

(No Model.)

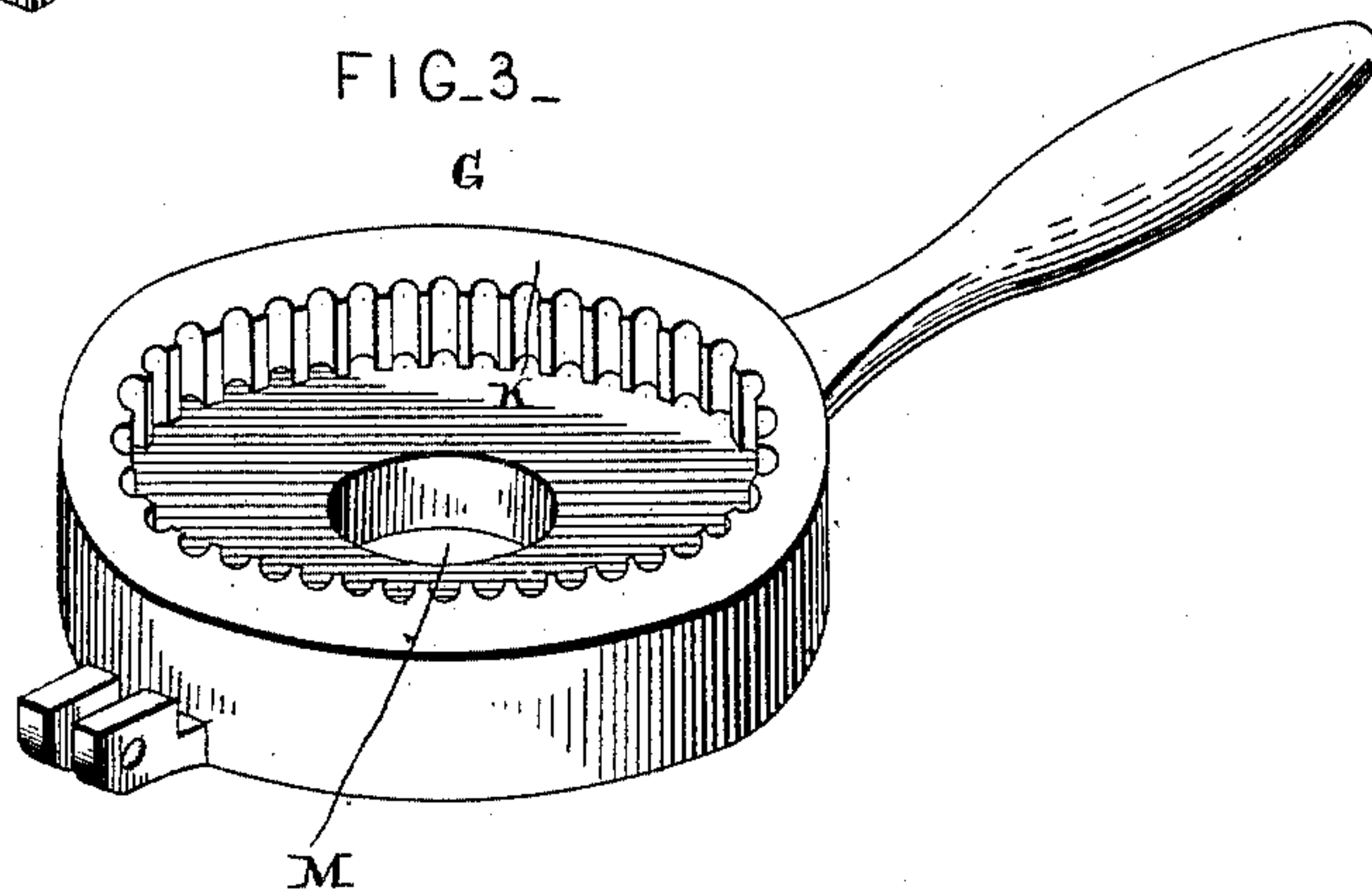
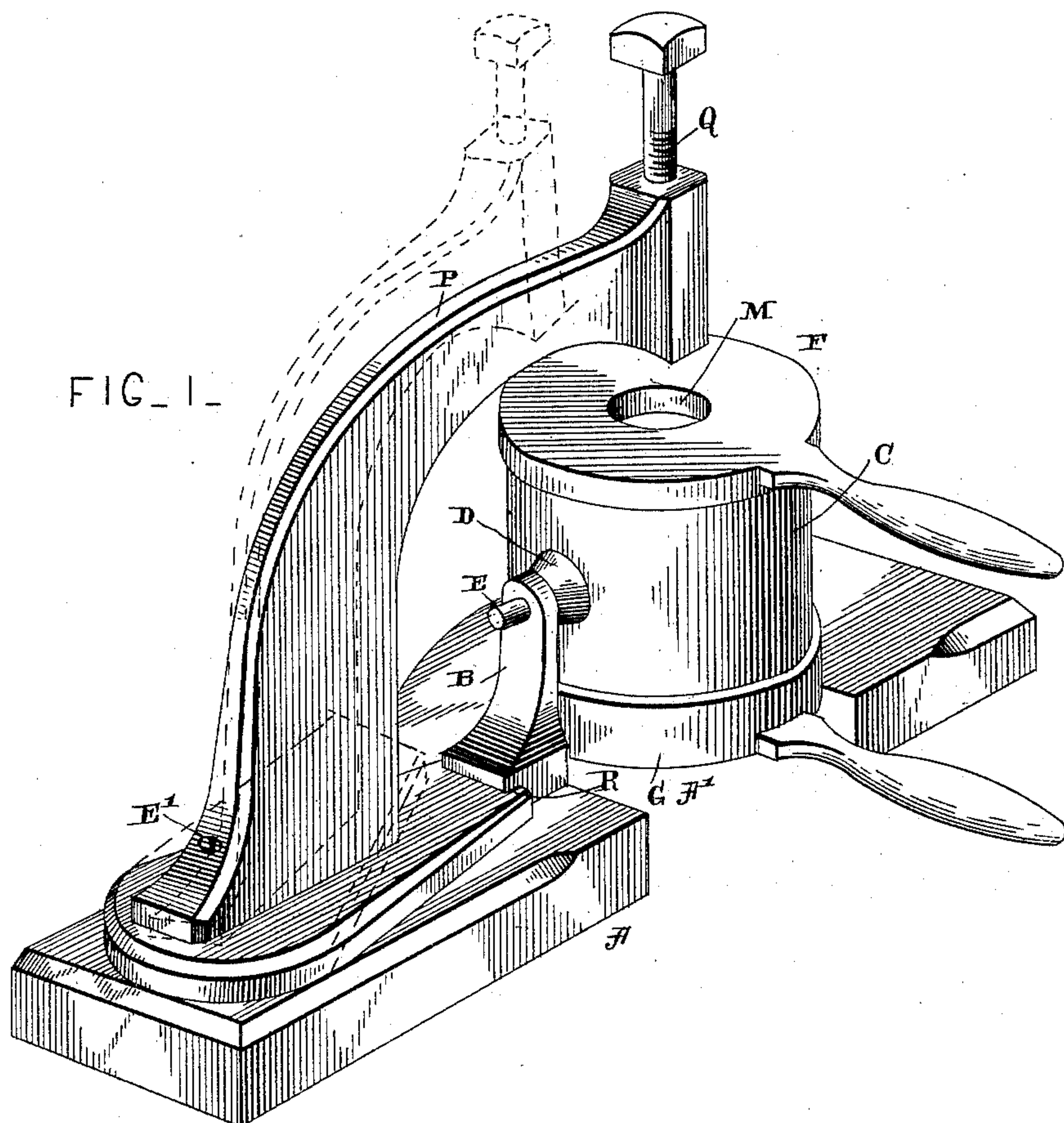
3 Sheets—Sheet 1.

J. E. GEARHART.

MOLD FOR CASTING KNITTING MACHINE CYLINDERS.

No. 468,171.

Patented Feb. 2, 1892.



WITNESSES.

Geo. C. Frech.

Roland A. Fitzgerald

INVENTOR.

Joseph E. Gearhart

per Lehmann Pattison
attys.

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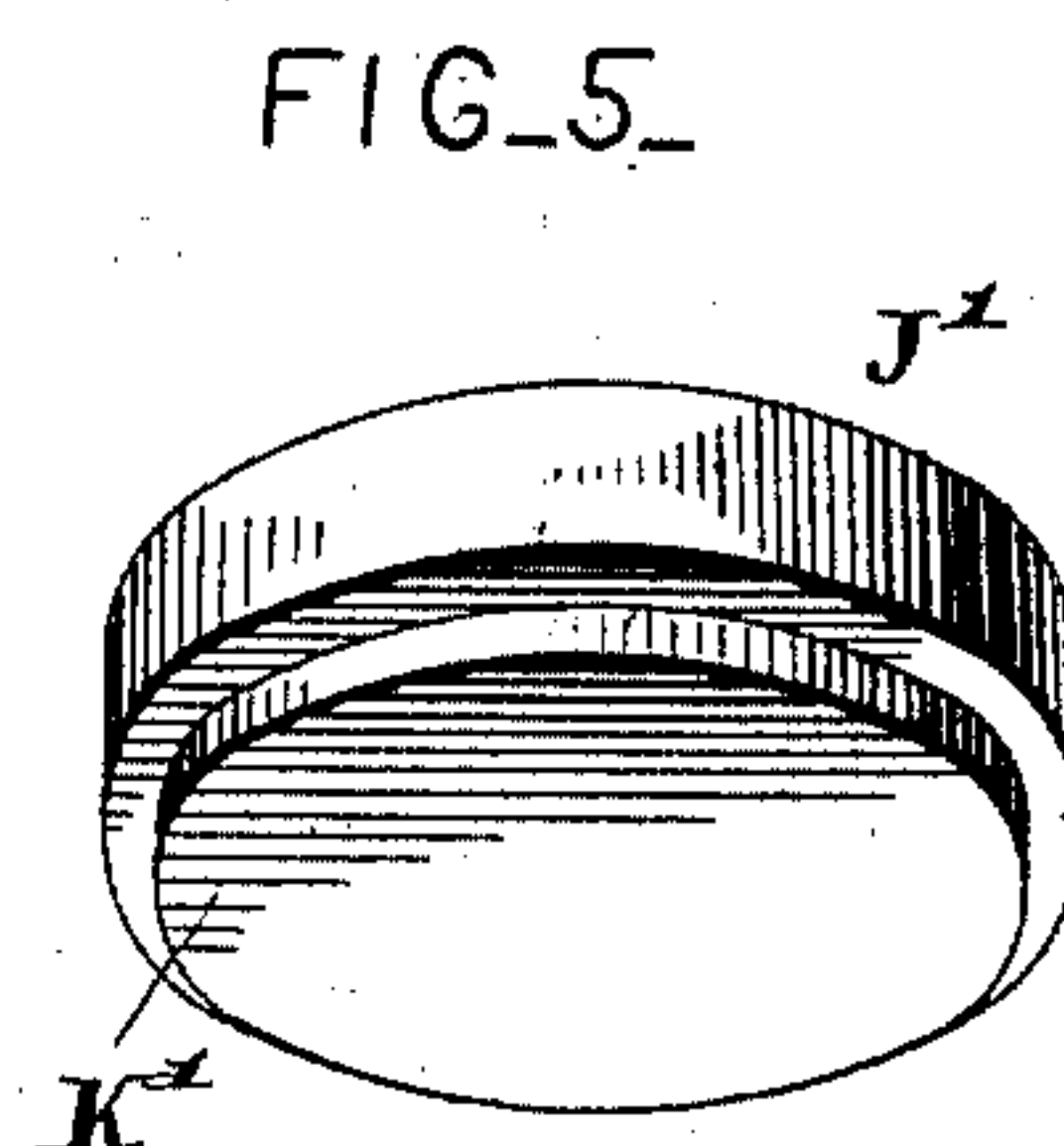
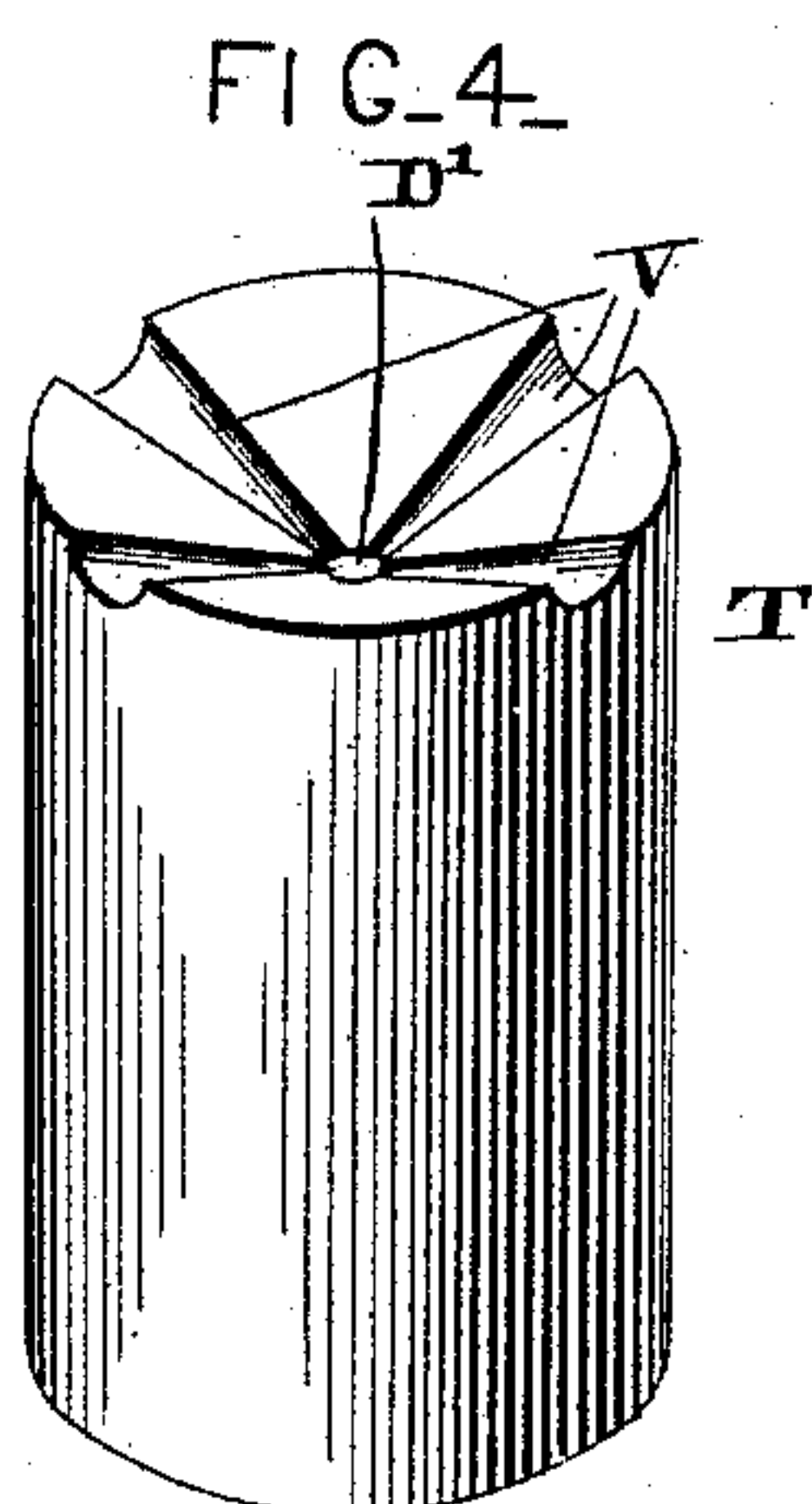
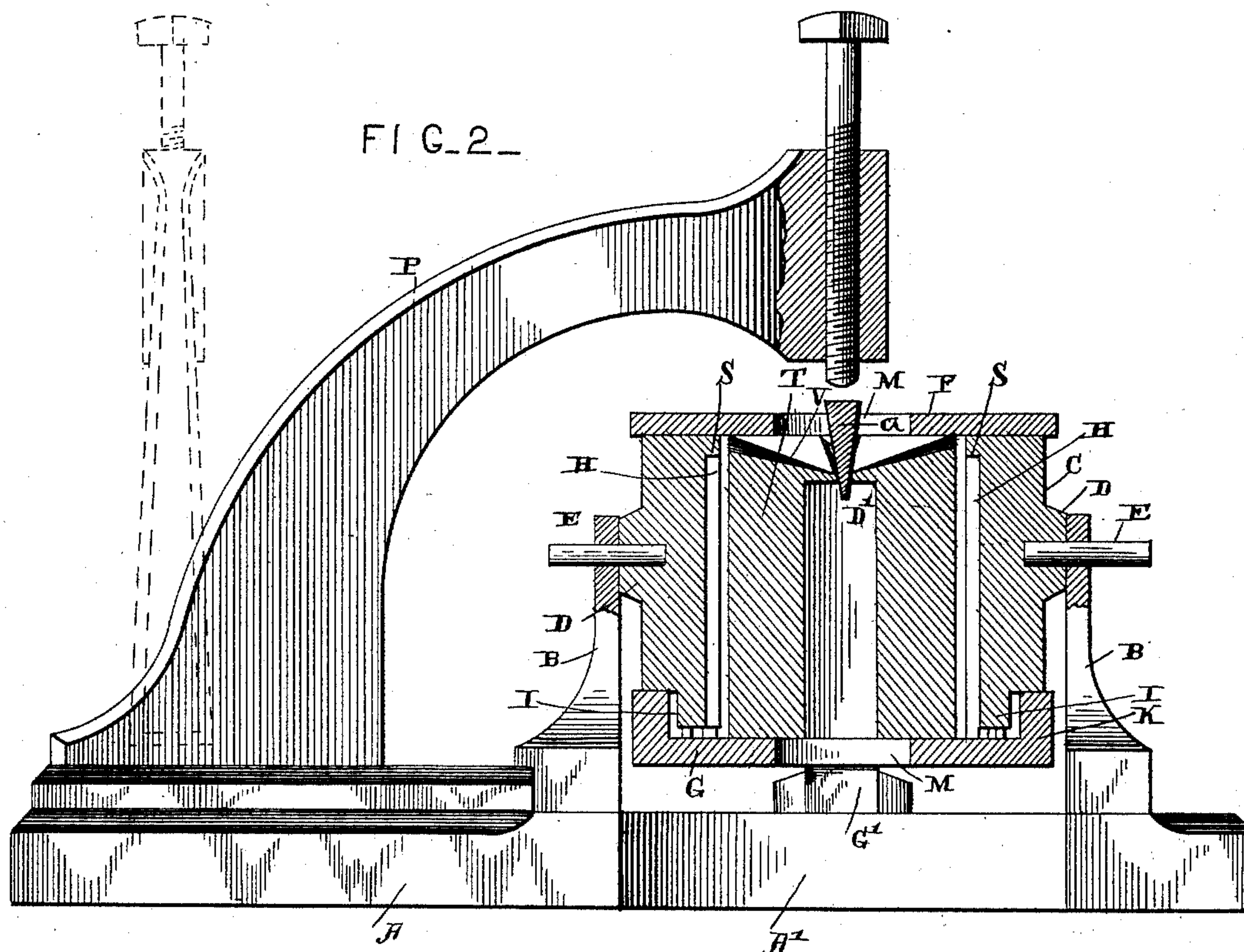
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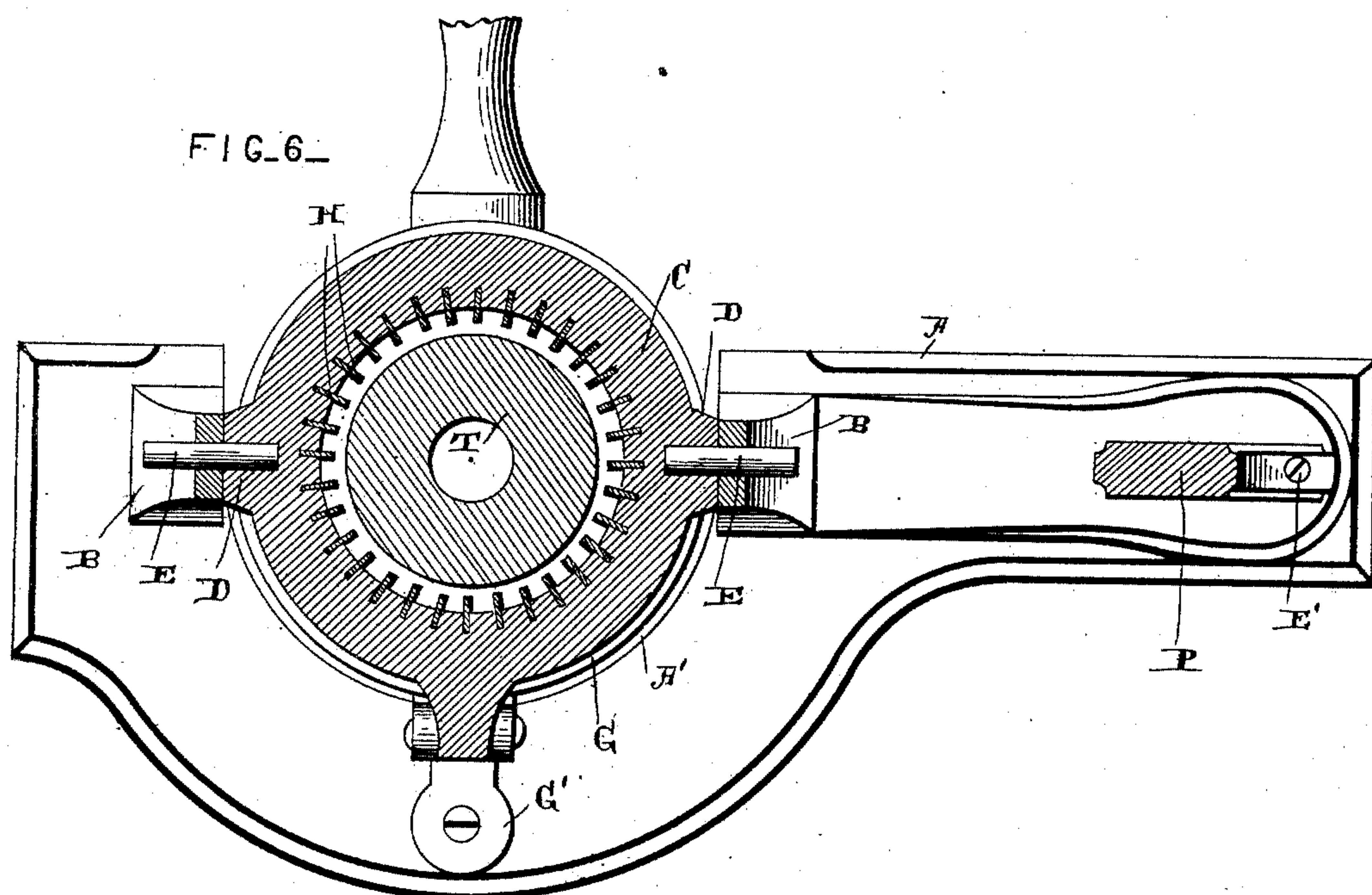
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UNITED STATES PATENT OFFICE.

JOSEPH EMORY GEARHART, OF CLEARFIELD, PENNSYLVANIA.

MOLD FOR CASTING KNITTING-MACHINE CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 468,171, dated February 2, 1892.

Application filed June 22, 1891. Serial No. 397,097. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH EMORY GEARHART, of Clearfield, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Molds for Casting Knitting-Machine Cylinders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in molds for casting knitting-machine cylinders; and it consists in the construction and arrangement of parts, which will be fully disclosed hereinafter, and particularly referred to in the claims.

The object of my invention is to construct an apparatus for casting knitting-machine cylinders, having grooves running longitudinally in its outer surface for the needles to move in and a crown or cog wheel on its base by means of which the cylinder is rotated, which construction is shown in my patent, No. 457,643, dated August 11, 1891.

In the drawings, Figure 1 is a perspective view of an apparatus which embodies my invention. Fig. 2 is a vertical section through the mold, showing the core in place therein. Fig. 3 is a detached perspective view of the innerside of the lower hinger-cap which forms the crown-wheel. Fig. 4 is a detached perspective view of the core, showing the specific shape of the upper end thereof. Fig. 5 is a detached perspective view of the cap for pressing the cylinder out of the mold after it has been cast. Fig. 6 is a horizontal section through the pivotal axis of the mold.

In constructing my apparatus I use a base A, which is preferably of the shape herein shown, but which may be of any other desired construction and shape. This base A is preferably provided with the cut-away portion A' for the purpose of allowing the mold to turn in its bearings, as will presently appear. Extending upward from this base A, adjacent to the straight edge of the base and to the outer edges of the opening or cut-away

portion A', are the two standards or lugs B, in the upper ends of which the mold C is journaled by means of the screw or other plugs E, which pass into openings formed in the projections D, which are formed upon the outer surface of the mold, as shown. This mold C is hollow and is provided on its interior surface with a series of ribs H. Extending inward from the upper edge of the mold C is an annular flange S, and extending downward from the lower edge of the mold is an annular external shoulder I. The ribs H extend from the inwardly-extending shoulder S to the lower edge of the flange I, as shown, and said ribs form longitudinal grooves in the outer surface of the cylinder being cast for the needles to move in. Placed within this mold C is a core T, which is sufficiently smaller than the circumference of the inner edges of the ribs H to form a cylinder of sufficient thickness, as shown.

Hinged or otherwise loosely connected to the upper and lower ends of the mold C are the end plates F G, each of which has an opening M made in its center. The lower end plate G is provided with an inwardly-extending annular flange K, which is notched, as shown, for the purpose of forming cogs on the lower end of the cylinder.

In order to form the wheel, the inner surface of the lower cap G is a suitable distance from the lower edge of the external shoulder I and the ribs H, and the inner circumference of the flange K is sufficiently greater than the outer circumference of the external shoulder I to form the cogs integral with the vertical walls of the cylinder, as will be readily understood. The melted metal is poured in the opening M, made in the upper cap F, and falls on top of the core T, which has its upper end slightly concaved, as shown in Fig. 5, and extending from this concave are the grooves V, which feed the metal freely to all parts of the mold. This core is provided with a central longitudinal opening B', which has only a small opening D' at its upper end. The object of making the core hollow, as shown, is to make it lighter and to aid in cooling the molten metal by preventing the core from retaining the heat to a considerable degree.

When the molten metal is poured into the mold, the small opening D' is closed by means of a plug *a*, as shown in Fig. 2, which, however, is withdrawn as soon as the metal is poured to allow all surplus metal on top of the core to fall through the core and the opening in the center of the lower end plate. In this manner the mold cools much more rapidly than would be the case if the core were left solid. An arm P is journaled upon the base A at the point E' and has its horizontal portion at its free inner end to catch under the shoulder R, formed upon the inner standard B. The upper end of this arm P extends over the center of the mold, as shown, and is provided with a screw-bolt Q, which passes vertically through the upper end of the said arm, as shown. This arm P being pivoted upon the base, it can be turned around out of the way, as shown in dotted lines in Fig. 1, so that the upper hinged cap F of the mold can be turned back for the purpose of removing the cast cylinder from the mold C. After the cylinder has been cast and is still within the mold it is removed by turning the button G', which prevents the mold from turning upon its journal out of the way, (to one side,) which allows the lower plate to drop. The upper cap is then turned back and a small cap J', having a projection K', which just fits inside of the ribs H, is placed over the open upper end of the mold. Now by turning the arm P around over the mold, as shown in solid lines in Fig. 1, the screw-bolt Q is turned down upon the cap J', which forces the cylinder out of the mold, as will be readily understood.

By means of an apparatus of the above-described construction I am enabled to produce cylinders for knitting-machines at a very small cost and very rapidly and with the longitudinal grooves for the needles and the crown-wheel at its base by means of which the cylinder is revolved. In this manner I am enabled to very materially reduce the cost of the production of knitting-machines like that shown in the aforesaid application over the ordinary manner of forming the cylinders. The cylinder when cast in this manner is complete in every particular and is ready to be placed in the machine.

Having thus described my invention, I claim—

1. An apparatus for the purpose described, comprising a hollow mold-body having longitudinal ribs on its inner side, an annular shoulder outside of and at the lower ends of the ribs, an end plate for the lower end of the mold supported below the shoulder, having an annular flange outside of the shoulder to form a mold-chamber and provided with notches, and gates between the said chamber and the central mold-cavity, substantially as described.

2. In an apparatus for the purpose described, a hollow mold-body having longitudinal ribs on its inner surface, a core within the mold, a removable end plate for the mold, having an annular flange provided with notches in its inner periphery, said flange arranged outside of and at some distance from the mold-body, leaving an annular mold-chamber, and gates between this chamber and the mold-cavity, the parts combined substantially as specified.

3. In an apparatus for the purpose described, a hollow mold-body having longitudinal ribs on its inner face, a core within the mold, a removable end plate having an annular flange provided with notches in its inner periphery, said flange arranged outside of and at some distance from the mold-body, leaving an annular mold-chamber, and gates between this chamber and the mold-cavity, an arm extending over the mold-body, a vertically-moving device in the arm, and a cap-piece fitting in the mold, which the bolt engages for forcing out the cast cylinder, the parts combined substantially as set forth.

4. In an apparatus of the character described, a hollow mold-body having an inwardly-extending flange at one end, an annular external shoulder at its opposite end, longitudinal ribs on its inner surface, which extend from the said flange to the lower edge of the said shoulder, a removable end plate having an annular flange of a greater diameter than the diameter of the said external shoulder, which is provided with notches on its inner periphery, said flange arranged outside of and at some distance from the mold-body, leaving an annular mold-chamber, and gates between the chamber and the central mold-cavity, the parts combined substantially as specified.

5. In an apparatus for the purpose described, a hollow mold-body having an external annular shoulder at one end, longitudinal ribs on the inner surface of the said mold, and a removable end plate at the shouldered end of the mold-body, which is supported at a suitable distance from the end of the said shoulder, the said end plate having an annular flange of greater diameter than the said external shoulder to form an annular mold-chamber and which flange is provided with notches on its inner edge, the parts combined substantially as described.

6. In an apparatus of the character described, a mold having movable end plates, a base having standards in which the mold is journaled, and an arm pivoted to swing over the mold, carrying a vertically-swinging device for forcing out the cast article, the parts combined substantially as set forth.

7. In an apparatus of the character described, a mold, a base having standards in which the mold is journaled, the base having

a cut-away portion under the mold, movable end plates for the mold, and a stop for preventing the mold from revolving, the parts combined substantially as shown.

- 5 8. In an apparatus of the character described, a hollow mold-body, a core placed therein having a longitudinal opening, a plug for closing the upper end of the opening, and removable end plates for the mold-body, hav-

ing openings, the parts combined substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH EMORY GEARHART.

Witnesses:

H. D. HASSON,
FRANK F. IRWIN.