

G. W. COPELAND & M. BROCK.
Magnetic Tacking Machine.

No. 215,438.

Patented May 20, 1879.

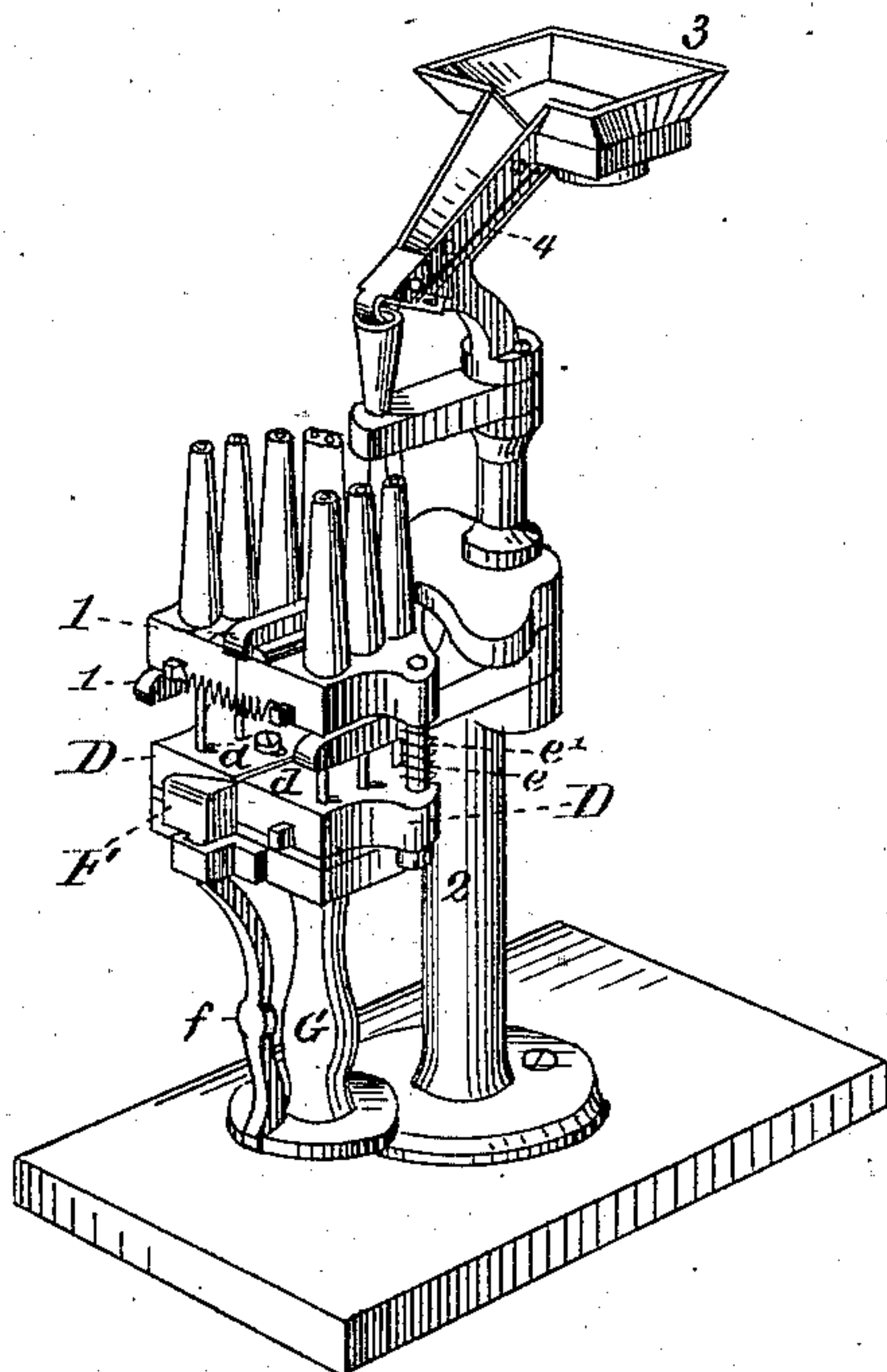


Fig. 1.

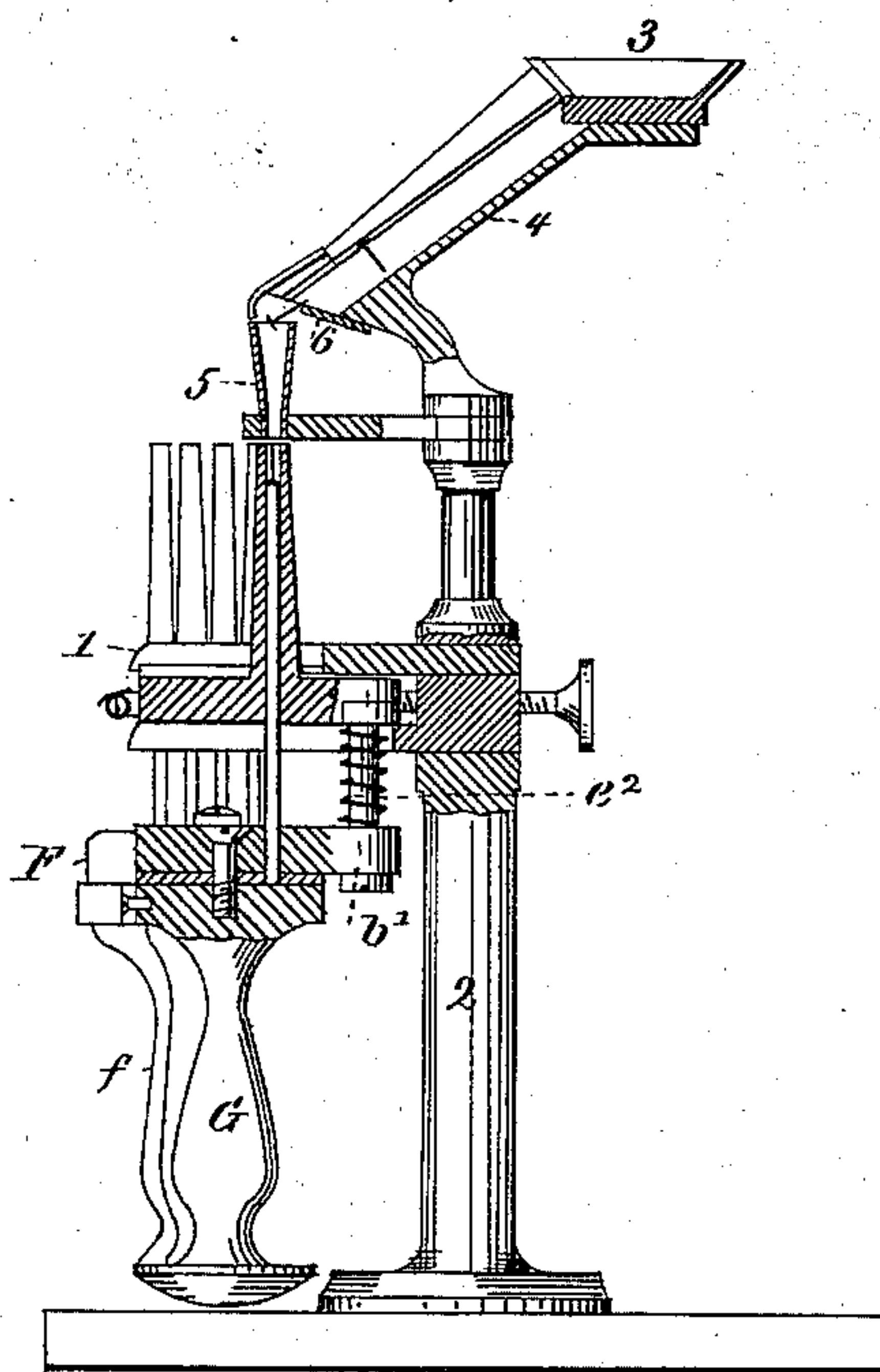


Fig. 2.

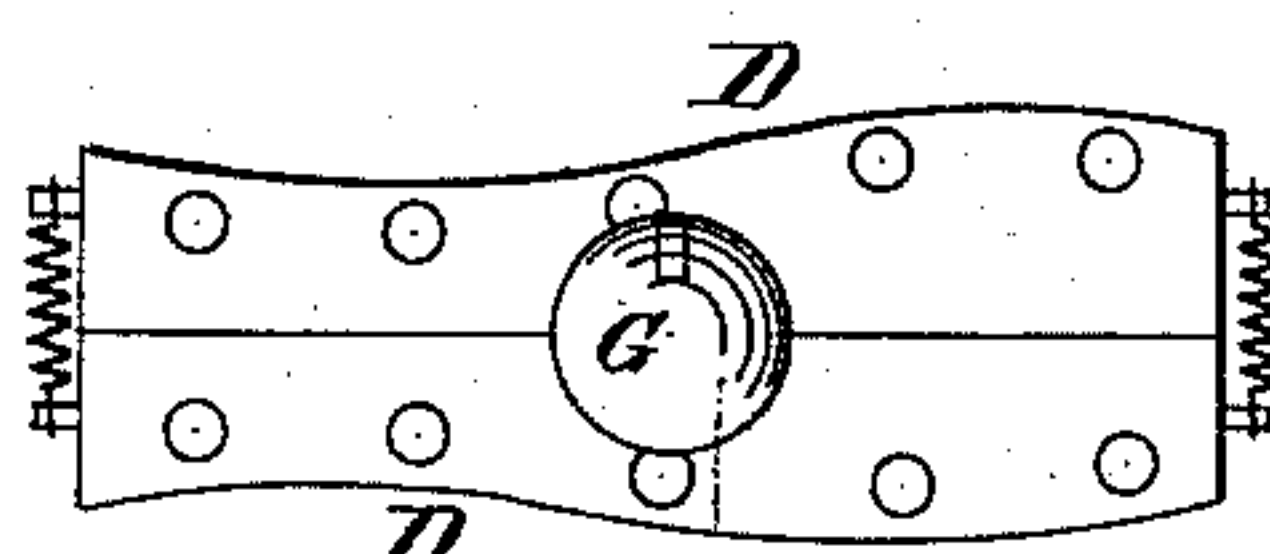
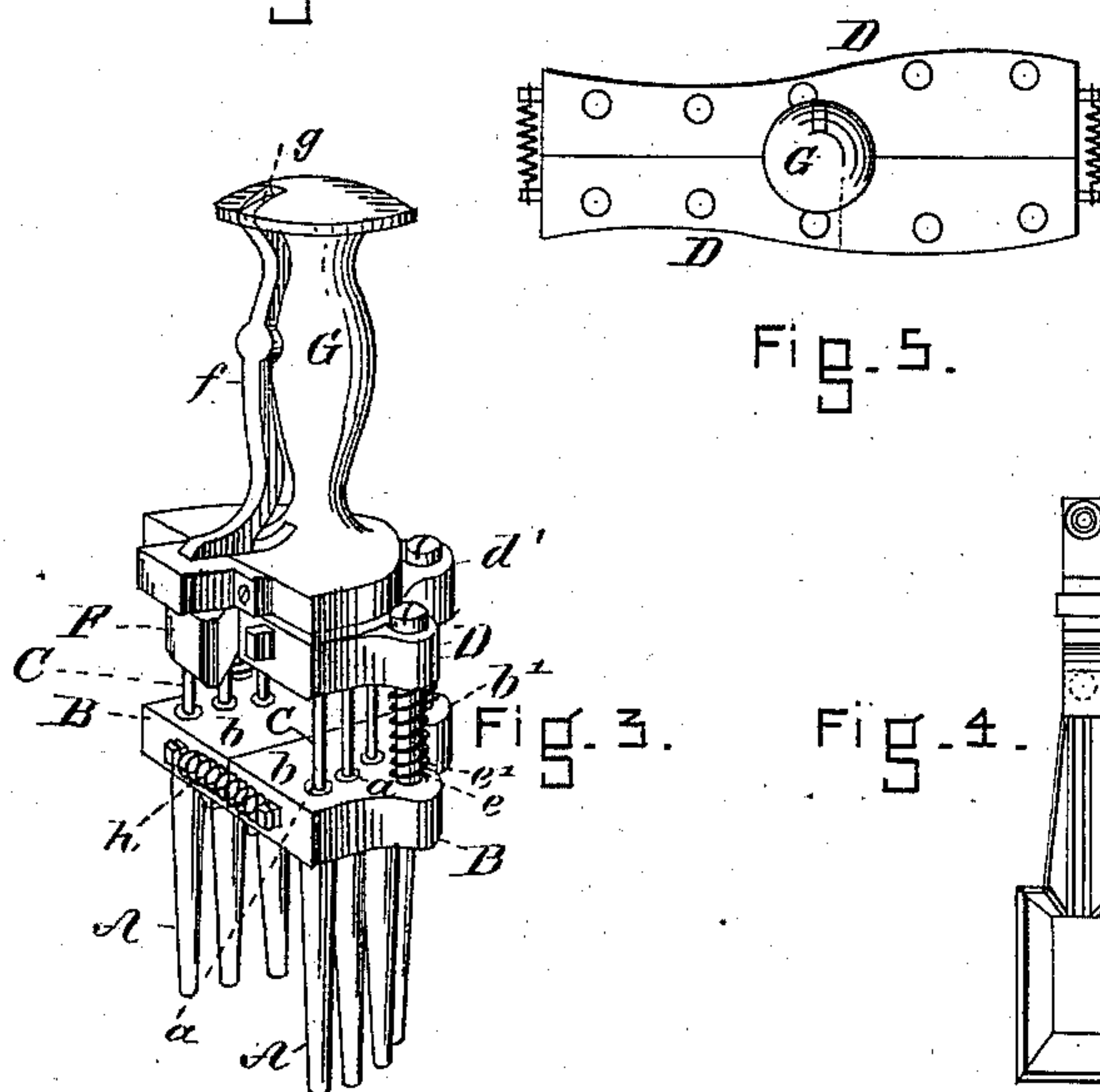


Fig. 5.

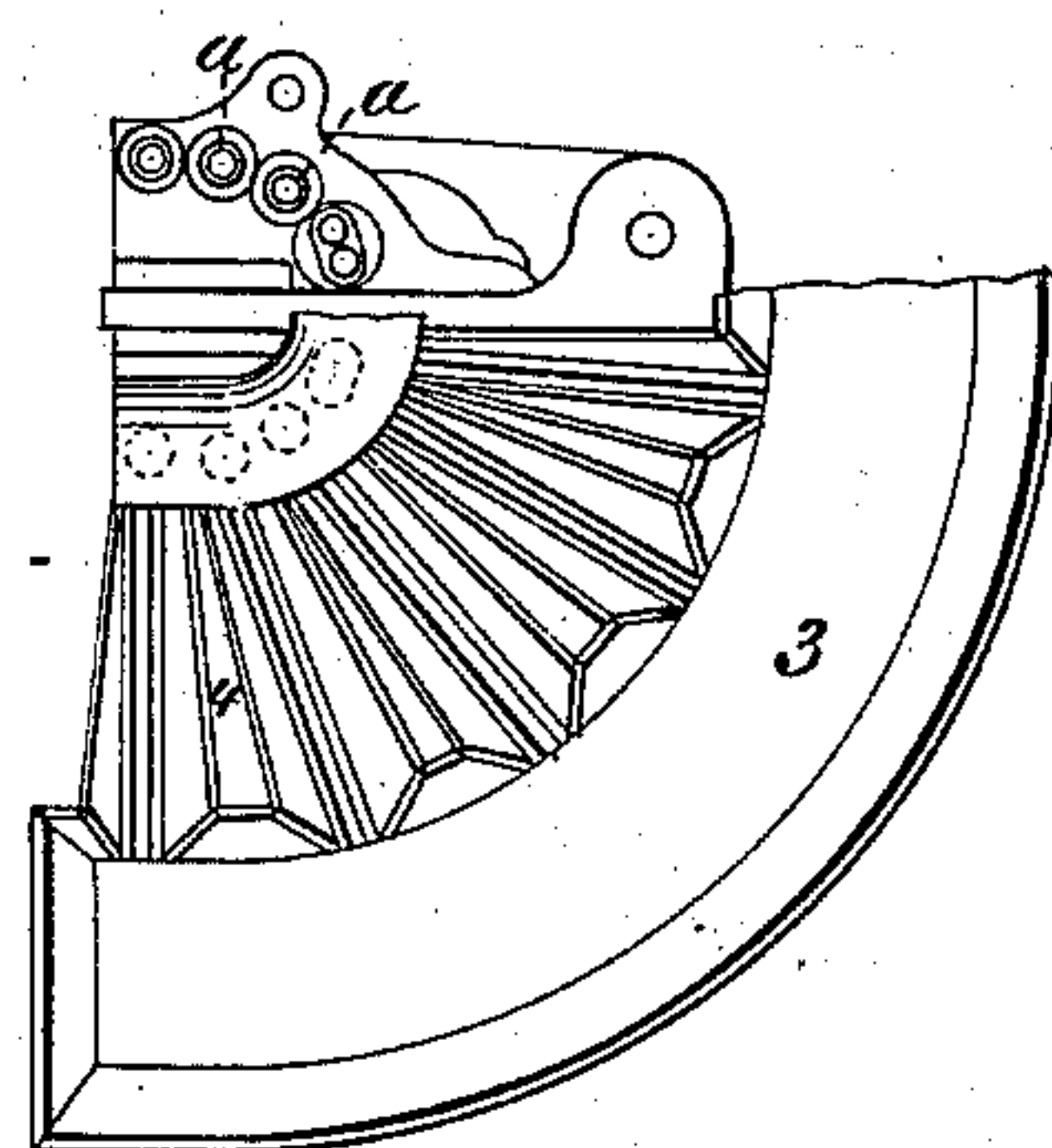


Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE W. COPELAND, OF MALDEN, AND MATTHIAS BROCK, OF BOSTON, MASSACHUSETTS, ASSIGNORS TO THE COPELAND LASTING MACHINE COMPANY, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN MAGNETIC TACKING-MACHINES.

Specification forming part of Letters Patent No. **215,438**, dated May 20, 1879; application filed January 31, 1879.

To all whom it may concern:

Be it known that we, GEORGE W. COPELAND, of Malden, in the county of Middlesex, in the Commonwealth of Massachusetts, and MATTHIAS BROCK, of Boston, in the county of Suffolk, in said Commonwealth, have invented an Improvement in Magnetic Tacking-Machines, of which the following is a specification.

This invention relates to the class of devices known as "group or gang tacking machines;" and has for its object the use of magnetized driving-rods in such a machine and means for feeding tacks thereto.

We have illustrated our invention as applied to a machine for driving the tacks necessary in securing the edge of an upper to the insole at the toe and heel in the process of lasting the uppers of boots and shoes.

Reference is made to the accompanying drawings, forming part of this specification, in explaining the nature of our invention, in which—

Figure 1 represents a perspective of the tacking-machine inverted, and a portion of the feeding mechanism in the act of feeding. Fig. 2 is a vertical section thereof. Fig. 3 is a perspective of the driving mechanism. Fig. 4 is a plan of a portion of the feeding mechanism, and Fig. 5 shows the application of the driving mechanism to a side-group tacking-machine.

The nozzles A of the tacking-machine project downwardly from the supporting-plate B, which is made, for the purpose of adjustment, in the two parts *b*, hinged at *b'* to the rod *e*².

The driving-rods C are fastened to plate D, also consisting of two adjustable parts, *d*, hinged at *d'* to the rod *e*². This last-named plate, carrying the drivers, is arranged immediately over the nozzle-supporting plate, and is fastened thereto by the rods *e* *e*², upon which the upper plate has a vertical movement in opposition to the springs *e*¹, surrounding the said rods between the plates. The driving-rods C are fastened to the plate D, so as to correspond in position with the holes *a* in the plate B, which open into nozzles A, in which the said driving-rods play.

A wedge, F, is operated by the lever *f*,

forming one side of a portion of, and pivoted at *g* to, the handle G, which is rigidly fastened to one part of the plate D, to open or separate the two plates D and B against the stress of spring *h*, for the purpose of the adjustment herein described.

The nozzles A may be provided with a sharp spur or point projecting downwardly from their lower ends. In such case the tacking-machine may be used in the lasting process by opening or spreading the nozzle and driving-rod plates, placing the machine thus open upon the margin of the upper, then closing the same to draw the edge of the upper over upon the insole by the converging of the nozzles.

The lower ends of the driving-rods are magnetized.

For the purpose of feeding the tacking-machine with tacks, we show a feeding mechanism which presents tack-heads downward to each driving-rod upon the presentation of the inverted tacking-machine or nozzles and magnetized driving-rods thereto.

The construction of this feeding device is shown in Fig. 1, and is therein represented in connection with one nozzle.

In Fig. 4, in plan, we show the feeding device so constructed that a separate chute is provided for each nozzle of the tacking-machine, so that upon its proper presentation to the feeding mechanism each nozzle will be connected with a feeding-tunnel.

The tacking device during the feeding operation is supported upon the vertically-adjustable arms or brackets 1, which project from the standard 2. This standard also supports the tray 3, which opens into the inclined chute 4, leading from said tray to the tunnel 5.

A tripping device, 6, is arranged at the end of the chute just above the entrance to the tunnel, consisting of a plate or bar placed across the lower end of the chute in such a manner that the lower portion of the shank of a descending tack shall strike the same, and by its contact therewith be so tripped that it will fall head foremost through the tunnel and upon the end of the magnetized driver.

Each chute employed has a recess extend-

ing its entire length, of a width somewhat greater than the thickness of the shank of the tack, and a narrow way upon each side of the recess, upon which the head of the tack is supported in its descent. From these ways the sides of the chute diverge upwardly and outwardly.

By this construction the chute automatically adjusts a tack in its descent, point downward, with the shank in the recess, and with the head supported upon the ways.

In the operation of loading the tacking-machine, a tack for each nozzle is fed into each chute, and is thereby automatically adjusted, tripped, and guided head first to the end of the magnetized drivers. The tacking device is then removed from its feeding mechanism, and adjusted by the use of the wedge to the width of the last at the toe or heel upon which the tacks are to be driven, and it is then placed so that the nozzle shall rest upon the margin of the upper, in proper position in relation to the edge of the insole. A single downward movement of the handle or plate D, carrying the driving-rods, will drive the tacks simultaneously.

Substantially the same device can be used for a side-tacking machine, with such variations in the shape of the nozzle and driving-rod plates as shall cause them to correspond with the contour of the last's bottom.

We do not confine ourselves to the use of magnetic group-tacking machines as herein set forth, but may use them for any purpose when it is desirable to drive two or more tacks simultaneously.

We are aware that the patent to Rochow, No. 164,332, granted June 8, 1875, shows and describes a feeding attachment for nailing-machines, consisting of an inclined pan, in which the nails slide by gravity to a feed-wheel, a feed-wheel for throwing the nails from the pan into an inclined chute, and a reciprocating conveyer for separating the nails and delivering them from the chute into a vertical tunnel; but the same is not the spirit of our invention.

We are further aware that Letters Patent No. 176,268, granted B. Bevelander, assignor to the Globe Nail Company, of Boston, April 18, 1876, shows and describes a complicated device for feeding nail-blanks from a hopper, for selecting and separating them in their descent to the tunnel leading to the revolving dies, and for turning head downward such as have been properly selected, consisting in a vertically-reciprocating lifter, which, at each reciprocation, removes one or more blanks from a mass in a hopper, and deposits them in a second hopper, from which they are raised singly by a selector and deposited upon an inclined chute, down which they slide until arrested by a detainer; in an inclined chute, a detainer, which, upon being withdrawn, allows the blanks which have their flat sides against the table to slide down a way, said way, a gage, a movable stop for arresting the

descent of the nail, which, upon being removed, allows the lowermost blank to fall upon a knife-edged bar in a guide-tube, a presser-foot for assisting in regulating the feed, a knife-edged bar, a guide-tube, devices for removing the improperly-positioned blank above the gage, and mechanism for operating the entire machine, as indicated; but we do not employ or claim such a combination of elements.

Having thus fully described our invention, we claim and desire to secure by Letters Patent of the United States—

1. An apparatus for loading, placing, and driving tacks, consisting of two parts—the one to load, the other to transport, place, and drive—wherein the loading-tool consists, essentially, of one or more chutes adapted to deliver the tacks head down into the nozzles of the driving-tool placed beneath them, and the driving-tool consists, essentially, of a series of magnetized driving-bars adapted to be reciprocated within a series of nozzles, in combination with such a series of nozzles, whereby the driving-tool is adapted to be placed vertically, nozzle side up, beneath the chutes, and, after receiving its load of tacks, to be reversed, put into position without dropping its tacks, and to be employed for setting the tacks, substantially as described.

2. In a magnetic gang-tacking machine, the combination of the adjustable plate B, carrying the series of nozzles A, with the adjustable plate D, carrying the group of magnetized driving-bars C, with suitable connecting mechanism, all arranged to operate substantially as described.

3. The combination of the plates B D, rods *e*, and springs *e*¹, all arranged to operate substantially as described.

4. The combination of the hinged plate D with the wedge F, lever *f*, and handle G, all arranged to operate substantially as described.

5. An apparatus consisting of two separate tools, wherein one of the tools is adapted to deliver tacks one by one from its end, in a vertical position, to the delivery nozzles or ways of the driving-bars, beneath the driving-bars of the other when said driving-bars are retracted, and the other of said tools consists, essentially, of a series of nozzles, A, a series of driving-bars, B, adapted to be reciprocated along the axis of said nozzles, and suitable means of reciprocating the same, whereby in the operation of the apparatus each nozzle is adapted to be loaded with one tack by the loading device, and the driving-tool is adapted to be then removed from the loading-tool, put in position for setting the tacks, and the tacks then driven, substantially as described.

6. In a device for feeding tacks to magnetic tacking-machines, the standard 2, carrying the adjustable arms or brackets 1, for supporting the inverted tacking-machines, one or more tunnels, 5, one or more chutes, 4, each having a tripping device, and one or more

trays, 3, all arranged to operate substantially as described.

7. A tack-feeding device consisting of a horizontal pan, an inclined chute opening from the side of said pan and provided with a central groove, in which the tack automatically assumes a position point downward, and a stationary tripping-bar across the end of said chute, adapted to strike the point of a tack and throw it head foremost into a vertical tun-

nel at the end of said chute, below said tripping-bar, all arranged to operate substantially as described.

Witness our hands this 18th day of January, A. D. 1879.

GEO. W. COPELAND.
MATTHIAS BROCK.

Witnesses:

F. F. RAYMOND, 2d,
GEO. F. WALKER.