike, preparatory to forming it, by means of the heading-dies.

By reference to my Letters Patent aforesaid it will be seen that after the spike has been cut and formed, with the exception of the head, a portion of the end sufficient to form the head is struck up by a blow from a bar called the "knock-up," actuated by means of a cam-wheel receiving motion from the driving-gear.

By my present invention the cam, knock-up, and connecting mechanism are all dispensed with, and the striking up is all effected through the agency of the heading-die itself.

My invention consists in mounting the heading-die in its bearing in such manner as to permit an oscillatory movement of its heading end, and in such relation to the other parts that when the end of the blank strikes the heading-recess the effect is to deflect the heading-die, and thus cause a bending of the head portion of the blank.

My invention consists, also, in certain details of construction for causing this effect to be produced in the most satisfactory manner; and it consists, further, in corrugating the heading-recess of the heading-die, thereby producing a corrugated head to the spike.

In the drawings, Figure 1 represents a sectional view of so much of my machine as is necessary to illustrate my present invention; and Fig. 2, an end view of the heading-die, showing the corrugated recess.

All the parts represented in the drawings, with the exception of the heading mechanism,

are identical with the corresponding parts in my Letters Patent aforesaid, both in the construction and mode of operation, and therefore need no particular description here.

A is the bearing of the heading-die, which is provided with a recess, B, to receive the die.

C is the heading-die, the rear end, *t*, of which is beveled upward and downward from a transverse line below the center. The rear end of the recess B is similarly beveled upward and downward from a corresponding transverse line, but at an angle less acute than that of the die, whereby when the lower beveled surfaces are in contact, as shown by the full lines in the drawings, the upper beveled surfaces will be out of contact, and when the upper beveled surfaces are in contact, as will occur when the outer end of the die is tilted above its normal position, as represented by the dotted lines in the drawings, the lower beveled surfaces will be out of contact. This construction gives the die a pivotal movement upon a fulcrum below its center and is the construction which I prefer to employ, though any other construction which would permit a similar movement on the part of the heading-die would be an obvious equivalent. The bearing above the heading-die is provided with a vertical opening, *s*, surmounted by a screw-cap, *r*, to inclose a spring, *q*, which is confined between the screw-cap and the top of the die C to hold the latter down to its normal position. Any other form of spring may be substituted for this purpose, or, if desired, the spring may be wholly omitted and gravity relied upon to cause the die to descend after the heading has been accomplished without departing from my invention. When the spring is employed in the form represented in the drawings, I prefer to flatten or recess the top of the die to receive it.

It is not necessary that the deflection of the heading-die be upward to produce the required bending of the blank, since by obvious mechanical changes the deflection may be caused to take place downward or laterally with the same effect.

The shape of the die and of the recess, B, which receives it are not of the essence of my invention. The die, for example, may be cylindrical, square, or oval. Its longitudinal

sides may be parallel and the recess B may flare from the inner to the outer end to permit the outer end of the die to play up and down; or the longitudinal sides of the recess may be parallel and the die made tapering from the inner to the outer end to permit the requisite up-and-down movement, or these two constructions may be combined, the die being made tapering and the lower side of the recess inclined downward, as represented in the drawings, which is the construction that I prefer. Partly to prevent slipping when the end of the blank comes in contact with the upper part of the heading-recess *p* in the heading-die, which would be liable to result in a defective head, and partly to improve the quality of the spike, I provide this recess of the die with latticed corrugations *o*, as clearly represented in Fig. 2. The effect is to give a corresponding configuration to the head of the spike.

The operation is as follows: The blank after passing the cutting and shaping rollers is carried forward by the gripping-dies in the usual way, the heading end of the blank coming into contact with the recess in the die C at a point above its pivotal bearing, and the continued forward movement tilts the heading end of the die upward above its normal position, thus bending upward that portion of the blank which projects beyond the gripping-dies, and which is designed to form the head, in the same manner that the like portion of the device was bent upward by the knock-up bar represented in my said former patent. The concussion of the gripping-dies and heading-die compresses the bent portion of the blank into

the recess, thus forming the head, whereupon the completed spike is released and dropped.

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

1. In a spike-machine, a heading-die fulcrumed at its rear at a point out of the line of movement of the blank and having its forward end normally in the line of movement thereof, whereby the end of the blank strikes the end of the heading-die and the latter is automatically deflected, producing the required bending of the blank, substantially as described.

2. In a spike-machine, the heading-die C, beveled upward and downward at its rear end from a line below its center and lying within the recess B, similarly beveled upward and downward from a line below its center, but at a less acute angle, substantially as described.

3. In a spike-machine, the heading-die C, having a vertical oscillatory movement in the recess B and receiving the impact of the blank against its forward end at a point higher than the pivot, in combination with a spring to aid in returning the die to its normal position when released after being thrown upward, substantially as described.

4. The heading-die C, having its heading-recess *p* provided with latticed corrugations, substantially as described.

JOHN NORTH.

In presence of—

J. W. DYRENFORTH,  
GEORGE C. COOK.