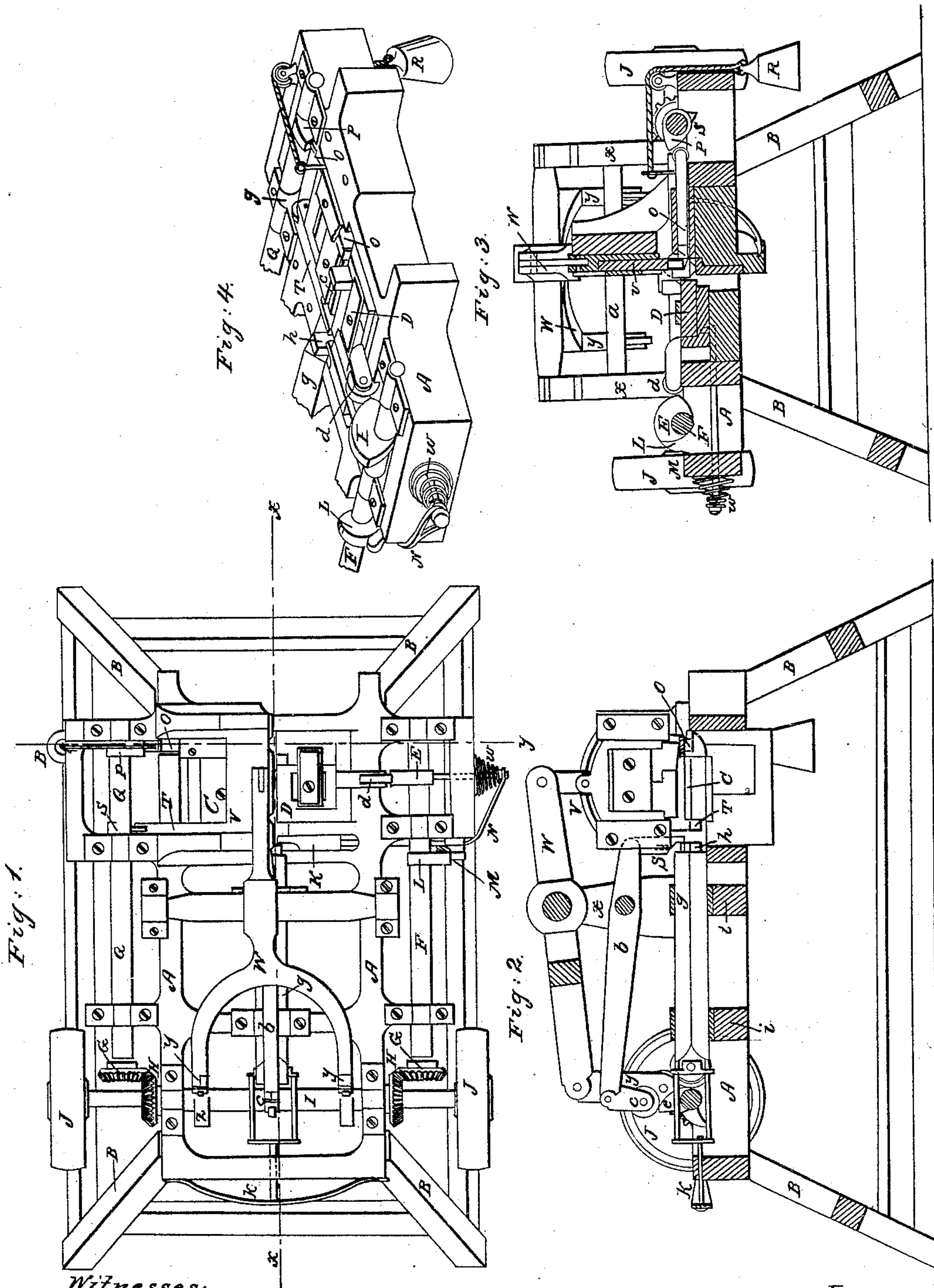


J. O. REILLEY.  
Spike and Rivet Machine.

No. 58,887.

Patented Oct. 16, 1866.



Witnesses:  
R. L. Whightman  
Thos. J. Burdell.

Inventor:  
J. O. Reilly  
By Munnell  
Atty.



# UNITED STATES PATENT OFFICE.

JOHN O. REILLEY, OF BALTIMORE, MARYLAND.

## IMPROVEMENT IN MACHINES FOR MAKING SPIKES.

Specification forming part of Letters Patent No. 58,887, dated October 16, 1866.

*To all whom it may concern:*

Be it known that I, JOHN O. REILLEY, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and Improved Machine for Making Spikes and Rivets; and I do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable one skilled in the art to which the invention appertains to make use of it, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan or top view. Fig. 2 is a vertical section on the line *x x*, Fig. 1. Fig. 3 is a perspective view of the portion containing the dies. Fig. 4 is a vertical transverse section on the line *y y*, Fig. 1.

This machine is designed for making ship and railroad spikes and boiler and other rivets.

In this machine the levers which operate the head, bending, and the pointing die, are thrown out of connection with their operating-cams by bending their pivoted arms out of range, so that the machine may be adjusted for making hooked-headed or plain spikes or rivets.

The gage moves in the same plane as the moving die, and maintains its position till the header is about to advance. The cutter is advanced after the iron is clamped by the dies, so that it is not thrown out of position by the action of cutting.

The parts move in the following order: The gage is advanced to determine the length of the piece of iron required; the movable side die grips the iron against the stationary side die; the gage is retracted, the cutter is advanced, and severs the piece; the die is depressed, which bends the head end over to make the hook, and is then retracted. The upper or pointing die and the header are then advanced, completing the operation. The pointing-die, movable side die, and the header are then retracted, releasing the spike, and the ejector, being advanced, pushes it from its bed, from whence it drops on the floor, and, lastly, the ejector is retracted.

In the drawings, A A is the frame of the machine, supported upon legs B. C is a stationary die, supported in the frame and having faces which answer to two sides of the

square spike to be formed. D is the movable die, opposed to die C, and is operated at suitable times by the cam E on the shaft F, whose motion is derived through the gearing G H from the main shaft I, upon which the driving-belt pulleys J J are attached.

The movable die D slides in a suitable bed in the frame, and the friction of the contact therewith of the cam E is lessened by the roller *d*. The retraction of the die D is made by the spring *w*.

The gage K is a sliding bar, moving in ways in the frame, being thrust forward so as to intercept the end of the bar when it is fed into the machine, and retracted in time for the header to perform its duty upon the same part of the bar. The forward motion is obtained by the cam L on the shaft F, which vibrates the lever M, to which the connecting-rod of the gage K is connected, the return motion being made by a spring, N, at the end, or one underneath, as may be convenient.

The cutter O, which moves in ways alongside the stationary die C, is operated by a cam, P, on the shaft Q, which is rotated by gearing from the main shaft I, the return motion or retraction of the cutter being performed by a spring or weight, R, as may be most convenient.

The cam S on the shaft F operates the ejector T to discharge the spike, the ejector being retracted by a spring as soon as the cam ceases to bear upon it. The upper or pointing die, U, moves in vertical guides in the frame V, and is pivoted to and operated by the lever W, which has its bearings in the standards X, the rocking motion being obtained by the contact of the hanging arms Y with the cams Z on the main shaft I. The lower face of this upper die, U, has a curve or angle, which answers to one of the tapered faces of the spike, while the bed upon which the iron is pressed by the said descending die is curved or shaped in like manner, to fashion the other tapered face of the spike.

The arms Y are pivoted to the lever W, so as to enable them to reach the cams Z, or, by erection, to withdraw therefrom when the lever W is not required, as in working upon rivets which do not require pointing.

Pivoted in the standards X is an axle, *a*,



upon which a lever, *b*, vibrates by the contact of its hanging arm *c* with the cam *e* on the main shaft *I*. On the other end of the lever *b* is a die or plunger, *f*, whose duty it is in descending to bend over the end of the iron which was formerly in contact with the gage, so that the header shall make a hook-head to the spike.

*g* is the header, whose face *h* is made to correspond with the fashion of the head required. The header moves in bearings upon the portions *i i* of the frame, the effective impulse being given by the cam *e*, which, at another part of its stroke, operates the lever *b*, and the return motion is made by the spring *j*, which is connected to the header by a rod, *k*, and stirrups *l*.

To avoid friction, the points of contact of the cams with the moving parts which are actuated by them are provided with rollers.

The hinging-arms *Y* are so adjusted as to remain in their vertical or horizontal position, as may be required, and the same is true of the hinging-arm *c* upon the lever *b*, which is only required to be used when making hook-headed spikes.

The dies are made to correspond in form or proportions with the article to be made, which may be of square—such as railroad-spikes—or of round iron, such as rivets, and of various lengths, pointed or unpointed, with hook-heads or square heads. The fact that the pointer-die *U* will be used only when pointed articles are to be made, and the mode of its being rendered inoperative has already been explained, and the mode of throwing out of operation the die *f* which bends over the hook,

has also been referred to; but it is also necessary to provide for different lengths, which is done by shortening the dies and blocking up between them and the front of the frame, the cutter being adjusted so as to operate in direct contact with the stationary die, and having the retracting cord and pulley adjusted correspondingly.

It is usual to affix the cutter to the moving die and to cut the bar the first thing and before it is fairly gripped. By this means it is frequently so thrown out of position that it fails to make a perfect article. This difficulty I avoid by gripping the iron before it is cut.

Having described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. In combination with the vertically-moving dies *U* and *f* and the levers *W b*, the pivoted arms *Y c*, operating substantially as described and represented.

2. The gage *K*, arranged, in relation to the moving die *D* and the header, as described.

3. In combination with the moving die *C*, adjustable for various lengths of spikes, the cutter *O*, arranged in ways alongside the stationary die, and operating against the plain face of the moving die after the iron is gripped between the dies, substantially as described.

To the above specification of my improved spike and rivet machine I have signed my hand this 23d of August, 1866.

JOHN O. REILLEY.

Witnesses:

EDWARD H. KNIGHT,  
 SOLON C. KEMON.