Orr & Bantz,

Spike Machine,

No. 22,238. *Patented Dec. 7, 1858.*

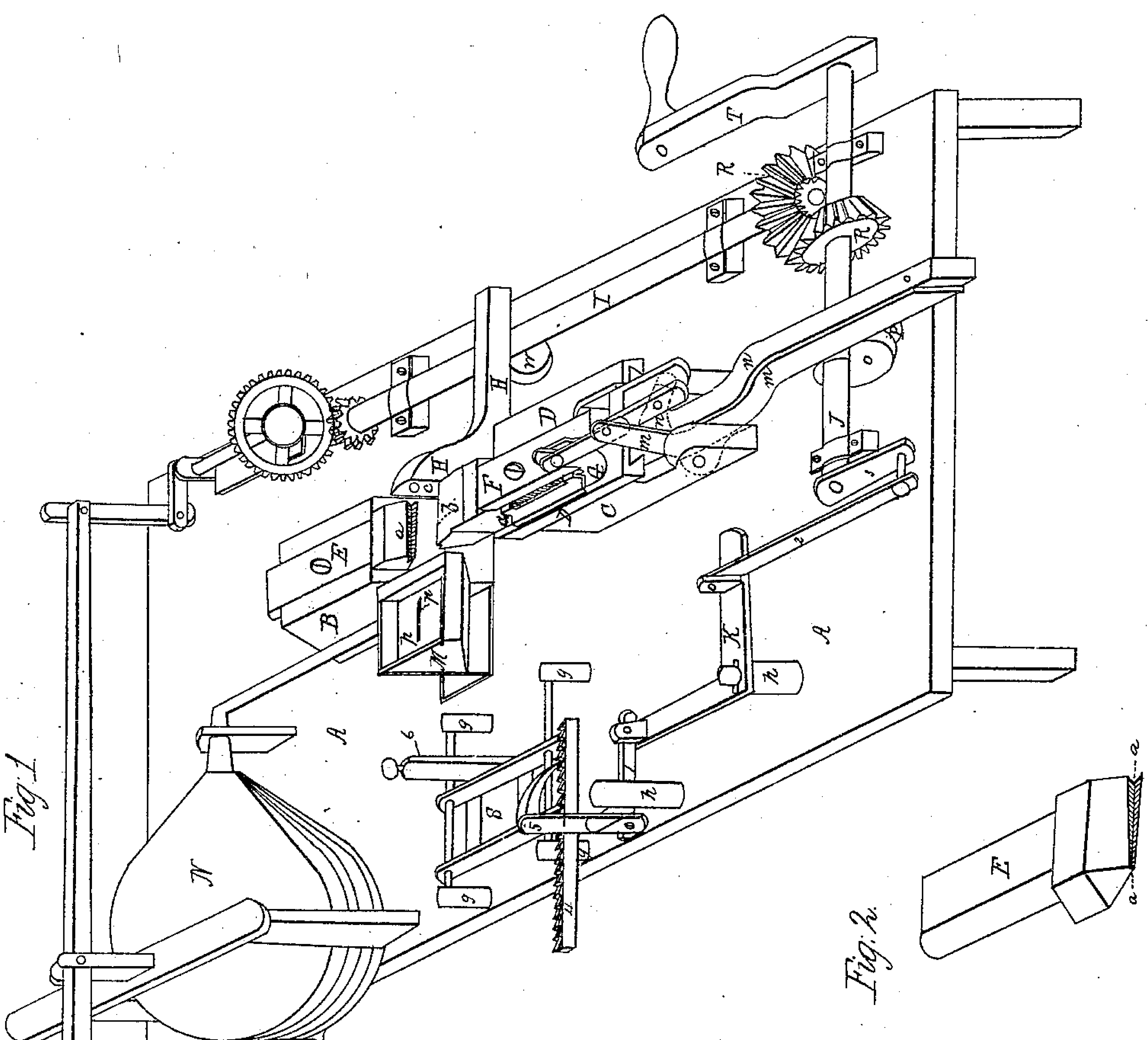

Fig. 1

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

ADRIAN V. B. ORR AND GIDEON BANTZ, OF FREDERICK, MARYLAND.

WROUGHT-NAIL MACHINE.

Specification of Letters Patent No. 22,238, dated December 7, 1858.

To all whom it may concern:

Be it known that we, ADRIAN V. B. ORR and GIDEON BANTZ, of Frederick city, in the county of Frederick and State of Maryland, have invented a new and Improved Machine for Making Wrought-Iron Spikes, Nails, and Rivets; and we 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 our invention consists in forging spikes, nails, and rivets with the grain of the iron and at a welding heat, by means of excavated faced dies or swages and heading the spike, nail, or rivet, before the forging dies shall open thus finishing at a single operation, and obviating the necessity of removing the unfinished nail from the forging dies to be heated by another operation.

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

On a suitable platform or frame of cast iron or other firm material A, A, Figure 1, we place an upright cast iron projection B, solidly and firmly attached to the platform this piece has on its top a groove into which is fitted the neck of the stationary swage or die E, which is held in its position by a screw, this arrangement enables us to change our dies at pleasure. In a line with the projection B, and at a suitable distance from it, is another projection C, not so high as the first, the top of this projection is so constructed as to permit a reciprocating frame D, D, to move freely yet firmly upon it, attached to this frame D, by means of a groove and screw is the movable die or swage F, the projections B and C, are so arranged that the dies shall meet accurately when brought together. The dies or swages E and F, are excavated on their impinging faces as seen at *a*, *a*, so that when brought together the excavation shall represent the shape of the nail or rivet which is desired to be made between them, that is, each die shall have an excavation equal in shape and size to one half the nail or rivet. The reciprocating frame D, is moved by the lever *n*, *n*, and eccentric P. On the shaft J, attached to the reciprocating frame D, and sliding on it, is the cutting off chisel G, G, which is moved by the lever *m*, *m*, lying alongside of the lever *n*, and worked by the eccentric *o*, differing in shape from the eccentric P, so as to secure the movement of the chisel at the proper moment. Lying at a right angle with the shaft J, in another shaft I, which is driven at the same speed by means of the miter wheels R, R, on this shaft and opposite the junction of the dies E, and F, is placed a cam *w*, for working the heading swage H, H, and on the end of the shaft the wheel for driving the bellows N. On one end of the shaft J, is the handle or pulley T, on the other end the crank 3, for working the feed motion.

The nail rod is fed to the dies by means of the sliding frame S, posts, *g*, *g*, *g*, *g*, and *h*, levers K, and 5, connecting rods 1, 2, and ratchet 2, with the upright 6, which holds the end of the rod. These mechanical parts are so arranged that the forward motion to the nail rod is given when the dies are separated so as to receive between them a length of material equal to that required to form the nail or rivet. At the side of the dies E, and F, opposite the heading swage H, and placed at the necessary height, is the heating bed or furnace M. This furnace is constructed so as to have the air admitted at a long narrow opening at its bottom as seen at *p*, *p*. The object of this arrangement is to get a long heating bed so as to keep a sufficiency of the rod at a welding heat while successive portions are being worked up.

By means of the usual mechanical appliances the blast from the bellows N, is so regulated that the rod will always be at a welding heat when it enters the dies.

From the foregoing description of our invention it will be observed that when the shaft J, is put in motion, the reciprocating frame D, draws the movable die F, from the stationary die E, the feeding apparatus instantly supplies a portion of heated rod, the die now closes, the heading swage H, moved by its already described machinery strikes its blow forming the head, while the cutting chisel G, G, at the same instant completes the operation by separating the finished nail from the rod, the dies open, the nail drops out while another portion of rod is placed between the dies to undergo the same operation.

We are aware that dies, levers, cams,

cranks, furnaces, &c. have all been used for the purpose of making nails, we therefore wish it to be undertsood that we make no claim to any of these mechanical devices, distinct from our manner of using and constructing them, but

What we do claim as our invention and wish to secure by Letters Patent, is—

1. We claim the dies E and F constructed, in the manner described, and when acting simultaneously, in combination with the heading swage upon the heated bar as specified.

2. We claim with the said header, and dies, the use of the elongated twyer opening, in the manner and for the purpose set forth.

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Witnesses:
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