

F. A. Gleason.

Nail Machine.

Patented Jan. 5, 1869.

N^o 85,522.

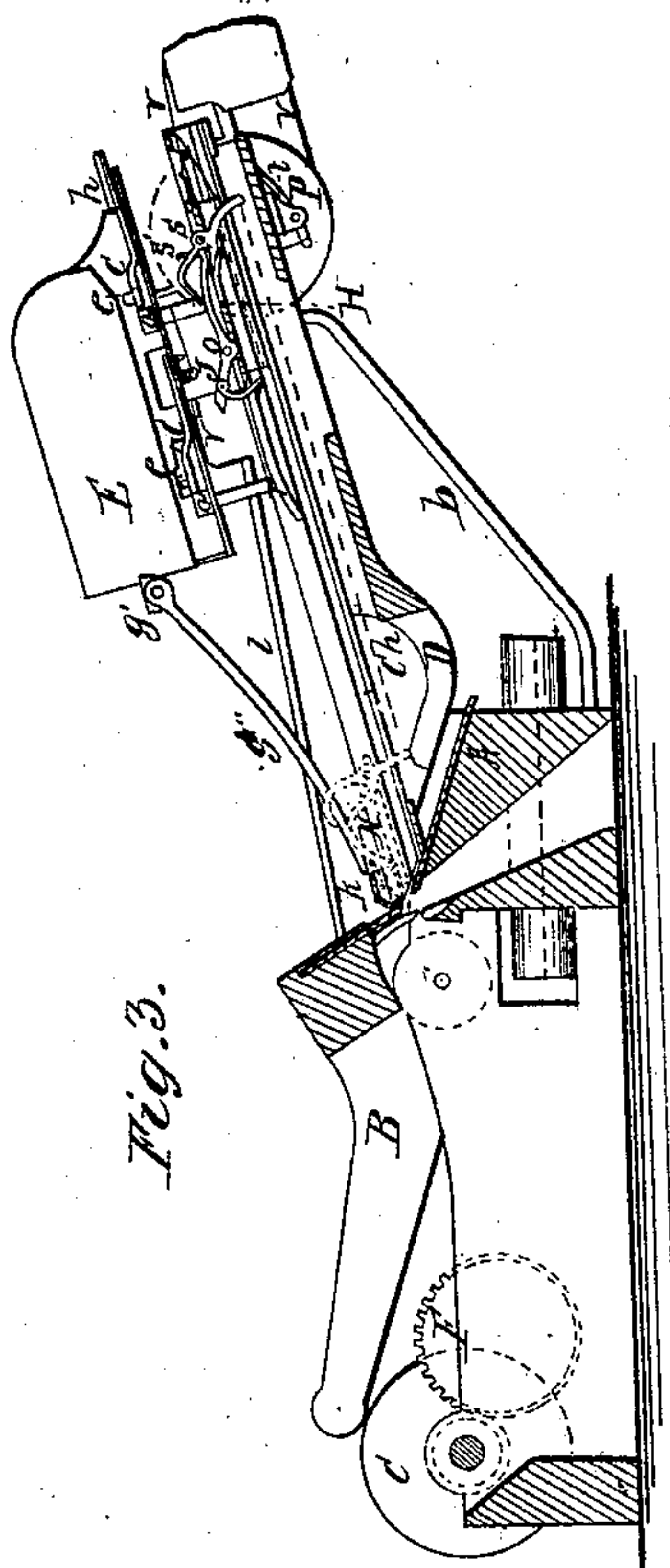


Fig. 3.

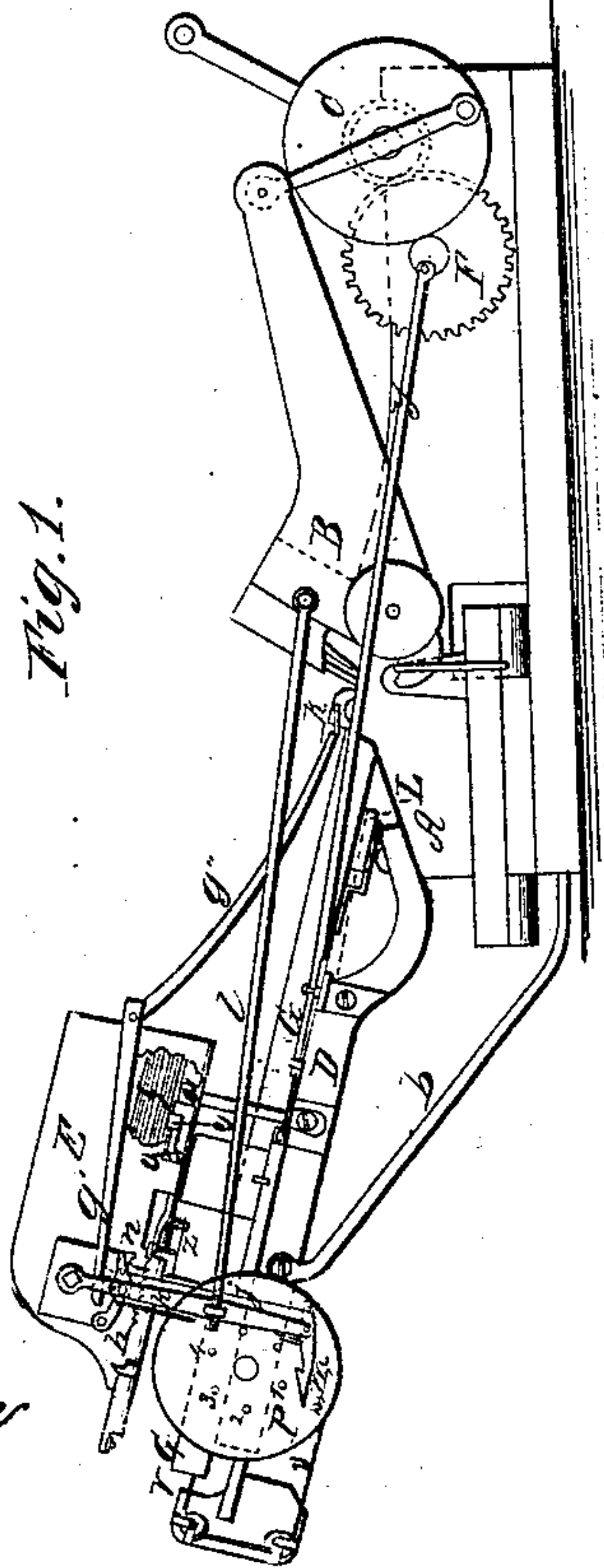


Fig. 1.

Fig. 4.

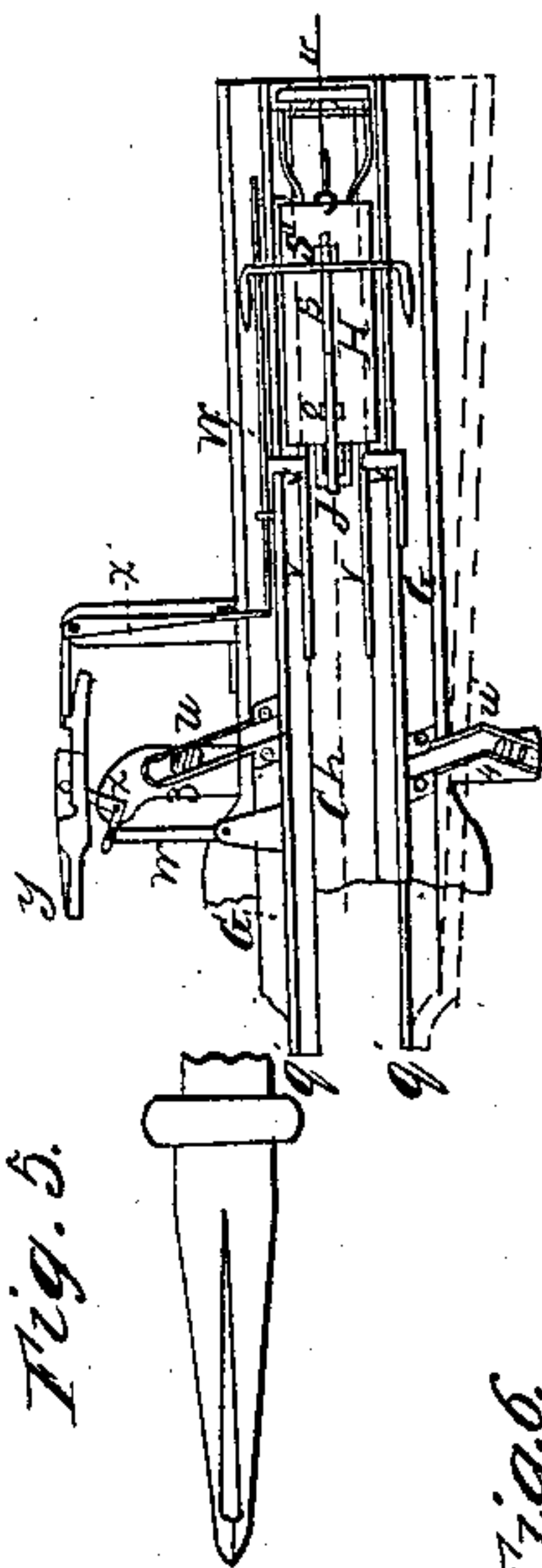
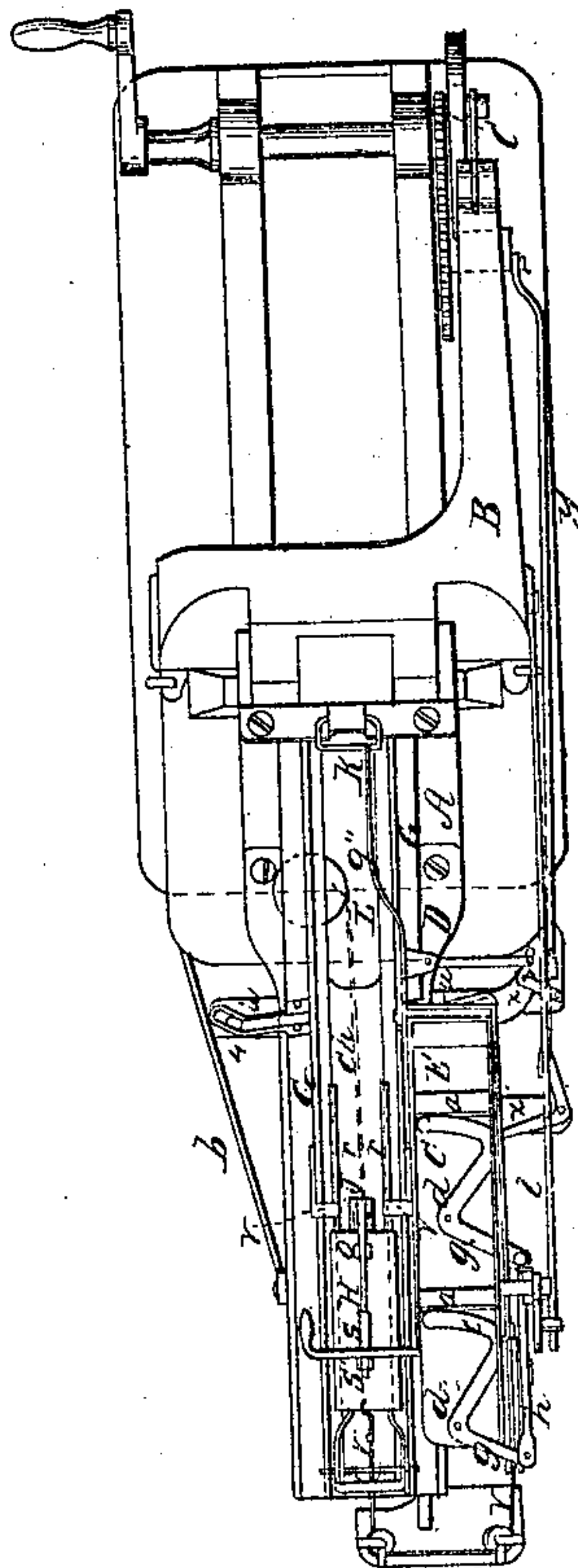


Fig. 5.

Fig. 6.



Witnesses
W. H. Smith
J. C. Smith

Inventor.
 Franklin A. Gleason.

United States Patent Office.

FRANKLIN A. GLEASON, OF BROOKLYN, NEW YORK.

Letters Patent No. 85,522, dated January 5, 1869.

IMPROVED NAIL-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FRANKLIN A. GLEASON, of Brooklyn, in the county of Kings, and State of New York, have invented a new and useful Improvement in Self-Feeding Nail-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation;

Figure 2, a plan;

Figure 3, a vertical section; and

Figure 4, a plan of feeder, with plate-box removed.

So far as I have been able to ascertain, self-feeding nail-machines heretofore made may be divided into two general classes: first, such as feed the plates in, one immediately after another, cutting up and carrying through the entire plate; second, those that feed by a nipper, which holds the plate by one end, retaining the scrap, which is within it, which must be thrown out before another plate is inserted.

To the first, serious objection is made, because, at the last end of each plate, a scrap, of the width of one and a half or two nails is liable to go in entire, endangering the cutters and heading-apparatus. The second requires an attendant to throw out the scrap and put in another plate, consequently is not labor-saving.

To obviate these objections is the intention of my improvement, the nature of which consists in providing a jointed nipper, which opens and closes by mechanical device, feeds the plate in, retaining the scrap until it is drawn back to the place of starting, where the nipper is opened, the scrap thrown out, and another plate delivered from a plate-box above, which the nipper grasps and feeds in as before.

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

The nail-machine, A B C, in its internal construction and operation, is similar to those in common use, and therefore is not represented in the drawings, differing only in being more compact in form, which admits of material diminution of weight, without loss of strength.

Upon the cutter-bed A is bolted one end of the feeder-table D, the opposite end being supported by the braces b b.

A plate-box, E, rests upon two uprights, which are bolted to the side of the table D.

In the bottom of the box are two blocks a a, upon which the plates f, fig. 1, are laid.

Beside these blocks are two plate-carriers c c, whose movements describe arcs from the centres d d.

These plate-carriers have each a spring-hook e e, fig. 3, which rise sufficiently above the top of the blocks to catch the edge of the lowest plate.

The arms g g of the carriers are connected by the ratchet-bar h, which is operated by the pawl i, which is carried by the vibrating lever k.

This pawl is angular at the back end, and held either up or down by a spring.

When thrown up, it holds the pawl m by the wire j, also the stop-pawl n, and by it the stop-pawl t, behind the pulley P, fig. 3.

The pawl m operates the grooved pulley P by the pins 1, 2, 3, &c.

The vibrating lever k is operated by the rod l, which connects it with the cutting-lever B.

G G are the sides of the plate-holder, set parallel to each other, and connected at the ends, leaving an open space between them.

Figure 6 shows a transverse section.

These sides are channelled, and serve as ways for the nipper-slide H, which carries the nipper J.

L is a barrel containing a main-spring, and connected by a chain, c h, to the lower arm of the lever s, which has the action of a lever and cam combined.

The nipper is constructed of two levers, instead of the spring-jaws in common use, represented in Figure 5, the lower one being fixed to the slide H, and the upper one movable, being hinged together at o, the long arm extending back, and connecting with the cam-lever s.

Between the jaws of the nipper is a stop, hinged to the upper one, having a notch at the lower end and a spring behind, which, when the nipper is opened, throws the stop forward, and prevents its closing.

A detent is hinged to the back end of the plate-holder, whose arms r r extend toward the other end, so that the nipper-slide, in being drawn back, passes over them.

Being held upward by a spring, the notches catch the forward end of the nipper-slide, holding it until released, as hereafter shown.

A cord, v v, fixed to the nipper-slide, and passing around the guide-pulleys, connects it with the pulley P.

On each side of the plate-holder is a channelled guide, one of which, u, is straight in form, but inclining from a right angle sufficiently to bring both ends, as near as may be, equidistant from the lower end of that side of the plate-holder at q, fig. 4.

The other guide, u', is bent, the part which joins the holder being set at the same angle as the one on the other side, but in the opposite direction.

The other part should describe an arc, whose centre is the point q'.

In the channels of these guides are studs, 3, 4, which are fixed in the feeder-table.

The plate-holder is, by the connection w, elbow x, and rod y, connected to and operated by an eccentric or crank-pin on the gear-wheel F.

The gear is so adjusted that the cut is made when the eccentric or crank-pin is passing the centre, the holder being at that time stationary.

A lever, g'', extends from the hinged bar K up to the plate-box, where it joins another lever, g', which passes across the end of the plate-box, and backward upon the opposite side, above the pawl i, where it has a notch.

The lever g'' is sufficiently heavy to overbalance the lever g' .

Its operation is as follows:

The nipper, being closed, passes down under the cap, as represented by the dotted lines at N, fig. 3, lifts the hinged bar K, which lifts the lever g'' . This lets fall the lever g' , fig. 1, catching (by a notch upon its upper side) the pawl i .

The machine being in motion, the vibrating lever k moves backward, or to the left, which throws down the pawl i upon the ratchet-bar h .

The next motion being forward, the ratchet-bar is carried one tooth, where it is held by the stop-pawl n . This being repeated, the lowest plate in the box is carried out through an opening at the bottom in the opposite side.

The forward motion of the pawl i , in the last tooth of the ratchet-bar, brings the point h so close behind a notch on the bottom of the pawl, that the next backward motion throws it up, carrying with it the stop-pawl n , releasing the ratchet-bar, which is thrown back by the spring z , bringing back also the plate-carriers from under the plate, letting it drop into the plate-holder.

Simultaneous with the operation above described, the pawl m catches pin 1 of the pulley P, carrying it forward in the direction indicated by the arrow, and being held by the stop-pawl behind the pulley, the operation is repeated as often as upon the ratchet-bar above. This winds the cord v upon the pulley P, drawing the nipper back to where it is held by the detent r .

The last backward motion of the nipper brings the cam-lever s in contact with the cross-bar s' , by which it is thrown down, the nipper opened, and the scrap thrown out, which falls through the openings in the plate-holder and table.

The drawing back of the nipper also winds up the main-spring by the chain ch .

The plate which was being brought out while the nipper was being drawn back is dropped upon the short bars V V. The lower end falling into the plate-holder, it slides down toward the cutter, until the back end, dropping off the bars, falls upon the detent-arms, forcing them down, and releasing the nipper, which, by the force of the main-spring, is drawn forward, with jaws open, until the back end of the plate strikes the stop, forcing it backward off the notch, which lets the nipper (by the action of the main-spring through the chain and cam-lever) close upon the plate and carry it forward un-

der the cap to the cutters, continuing to feed it down until the nipper gets so far down that the lever g'' is again lifted, when the whole operation is repeated, so long as any plates remain in the box.

When the nipper-slide is drawn quite back, it comes in contact with a pin in the sliding bar W, drawing it back a short distance.

This sliding bar connects with an elbow, x' , whose other arm reaches to the rod y , throwing it off the pin in the elbow x , which stops the vibrating motion of the plate-holder so long as the nipper remains there, which is only while another plate is dropping in, which releases it, and, by the spring upon the rod y , it resumes its former position.

By means of the form of the channelled guide u' , the first motion of the plate-holder is at the back end only, (see dotted lines, fig. 4,) vibrating from the point q , at the lower end, which determines the taper of the nail.

When the bend in the guide has passed the stud, any distance of motion thereafter, (which may be more or less, according to width of plate,) will be parallel. This makes the taper of the nail the same, although plates may differ in width.

Having thus described my invention,

What I claim as new, and for which I desire Letters Patent, is—

1. An arrangement of mechanism, substantially such as herein described, for automatically opening and closing the jaws.

2. In combination with the nipper and slide, the plate-holder G G, main-spring L, detent r r and bars V V, which carry the plate over the nipper before dropping it in.

3. Producing and suspending, alternately, the combined vibratory and parallel motions of the plate-holder, in the manner and by means of mechanism constructed and arranged substantially as described.

4. The plate-carriers c c , ratchet-bar h , pawls i n , vibrating lever k , rod l , and levers g' g'' , all combined with the plate-box and cutting-lever B, substantially as described.

5. The combination and arrangement, as described, of the vibrating lever k , pawls m t , grooved pulley P, and cord v for drawing back the nipper.

FRANKLIN A. GLEASON.

Witnesses:

W. HAUFF,

J. C. POLLER.