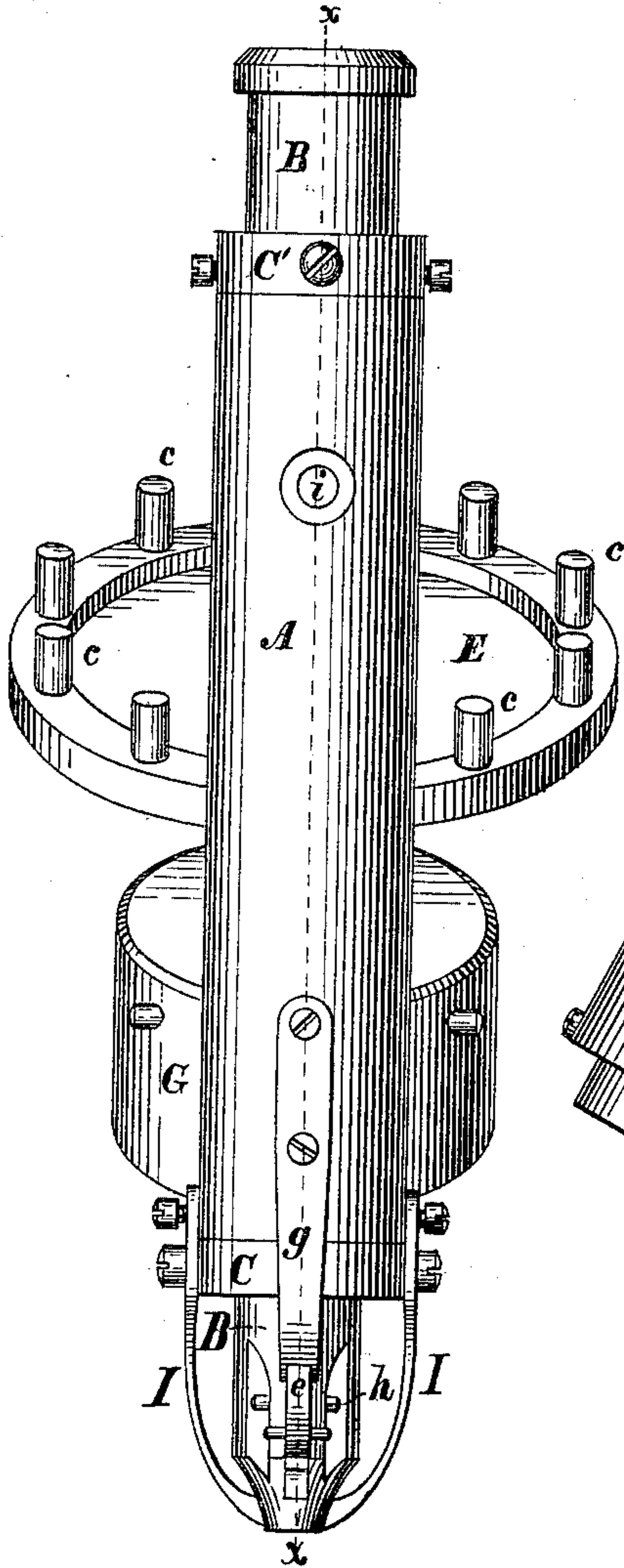


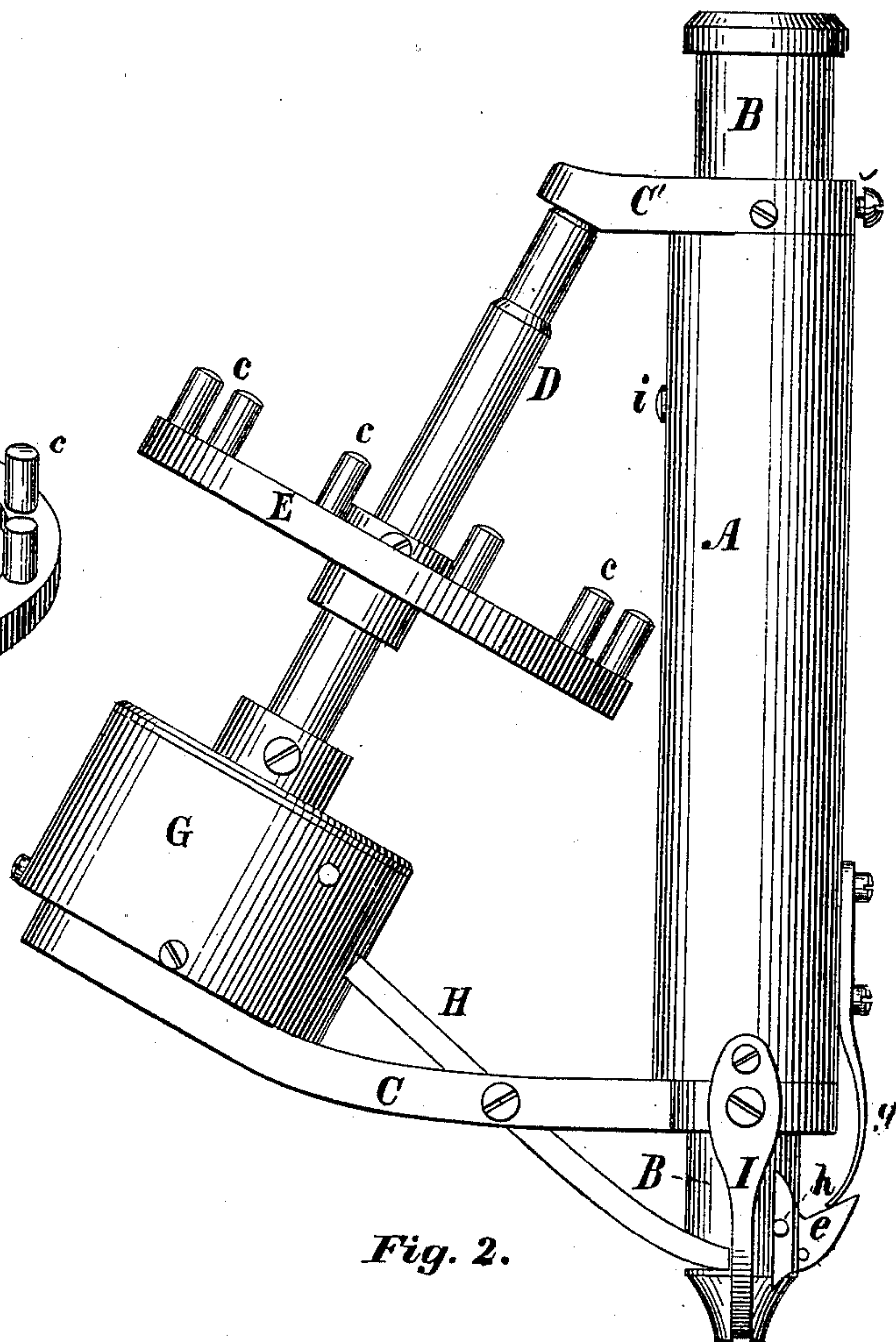
R. C. LAMBERT.  
Nailing-Machine.

No. 222,997.

Patented Dec. 30, 1879.



*Fig. 1.*



*Fig. 2.*

**Witnesses:**

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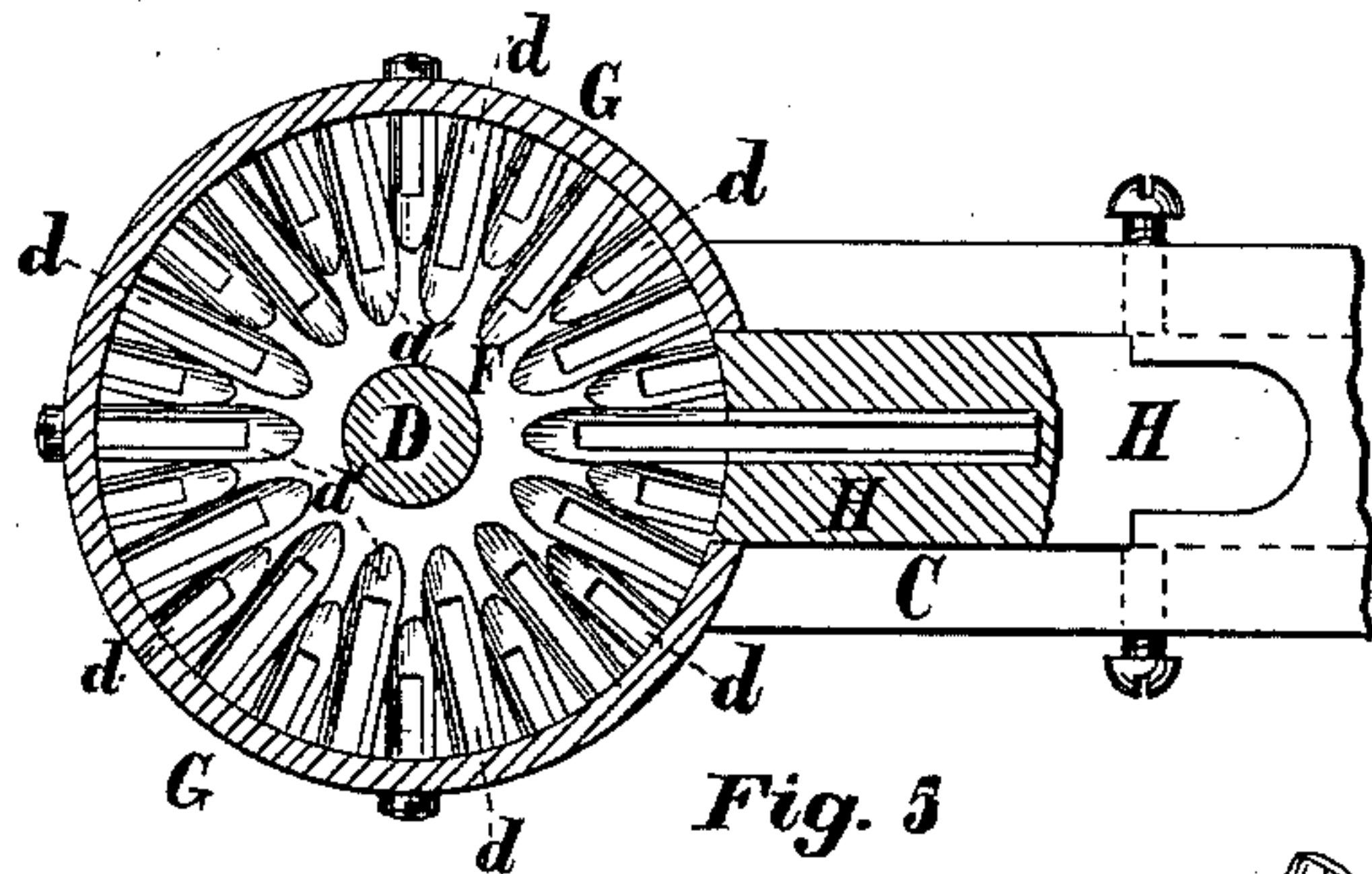


Fig. 5.

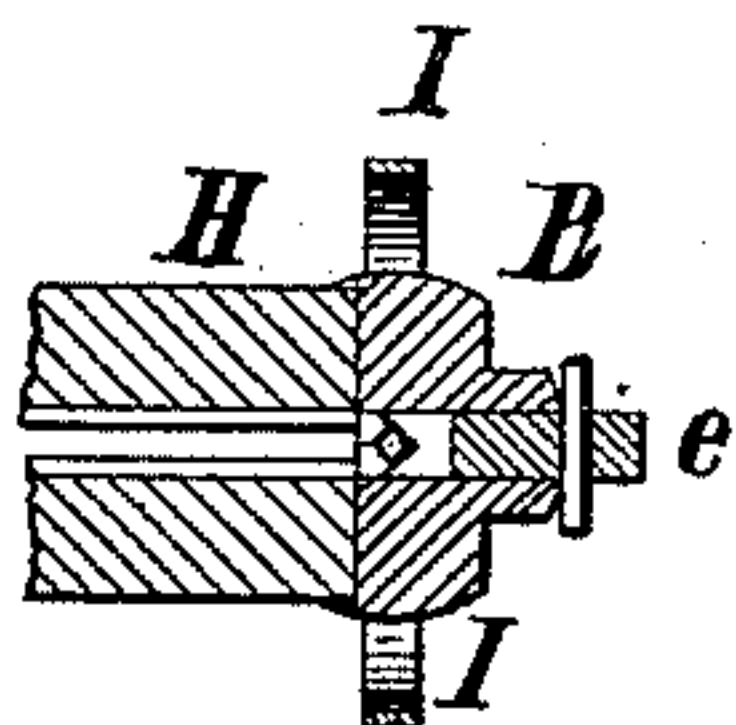


Fig. 6.

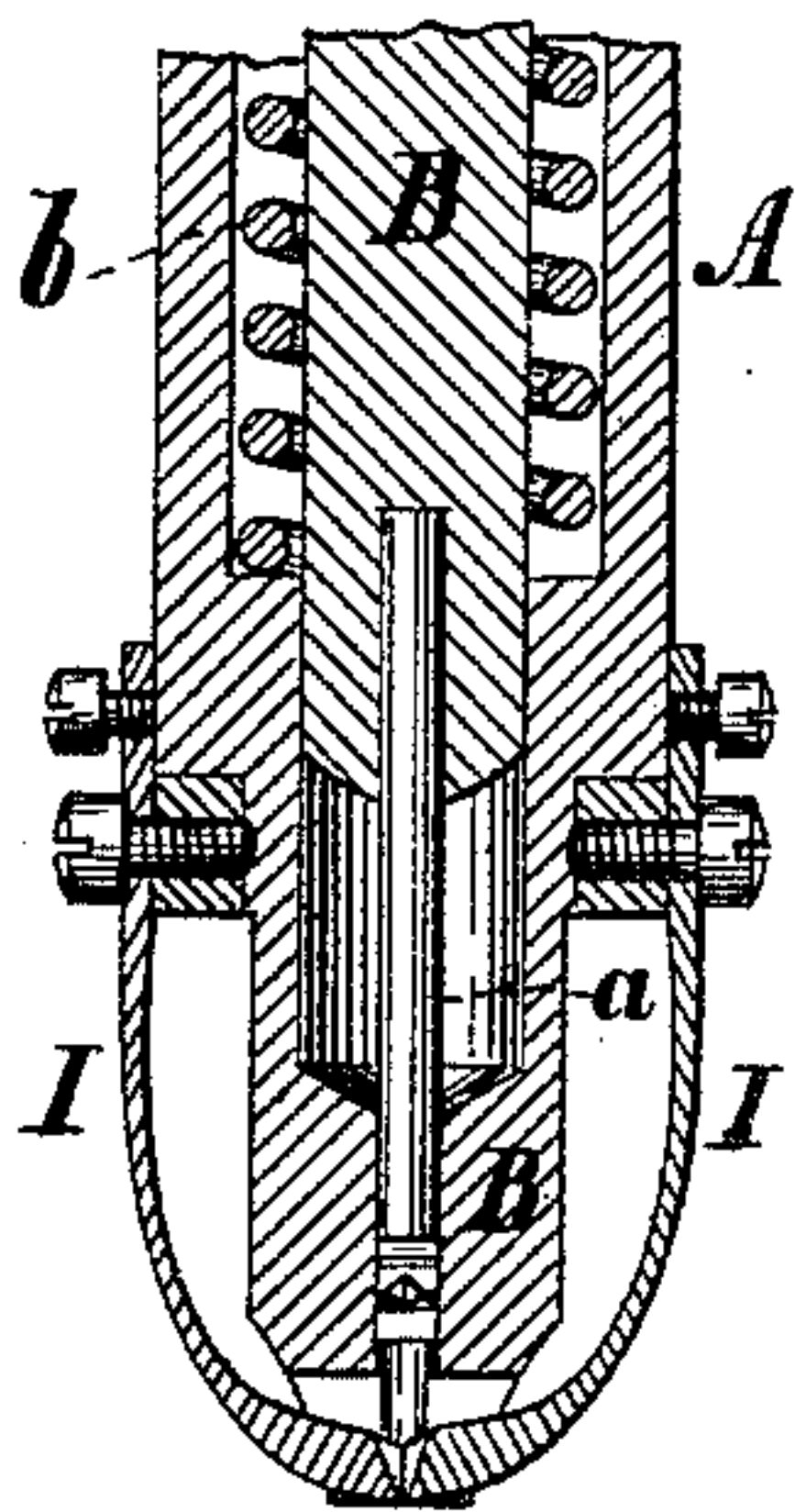


Fig. 4.

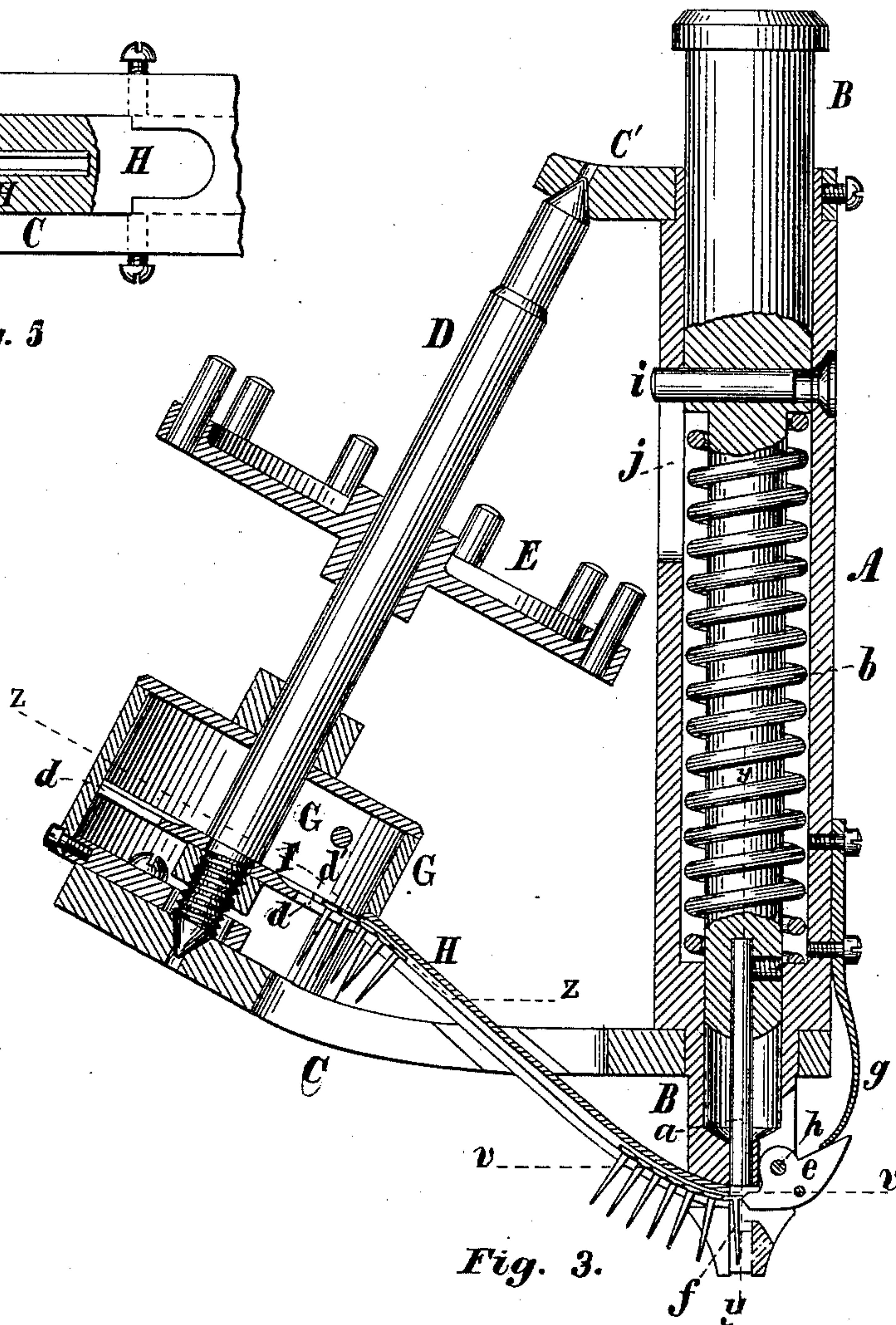


Fig. 3.

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# UNITED STATES PATENT OFFICE.

RICHARD C. LAMBERT, OF BRIDGEWATER, MASSACHUSETTS.

## IMPROVEMENT IN NAILING-MACHINES.

Specification forming part of Letters Patent No. **222,997**, dated December 30, 1879; application filed November 1, 1879.

*To all whom it may concern:*

Be it known that I, RICHARD C. LAMBERT, of Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Nailing-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of nailing-machines which are used principally in the manufacture of boots and shoes for securing the uppers to the soles, (though it may be used for other purposes,) and more especially to the devices for separating the nails and placing them in position to receive the blow of the driver; and it consists, first, in the combination, with a driving-plunger adapted to force the nail into the material to be secured, of a cylindrical hopper arranged with its axis in an inclined position, and provided with a disk having cut into its peripheral edge a series of radial slots having parallel sides, and of sufficient width to allow the free passage of the body of the nail, but not wide enough to permit the head to pass through, and having the stock around said slots cut away to allow the heads of the nails to drop below the upper surface of the disk, said disk being mounted upon a central shaft in such a manner that it is free to revolve within said hopper, an opening cut through the side of said hopper of such a shape and in such a position relative to said disk that nails may be discharged through said opening from either one of said slots as they are successively brought into conjunction therewith, as will be further described.

It further consists in the combination of a vertically-reciprocating driving-plunger, a cylindrical hopper arranged with its axis in an inclined position, and provided with a movable bottom having a series of radial slits cut in its peripheral edge, an opening through the side of the hopper so located relative to said bottom of the hopper and of such shape that nails suspended in either of said slots may be discharged through said opening, and an inclined chute leading from said opening to a point in close proximity to the driver, whereby the nails discharged from the hopper

may be conveyed to a position to be struck by the driver in its descent and be driven into the material.

It further consists in the combination of a cylindrical hopper arranged with its axis in an inclined position, a slotted bottom adapted to be rotated therein, and an operating-wheel mounted upon the shaft of said rotating bottom, arranged in position to be operated by the finger or thumb of the hand which holds the instrument in position for operation.

It further consists in the combination, with a vertically-reciprocating driving-plunger and an inclined chute for conveying the nails from the hopper to the setting-tools, of a pivoted stop placed at the lower end of said chute, and having its end toward the chute forked or notched, so as to partially surround the lower or forward nail in the line descending the chute, said stop being held in its normal position by a spring, which yields when the driver descends, to allow said stop to vibrate about its pivot and release the nail, and allow it to be carried downward by the driver.

It further consists in the combination of a vertically-reciprocating driving-plunger, an inclined chute for conveying the nails from the hopper to the setting-tools, a pivoted and forked or notched stop to limit the forward movement of the nail descending the chute, and a pair of spring guide-fingers arranged to bear upon opposite sides of the nail being driven at right angles to the plane of movement of the nail descending the chute and of the pivoted stop, as will be described.

In the drawings, Figure 1 is a front elevation of a tool embodying my invention. Fig. 2 is a side elevation. Fig. 3 is a vertical section on line *x x* on Fig. 1. Fig. 4 is a partial vertical section on line *y y* on Fig. 3. Fig. 5 is a section on the irregular line *z z* on Fig. 3, and Fig. 6 is a section on line *v v* on Fig. 3.

A is the tubular handle and frame of the machine, in which is mounted the driving-plunger B, carrying in its lower end the steel driving-tool *a*, and surrounded by the spring *b*, which serves to raise the driver after it has been depressed and hold it in such raised position till it receives another blow.



C and C' are two brackets or arms secured upon the tubular handle A, and forming at their outer ends bearings for the inclined shaft D, having secured thereon the wheel E, in the outer rim of which are set a series of upwardly-projecting pins, *c c*, by means of which said wheel and its shaft may be intermittently revolved by the thumb or finger of the operator's hand, in which he holds the tubular handle A in presenting it to the work.

F is a thin circular disk, firmly secured upon the shaft D, and having cut through its peripheral edge a series of radial slots, *d d*, of such a width as to allow the passage of the body of the nails placed thereon, but too narrow to permit the heads of the nails to pass through, said disk being made of a diameter to just fill and revolve freely within the stationary cylindrical hopper G, which is made fast upon the arm C, and has cut through one side thereof an opening sufficient to allow the free passage of a nail suspended by its head in a position substantially parallel with the axis of said disk and hopper, at which point is secured one end of the inclined chute H, the opposite end of which is attached to the tubular handle A, near its lower end, through the side of which is cut a slit through which the nail may pass from the chute to a position beneath the driving-tool *a*.

Directly opposite the lower end of the chute H is pivoted to the tube A the short lever *e*, the inner end of which is notched, as shown in Fig. 6, so as to partially surround the body of the nail and support it by its head when it has left the chute and is in position beneath the driver, as shown at *f* in Fig. 3, the outer end of said stop-lever being acted upon by the spring *g* to maintain said stop in its normal position, with the upper surface of its inner arm on a level, or nearly so, with that portion of the lower end of the chute H upon which the under side of the nail-head bears, so that the nail will slide directly from the chute onto the lever *e*, where it is held suspended till the driver comes in contact with its head and forces it downward, when the lever *e* is made to move about its pivot-pin *h* against the tension of the spring *g*, till its inner end swings from under the nail-head and out of the path of the driver *a*, in which position said lever is held by the driver till the driver rises above it, when the tension of the spring *g* causes it to assume its normal position again, ready to receive the next nail in the column or line descending the chute, which has been held back by said driver while making its descent and rising again, but is now released by the lower end of said driver rising above the head of the nail.

I I are a pair of spring guide-fingers attached to the tube A, upon opposite sides thereof, the lower ends of which play into slots formed in the lower end of said tube at right angles to the slot through which the nails enter the tube from the chute, said

spring-fingers serving to direct the nail in its downward motion while being driven till its point has entered the material, when they spring apart to allow the head of the nail to pass.

The nails to be used are placed in the hopper G in bulk, resting upon the slotted disk F, and as said disk is intermittently moved about its axis, more or less of the nails fall through the slots *d d*, and hang therefrom by their heads, and whenever one of said slots *d d*, which have nails suspended therein, comes in line with the upper end of the chute H, the nails contained in said slot will be discharged into the chute to aid in keeping up the supply of nails to the driver.

The driving-plunger in the tool shown is designed to be driven downward by a blow from a hammer in a well-known manner, and is guided and kept from turning in the tube A by the pin *i* set in said plunger, and projecting into the slot *j* in the side of said tube, said pin and slot also serving to limit the upward movement of the plunger.

It is obvious that my improvements are equally applicable to machines in which the driver is operated automatically, and therefore I do not wish to limit myself to their use in a hand-tool, so called.

The upper surface of the disk F, immediately contiguous to the slots *d d*, is cut away to a sufficient depth to allow the heads of the nails to drop below the upper surface of said disk, as shown at *d' d'*, so that nails lying across said slots will not prevent the nails suspended therein from sliding out into the chute, which is a very important item.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a machine for separating and driving nails, of a fixed or stationary cylindrical hopper, having a slot cut through its cylindrical wall, adapted to permit the passage of a nail sidewise, and a movable bottom or disk, having a series of radial slots cut in its peripheral edge, and adapted to be rotated within said hopper, substantially as and for the purposes described.

2. In an apparatus for separating nails, the combination of the hopper G, provided with an opening through its side for the passage of a nail, and placed in an inclined position, the radially-slotted movable bottom F, adapted to be rotated within said hopper, and the inclined chute H, adapted to convey the nails successively from said hopper to the point where they are to be used, substantially as and for the purpose described.

3. The combination of the driver B *a*, the fixed cylindrical hopper G, placed in an inclined position, and provided with an opening for the passage of a nail therefrom, the radially-slotted movable bottom F, and the inclined chute H, leading from said hopper to a point beneath the driving-plunger, substantially as described.



4. The combination of the hopper G, slotted movable bottom F, shaft D, and operating-wheel E, all arranged and adapted to operate substantially as and for the purposes described.

5. The combination of the driver B *a*, inclined chute H, pivoted stop-lever *e*, having its inner end forked or notched, as shown, and the spring *g*, all arranged and adapted to operate substantially as described.

6. The combination of the driver B *a*, the inclined chute H, pivoted stop-lever *e*, having its inner end forked or notched, as shown, the spring *g*, and the two spring guide-fingers I I, all arranged and adapted to operate substantially as described.

7. The combination of the stationary and inclined hopper G, provided with an opening in its side for the discharge of the nail, and the movable bottom F, provided with a series of radial slots cut into its peripheral edge, and channeled or cut away around said slots, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 30th day of October, A. D. 1879.

RICHARD C. LAMBERT.

Witnesses :

C. H. DODD,  
N. C. LOMBARD.