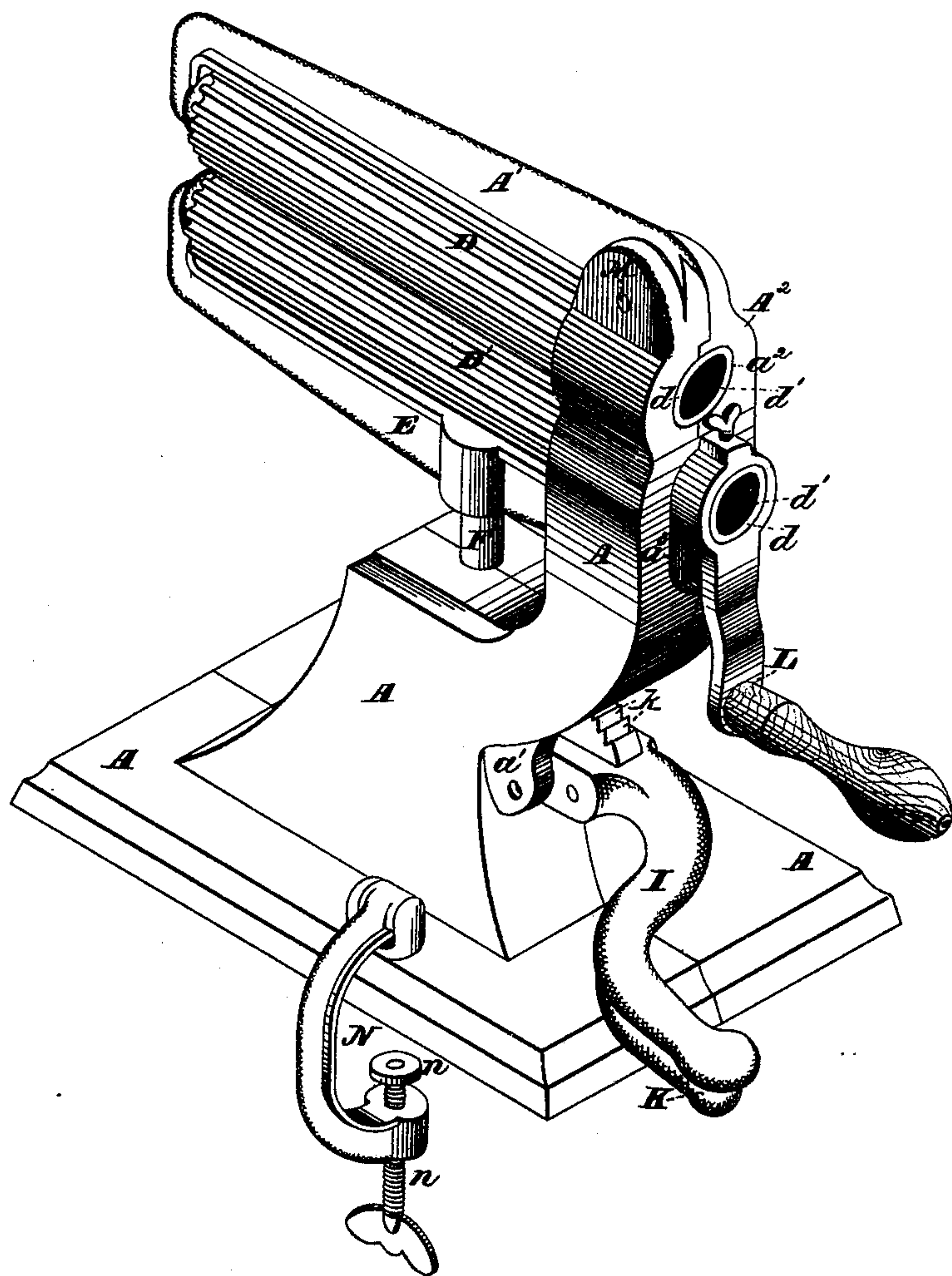


J. E. DONOVAN.  
Fluting-Machine.

No. 220,586.

Patented Oct. 14, 1879.

Fig. 1.



WITNESSES

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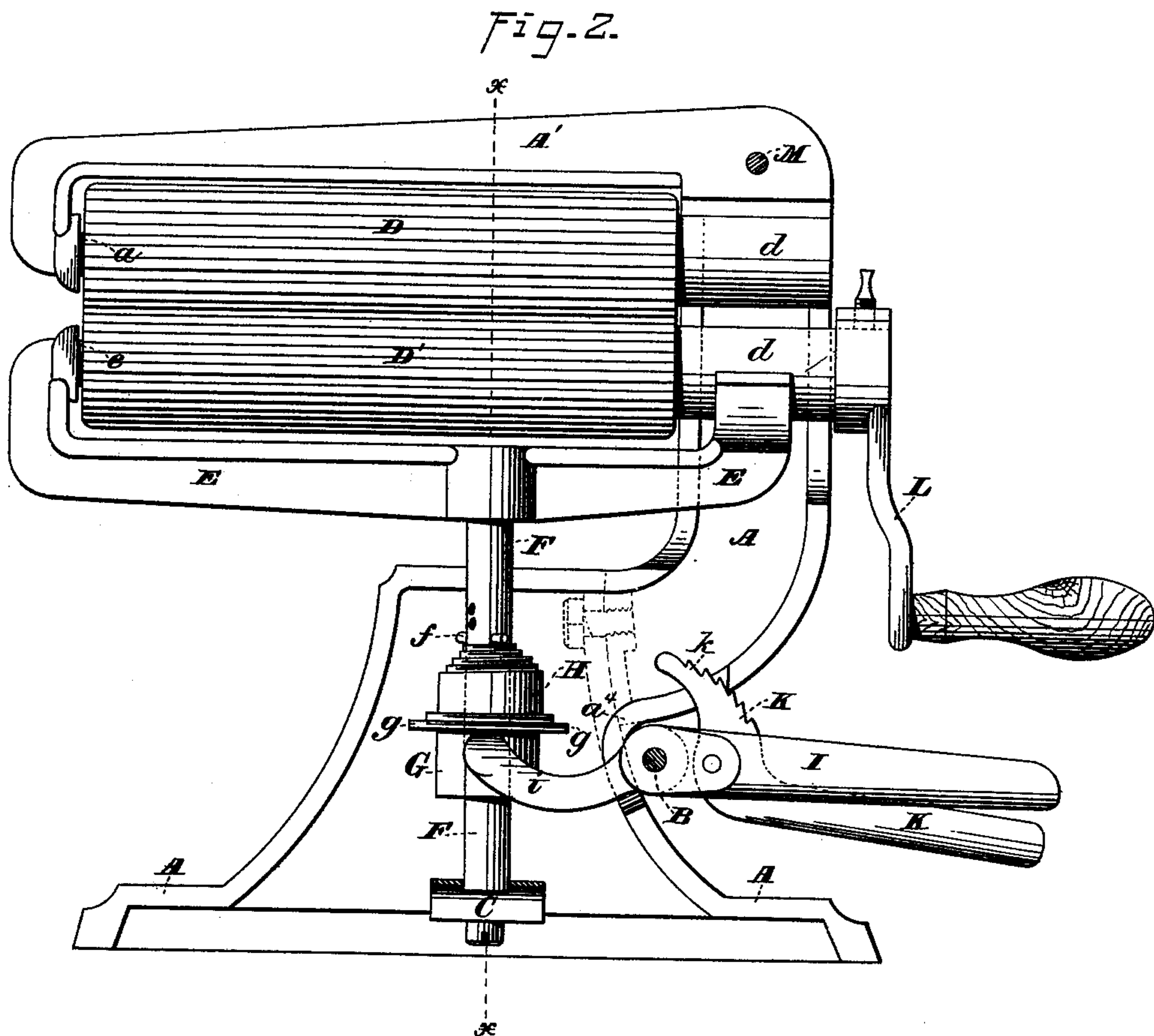
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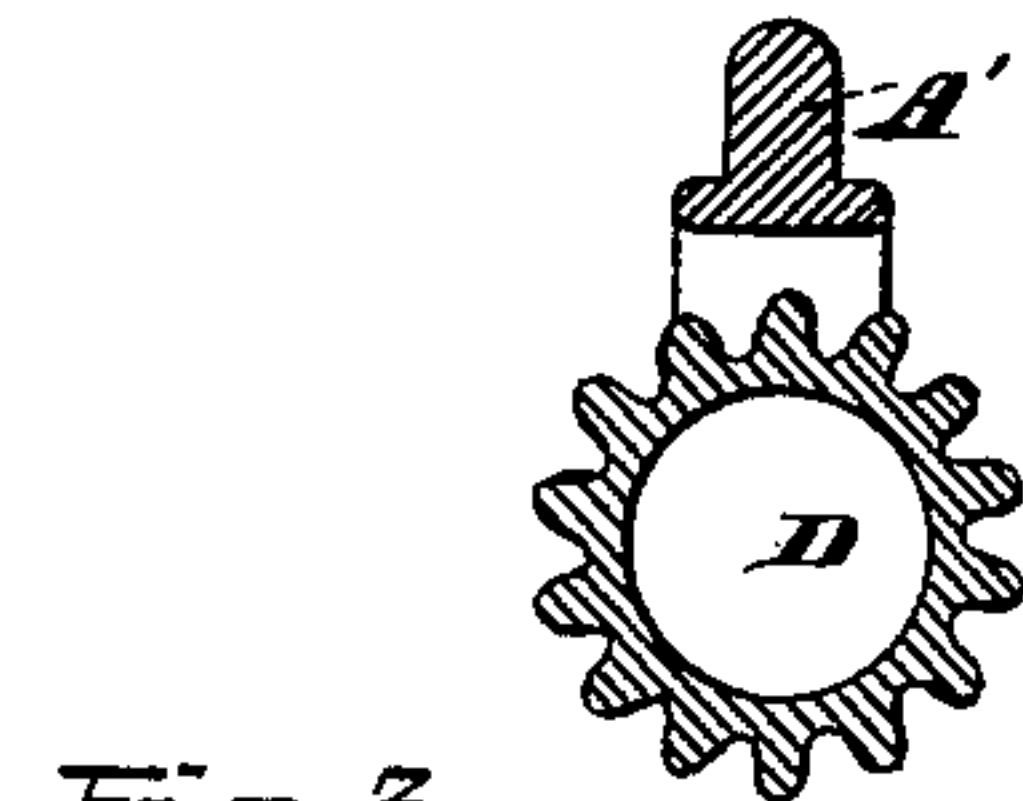


Fig. 3.

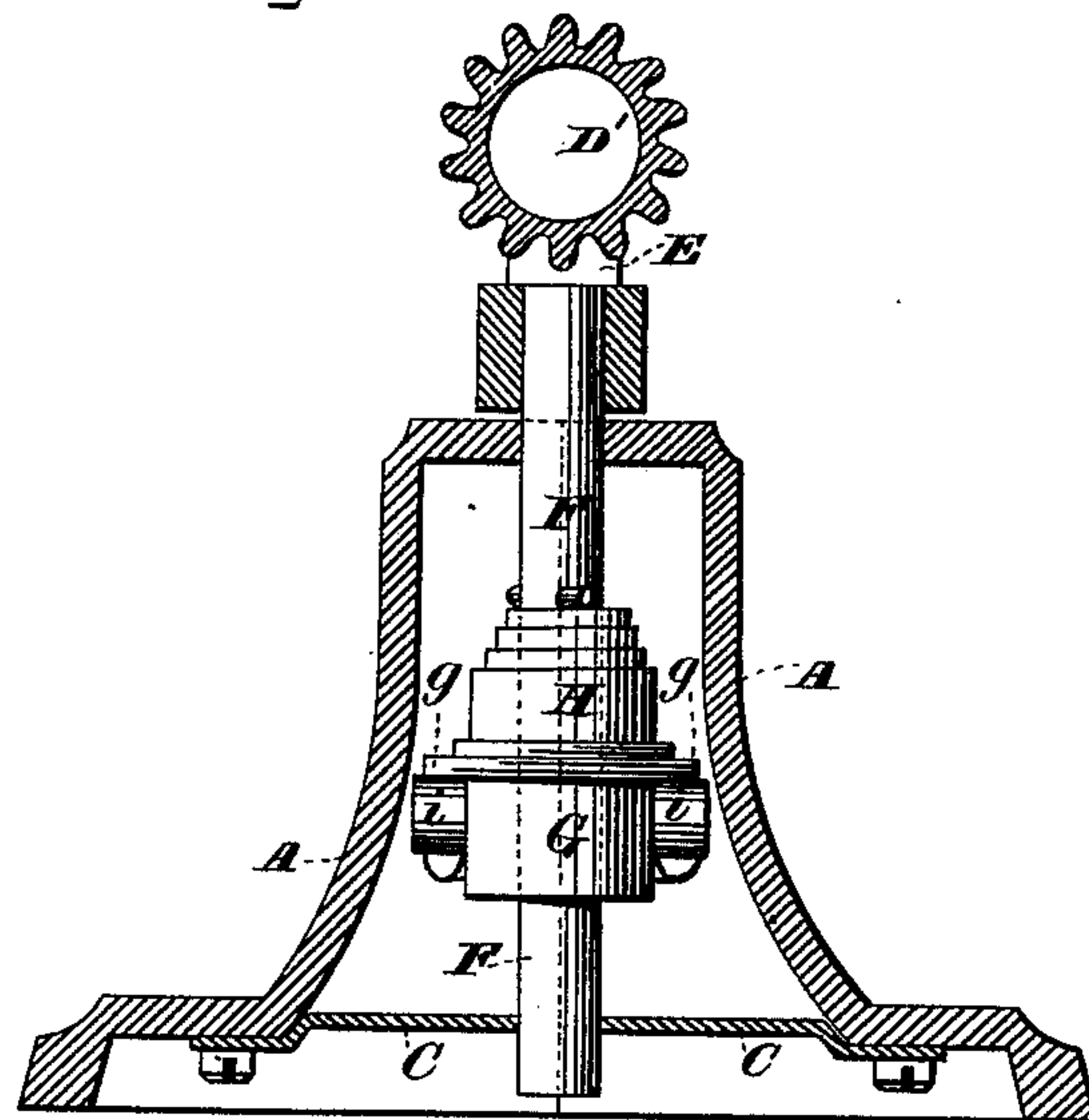
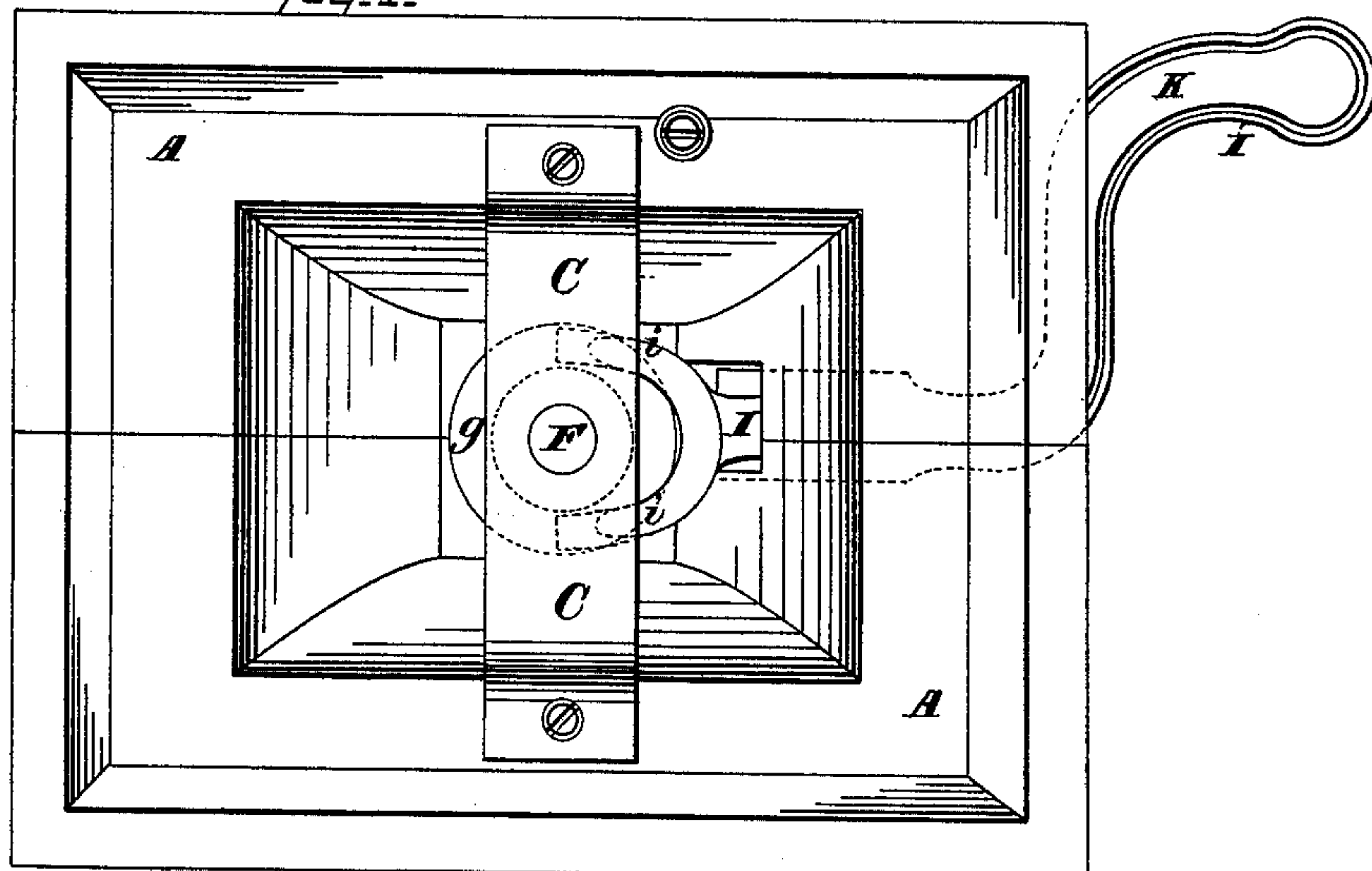


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JOHN E. DONOVAN, OF CINCINNATI, OHIO.

## IMPROVEMENT IN FLUTING-MACHINES.

Specification forming part of Letters Patent No. **220,586**, dated October 14, 1879; application filed March 4, 1879.

*To all whom it may concern:*

Be it known that I, JOHN E. DONOVAN, of Cincinnati, in the county of Hamilton, and in the State of Ohio, have invented certain new and useful Improvements in Fluting-Machines; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved device as arranged for use. Fig. 2 is a side elevation of the same, one section of the frame being removed to show the interior construction of parts. Fig. 3 is a cross-section upon line  $x x$  of Fig. 2, and Fig. 4 is a plan view of the lower side of said device.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to simplify the construction and to increase the efficiency and ease of operation of mechanism employed for fluting fabrics, to which end it consists, principally, in the means employed for moving the adjustable roller toward or from the fixed roller, and for securing the same in position, substantially as and for the purpose hereinafter set forth.

It consists, further, in the machine as a whole, its several parts being constructed and combined to operate in the manner and for the purpose substantially as is hereinafter specified.

In the annexed drawings, A represents the frame of my machine, which consists of a base having sufficient horizontal dimensions to furnish a firm bearing, and a standard that extends in a curve rearward and upward, as shown in Fig. 1. From the upper end of the standard of my frame A an arm,  $A^1$ , extends horizontally forward to or slightly beyond the front end of the base, and at its end extends downward a short distance, and at the inner side of such portion is provided with a round bearing-pin,  $a$ , that extends horizontally rearward about one-fourth of an inch.

The frame A is cast hollow, and is constructed in two sections, which unite upon a central longitudinal line, and are secured together by means of a screw, B, that passes through two ears,  $a^1$ , which are provided near the lower end of the standard, and a strap, C, that extends

transversely across and is secured to the lower side of each section, as shown in Fig. 4. Within the upper end of the standard of the frame A, in a line with the bearing-pin  $a$ , is provided an opening,  $a^2$ , which corresponds to and receives the journal  $d$  of a fluted roller, D, of usual construction, which roller has an axial opening,  $d'$ , that corresponds in diameter to the diameter of said bearing-pin, and, at the outer end of said roller, receives the same, the arrangement being such as to enable said roller to rotate freely within said opening and upon said bearing-pin. Below the opening or bearing  $a^2$  is provided a second larger opening,  $a^3$ , which passes through the standard, and permits of the passage of the journal  $d$  of a second fluted roller,  $D'$ , which roller rests within and is supported by a frame, E, (shown in Fig. 2,) that has substantially the shape, in reverse, of the arm  $A^1$ , and is provided with a bearing-pin,  $e$ , for the outer end of said roller, and for the inner end or journal  $d$  has a half-box, within which said journal rests. The frame E is supported upon a rod, F, which at its upper end is secured to the same, and from thence passes downward through the horizontal center of the base of the frame A and through the strap C, the construction being such as to permit said frame E, with its roller, to be moved vertically toward or from the upper roller.

In order that the lower roller,  $D'$ , may be adjusted to and secured in vertical position, the following-described mechanism is employed: Fitted loosely upon the rod F is a collar, G, which is provided at its upper end with a radial flange,  $g$ , as seen in Fig. 2, and is capable of moving vertically over said rod. Upon the upper end of the collar G is placed a volute spring, H, which encircles the rod F, and at its upper end bears against a pin,  $f$ , that passes radially through said rod. Passing through an opening,  $a^4$ , in the rear side of the base of the frame A is a lever, I, which has the form shown in Fig. 1, is pivoted upon the screw B, and at its inner end is forked, and its prongs  $i$  caused to loosely embrace the body of the collar G below the flange  $g$ , the arrangement being such as to enable said collar, and with it the rod F, frame E, and roller  $D'$ , to be moved upward or permitted to drop downward by depressing or raising the outer end of said lever.



In order that the roller D' may be locked in position when adjusted thereto, a pawl, K, is pivoted within the lever I, just outside of its pivotal bearing B, the outer end of said pawl being extended beneath said lever to or near the end of the same, while the inner end of said pawl projects upward and inward in a curve, and is provided upon its upper side with a series of teeth, *k*, that have an inward and upward inclination, and by the weight of the said outer end are caused to engage with the upper edge of the opening *a*<sup>4</sup>, so as to lock said lever in place and prevent the lower roller, D', from dropping downward.

To raise the lower roller, D', it is only necessary that the outer end of the lever I should be pressed downward, the pawl K being automatically tripped and caused to re-engage with its stop; but when it is desired to drop said roller it is necessary that said lever should be grasped by the hand and the outer end of said pawl raised by the fingers of the operator until its inner end is released from engagement, after which said roller is free to be moved to position.

A crank, L, being placed upon the projecting journal of one of the rollers—preferably the lower roller—the machine is ready for use, in the ordinary manner, said rollers being heated by hot metal blocks placed within the interior of each, and the goods to be operated upon passed between their fluted peripheries.

Any desired degree of pressure of the rollers upon the fabric may be produced by the adjustment of the lever I, and said rollers may be readily separated for the purpose of inserting or removing articles by the same means.

The rollers D and D' are held together with a yielding pressure, which enables goods of varying thickness to pass through, and in consequence of the form of the spring H, greater strength, durability, and elasticity are secured than would be practicable within the limited space by use of any other form of spring.

To facilitate the removal or replacement of the fluting-rollers a portion, A<sup>2</sup>, of the stand-

ard of the frame A, directly over the journals of said rollers, is separated from said standard and may be removed when desired. A screw, M, passing through the upper end of said part or cap A<sup>2</sup>, with its threaded end contained within a correspondingly-threaded opening in the opposite section of the frame, secures said cap in place. By withdrawing said screw and removing said cap said rollers can be easily and quickly taken out or replaced.

A clamp, N, swiveled to or upon one side of the base of the frame, and provided with a binding-screw, *n*, enables the machine to be fastened to or upon the edge of a table or other like support, so as to be more easily operated.

If desired, the standard may be cast separate from the base and bolted thereto at its lower end, as shown by dotted lines of Fig. 2, in which event said standard would be cast in one piece, and access to its interior had through the cap A<sup>2</sup>.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In a fluting-machine, in combination with the vertically-adjustable frame E, the rod F, collar G *g*, spring H, forked lever I, and pawl K, substantially as and for the purpose specified.

2. The hereinbefore-described fluting-machine, consisting of the sectional base A, provided with the arms A<sup>1</sup>, cap A<sup>2</sup>, the strap C, and the screws B and M, the rollers D and D', the adjustable frame E, the supporting-rod F, the collar G *g*, the volute spring H, the forked lever I *i*, the pawl K *k*, and the crank L, said parts being constructed and combined to operate in the manner and for the purpose substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of February, 1879.

JOHN E. DONOVAN.

Witnesses:

SAM C. TATUM,

SAML. E. HILLES.