A. V. B. Orr.

Making Spikes and Nails.

No. 25,910. Patented Oct. 25, 1859.

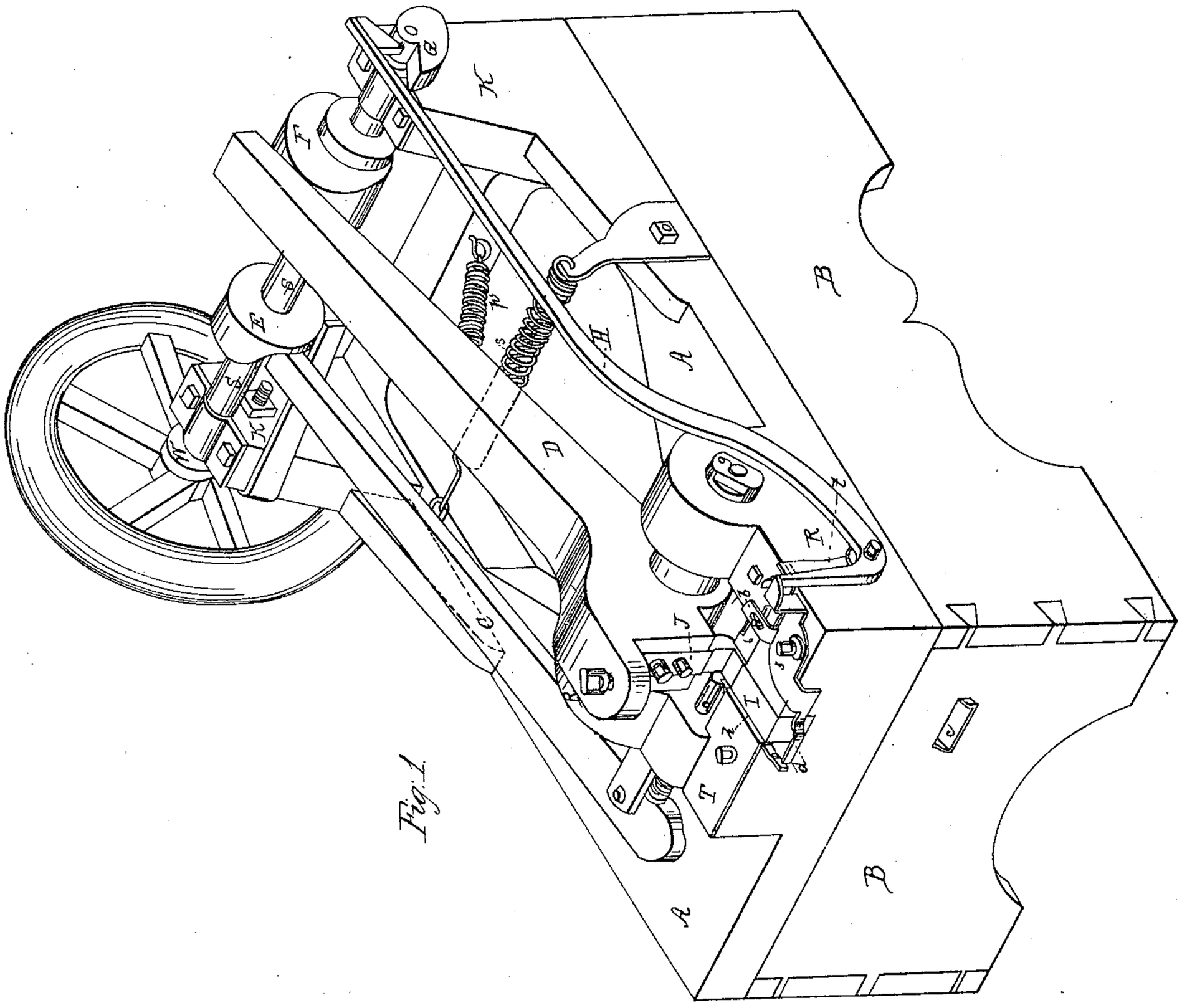

Fig. 1.

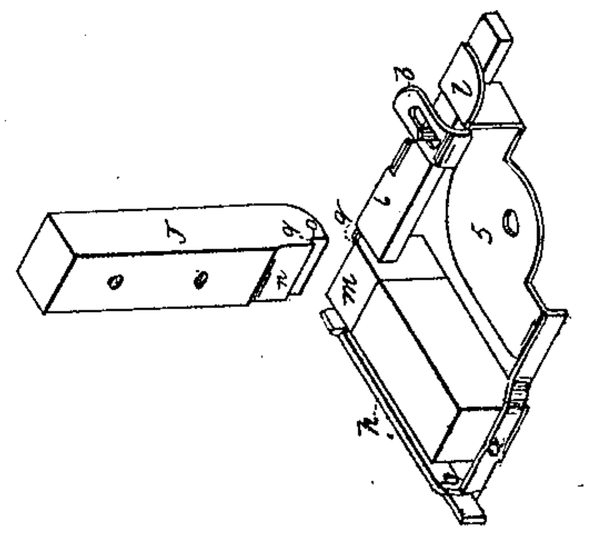

Fig. 2.

UNITED STATES PATENT OFFICE.

ADRIAN V. B. ORR, OF LANCASTER, PENNSYLVANIA.

NAIL-MACHINE.

Specification of Letters Patent No. 25,910, dated October 25, 1859.

To all whom it may concern:

Be it known that I, ADRIAN V. B. ORR, of the city of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and Improved Cut Pressed Nail and Spike Machine; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in so arranging and constructing the machine that in the first place the fibers of the iron which are necessarily separated in the act of cutting the nail from the plate, shall be again condensed together by the action of the cutting die in its descent; thus imparting to the nail or spike a degree of flexibility very little (if at all) inferior to that of wrought nails; and in the second place, in confining the several acts of cutting, pressing, and gripping the nail to a single operation, and with a single pair of dies; attaining a degree of simplicity and cheapness of construction hitherto unattained by cut nail machines, and producing results in point of quality of the nails which is certainly far beyond the possibility of their accomplishment.

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

Figure 1, of the accompanying drawings represents a perspective view of the machine, and Fig. 2, an enlarged perspective of the dies, levers, &c.

The same letters refer to like parts in each figure.

A, A, represents a suitable cast iron frame having two upright pieces K, K, at one end; on the top of those pieces secured by caps rests the driving shaft S, S; the frame A, A at its other end has an elevation T, T, raised on its upper surface, and into an excavation in this raised portion is placed the stationary die I; extending laterally from the raised portion are two side pieces R, R, between which the lever D works. These side pieces R, R, are higher by one half a given circle, at the point through which the pin *g*, passes than the other raised portions; the object of this arrangement is to give the necessary amount of strength over the pin, as the center upon which the lever D, moves should be level with the cutting face of the stationary die I. The lever D, works between the pieces R, R, on the pin *g*, and has its front end excavated for the reception of the movable die J, which works perpendicular to the stationary die I; the other end of this lever rests on, and is moved by the cam F, on the shaft S, S.

The stationary, and movable dies I, and J, are so constructed as to have a notch cut square in their surfaces of contacts, as seen at *o*, *o*, the edges *m*, and *n*, acting as shears for the purpose of cutting the nail from the plate, while the surfaces *q*, *q*, compress the nail after its separation and hold it while being headed; the surface *o*, of the die J, serving at the same time as a guide for the length of plate to be cut off. To secure perfect accuracy in the meeting of the edges *m*, and *n* the faces of the dies are slightly beveled behind the edge, leaving the edge the most prominent point on the face.

Opposite the square aperture left between the dies when in contact, is the point of the slide 6. This slide point at the instant a nail is cut from the plate and before the nail is caught by the die surfaces *q*, *q*, pushes it endwise between the dies a distance equal to the length required for the head of said nail; this slide point is moved at the proper instant by the irregular cam G, on the end of the shaft S, S, through the lever H, spring *t*, and arm *b*, of lever 5; the arm *d*, *d*, of lever 5, acting on slide *h*, for throwing the finished nail off when the dies open. On the heading side of the dies I, and J, is placed the heading tool *a*, which is operated by the lever C, and eccentric E, on the shaft S, S. Under the stationary die I, a square hole is cut through the bed plate communicating with the spout *c*, by means of which the finished nails fall from the machine.

A fly wheel W, is placed on the shaft S, S, to equalize the motion, and spiral springs *s*, *p*, are attached to the levers to keep them to their respective positions.

From the foregoing description of my improved machine, it will be observed, that when the shaft S, S, is put in motion the die J, moved by the cam F, and lever D, will make cuts perpendicular, to the die I upon which the nail plate rests, a portion of which plate being now fed against surface *o*,

of die J, is cut off by edges *m*, and *n*, in the descent of the die, and is instantly forced endwise between the dies by the slide point 6, moved by its already described machinery, the piece cut off is now seized by the surfaces *q*, *q*, of the dies and compressed to any desired extent, as well as being held firmly while the heading tool *a*, moved by lever C, and eccentric E, completes the nail by forming the head; the dies now open and slide *h*, throws the nail out, and the dies are ready for another portion of the nail plate.

I am aware that cut nails have been compressed in the direction of their plate surfaces, heretofore, and I am also aware, that cut nails have been pointed to resemble wrought nails in shape. I therefore wish it to be understood that I lay no claim to the compression of cut nails distinct from my mechanical mode of effecting such a result. But

What I claim as my invention and wish to secure by Letters Patent is—

1. I claim combining in a single pair of dies, constructed as described, the operations of cutting, pressing, and gripping the nail or spike substantially as specified.

2. I claim the slide point 6 operating as described in combination with the slide *h*, arranged as specified and for the purposes set forth.

ADRIAN V. B. ORR.

Witnesses:
WM. B. WILEY,
ROB. CLARKSON.