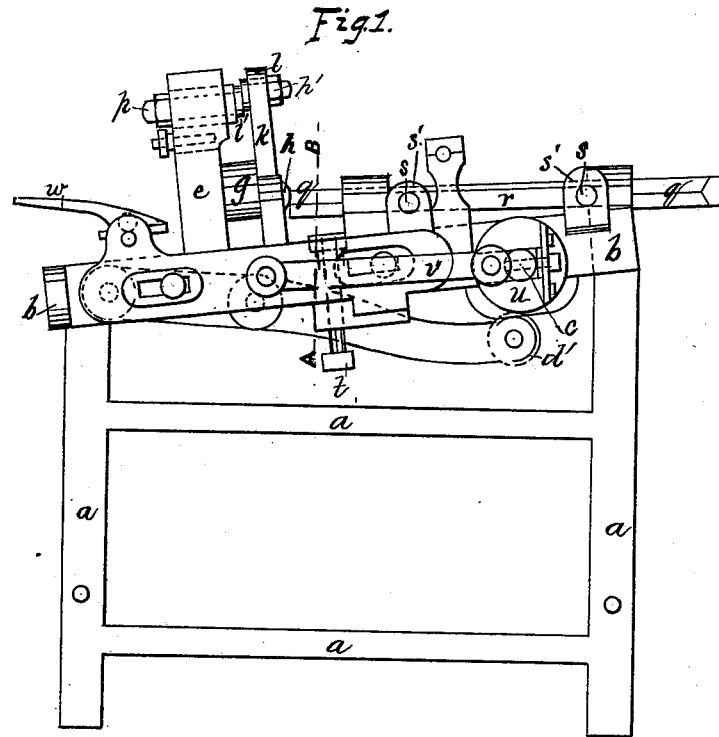
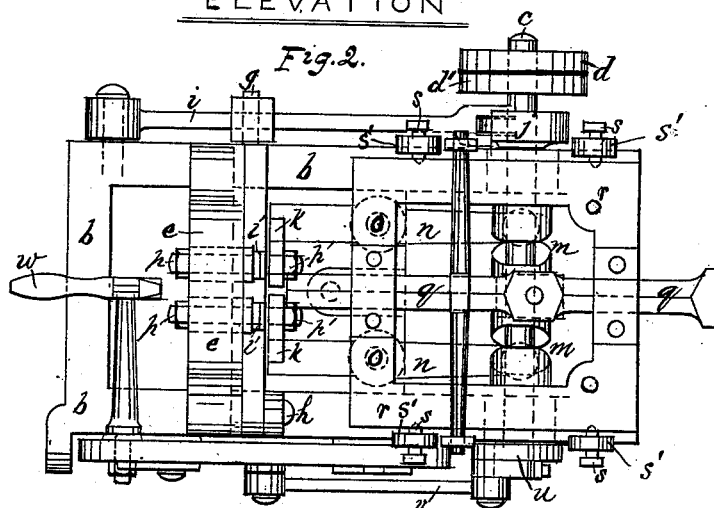


H. EVANS.  
Machine for Making Wire-Nails and Shoe-Rivets.  
No. 215,053. Patented May 6, 1879.



ELEVATION



PLAN

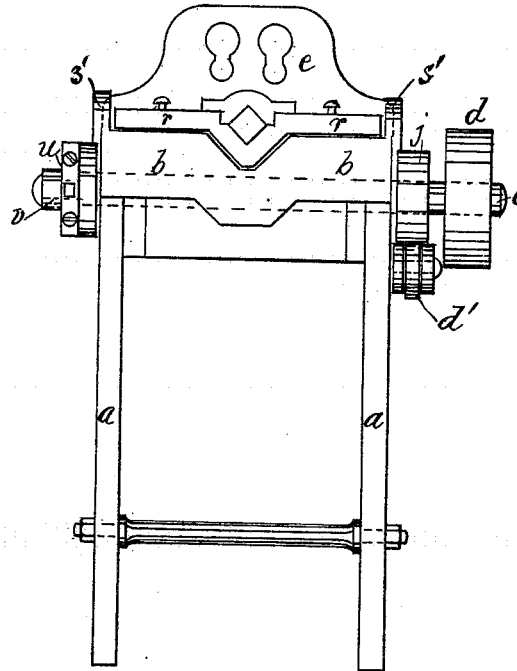
Witnesses:  
Perry Halsted  
John L. Anderson

Scale 2 ins. = One foot.

Inventor:  
Henry Evans  
by John J. Halsted  
Atty.

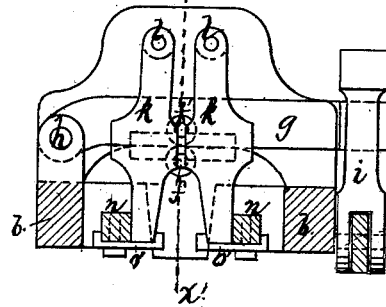
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Fig. 3.



END VIEW

Fig. 4.  
x.



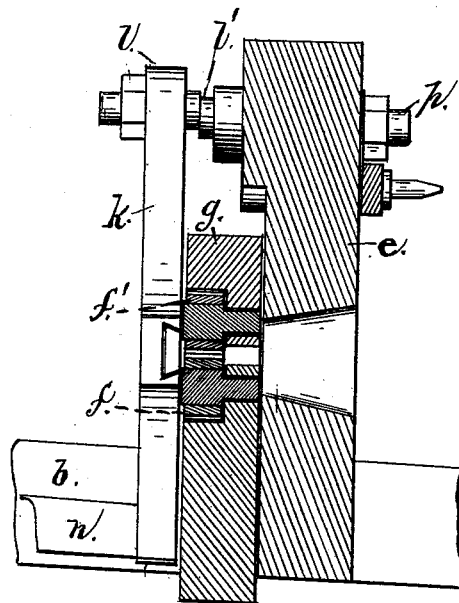
SECTION THROUGH A.B.

Witnesses:  
Penn Halsted  
John L. Condron

Inventor:  
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by John J. Halsted  
Atty.

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FIG. 5.



WITNESSES  
*Penn Halsted*  
*Saml R. Lumsden*

By

*Henry Evans* INVENTOR  
*John F. Halsted* his ATTORNEY

# UNITED STATES PATENT OFFICE.

HENRY EVANS, OF NEWPORT, ENGLAND.

## IMPROVEMENT IN MACHINES FOR MAKING WIRE NAILS AND SHOE-RIVETS.

Specification forming part of Letters Patent No. **215,053**, dated May 6, 1879; application filed March 19, 1878; patented in England, January 11, 1878.

*To all whom it may concern:*

Be it known that I, HENRY EVANS, of Newport, in the county of Monmouth, England, wire-nail and shoe-rivet manufacturer, have invented certain Improvements in Machinery for the Manufacture of Wire Nails and Shoe-Rivets, of which the following is a specification.

The object of this invention is the construction of an improved machine whereby the manufacture of wire nails and shoe-rivets is greatly facilitated and simplified.

The improved machine is constructed of a suitable stand or frame the top of which inclines from the back toward the front. It is provided with a driving-shaft having suitable cams for operating or working the various parts of the machine, as hereinafter described.

I employ round dies, the lower one of which is fixed, and the upper one for giving the pressure is movable. These dies are fixed in recesses, and are held in position by screws and nuts. The upper die is fixed in a movable lever or arm operated by a cam from the driving-shaft and a spring. The lower die is fixed in a carrier fitted in a recess in the frame of the machine.

For cutting off the rivets or nails, instead of the ordinary cutting-lever, I employ scissors, adjustable by eccentrics and set-pins placed in the head of the frame. The said scissors are provided with suitable steel cutters, and are operated by means of clips connected with levers worked by cams on the driving-shaft.

I employ a heading-bolt of the ordinary construction; but I place it on an adjustable frame fixed by set-pins to the usual fixed frame. The object of this adjustable frame is to allow of the heading-bolt being adjusted to the required position, according to the head required.

The feed mechanism is operated by a cam on the driving-shaft, and is so arranged as to bring the wire at each revolution of the driving-shaft forward into a hole in the head of the frame.

But to make my invention better understood, I will now proceed to describe the same by reference to the accompanying drawings, in which—

Figure 1, Sheet 1, is a side elevation; Fig. 2, Sheet 1, a plan; and Fig. 3, Sheet 2, an end

elevation, of my improved machine for the manufacture of wire nails and shoe-rivets. Fig. 4, Sheet 2, is a section on line A B, Fig. 1; and Fig. 5, Sheet 3, a section, enlarged, through the line *x x* of Fig. 4.

Similar letters in all the figures are used to represent similar parts.

*a a a* is the stand or frame of the machine. *b b* is the inclined top of same, consisting of a frame, as shown, instead of the usual solid bed-plate. *c c* is the driving-shaft; *d d'*, fast and loose pulleys. *e e* is the head of the machine. *f* is the lower die, fixed in a carrier fixed in a recess in the head *e* of the machine by set-screws. *f'* is the upper die, fixed in a similar manner in the lever or arm *g*, one end of which is pivoted at *h*, the other end being jointed to the lever *i*, operated by the cam *j* on the main shaft, for producing the pressure. The said dies are cylindrical or round, as shown, a number of grooves for holding the wire being formed on their peripheries in the direction of the axis. This construction of dies and the arrangement for fixing them allows of the dies being easily moved as the grooves become worn, which is a great advantage over the dies hitherto employed, which had but one groove.

*k k* are the scissors carrying the cutters for cutting off and pointing the nail or rivet. These scissors are suspended at their upper ends at *l l* to eccentrics *l'*, and are opened and closed by means of the cams *m m* on the main shaft *c*, which operate the levers *n n*, moving on pivots or fulcrums *o o*, and bolted at their other ends to the clips *o' o'*, as shown in Fig. 4. The cutters are fixed by screws to the scissors, and the cutting-edges should be so formed that when the cutters are brought together they form a hollow cone, which cuts off the nail or rivet, at the same time forming a round point by the pressure. When the cutters are worn they can be easily removed and replaced. The eccentrics *l'* allow of the scissors being raised or lowered, so as to enable the cutters to be exactly adjusted, while the set-screw *p'* allows of the scissors being moved forward or backward. *p p* are set-screws for holding the eccentrics *l'* in position.

The heading-bolt *q* is of the ordinary construction; but I place it in an adjustable frame, *r r*, fixed, by set-pins *s s s s*, to the inclined

top *b* of the stand. The front of the frame *r* is also provided with a set-screw, *t*, which allows of raising or lowering the frame carrying the heading-bolt, while the set-screws allow of the frame being moved horizontally according to the form of head required or the position of the wire to be headed.

The object of having the machine higher at the back than at the front is to obtain a greater pressure from the customary spring that works the heading-bolt at the back end of the machine.

*u* is the eccentric operating the connecting-rod *v* working the feed mechanism *w*, which is of the ordinary construction.

The machine being set in motion, the operation is as follows: The wire is placed in the feed mechanism *w*, and is brought forward by the connecting-rod *v*, operated by the crank *u*, into a hole in the head *e*, and between the dies *f f'*, and the pressure is produced as hereinbefore described. The heading-bolt now comes forward and forms the head. The dies now open, and the wire being moved forward, the scissors are brought together, and the cutters cut off the nail or rivet to the proper length, at the same time forming a round point. The nail is now knocked off by the usual means, and the same operations are repeated for each nail to be made.

I am aware that square dies have been heretofore used; but these do not admit of their being turned in circular, or nearly circular, housings or supports, such supports in my

construction affording a close contact at all times around a great portion of the peripheries of the dies, and thus while holding them properly preclude any need of removing them when needing adjustment. This construction also causes the movable lever *g* and the lower carrier, in which respectively these circular dies are lodged always, when moved, to carry the dies with them, so that they cannot drop out or become dislodged.

Having thus described my said invention and the best means I am acquainted with for carrying the same into effect, I wish to be understood that I do not confine myself to the precise details herein laid down, as the same may be varied without departing from the peculiar character of my invention; but

What I do claim is—

1. The scissors or shears *k k*, operated by intermediate levers from the main shaft, in combination with the devices, substantially as described, for adjusting said scissors either up and down or forward and back.

2. In a machine for making wire nails and shoe-rivets, the combination of the rotatable cylindrical dies, their respective arms or supports, and the head *e*, substantially as and for the purpose set forth.

HENRY EVANS.

Witnesses:

JNO. WILKS,

*Ship-broker, Newport, Mon.*

JOSEPH DAVIES.