

No. 714,004.

Patented Nov. 18, 1902.

R. I. A. MASON.  
DOUGH KNEADING MACHINE.

(Application filed Apr. 7, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

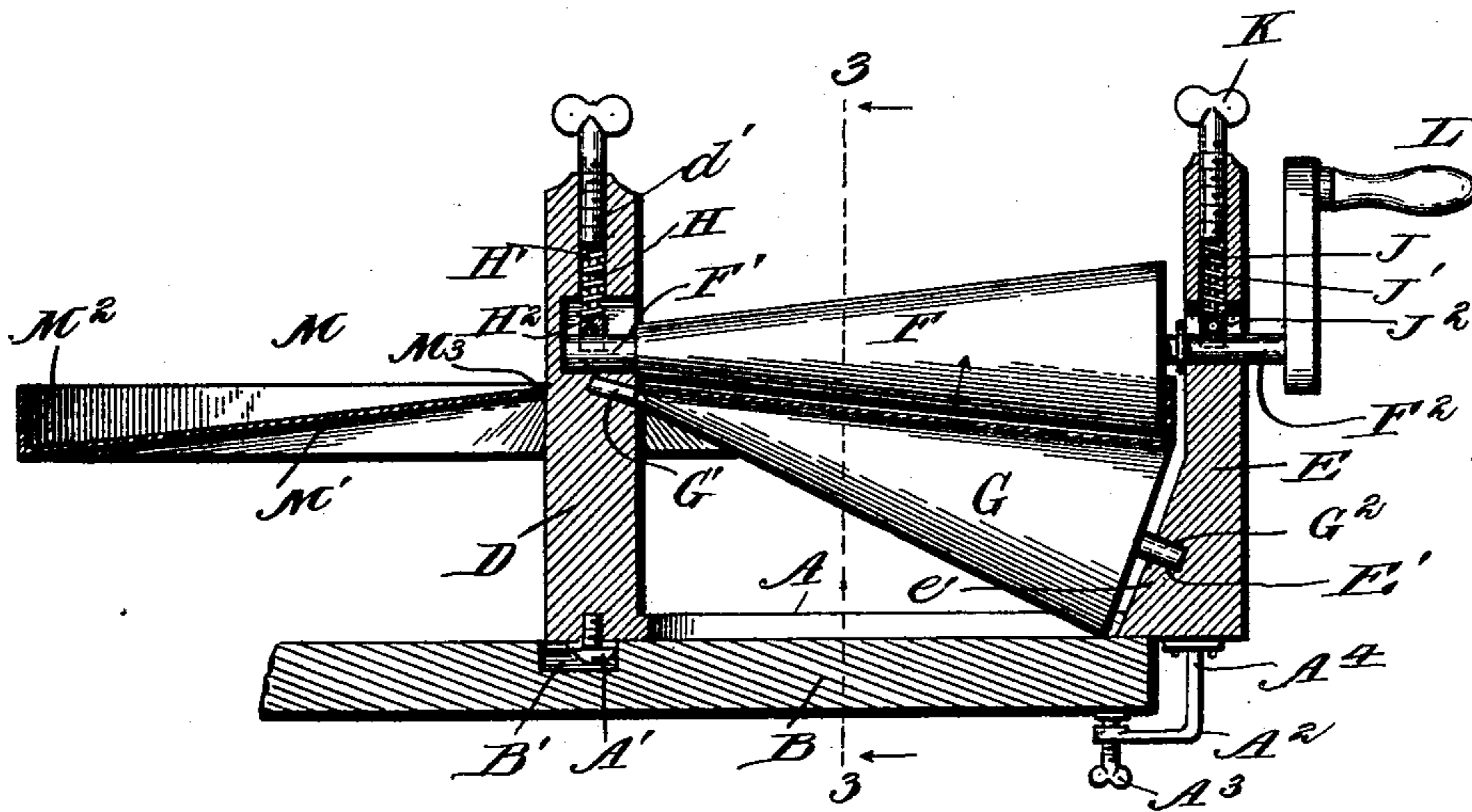
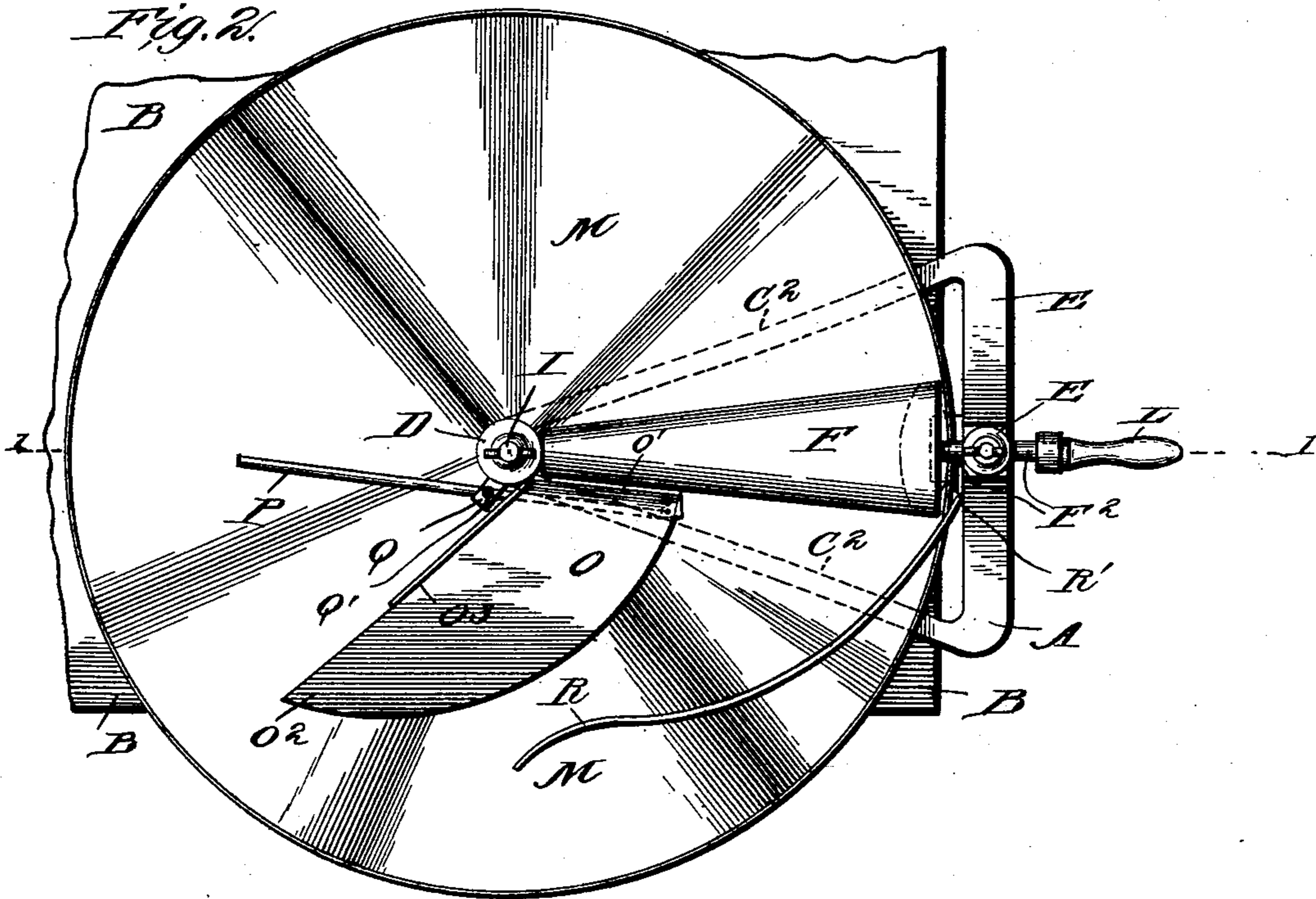


Fig. 2.



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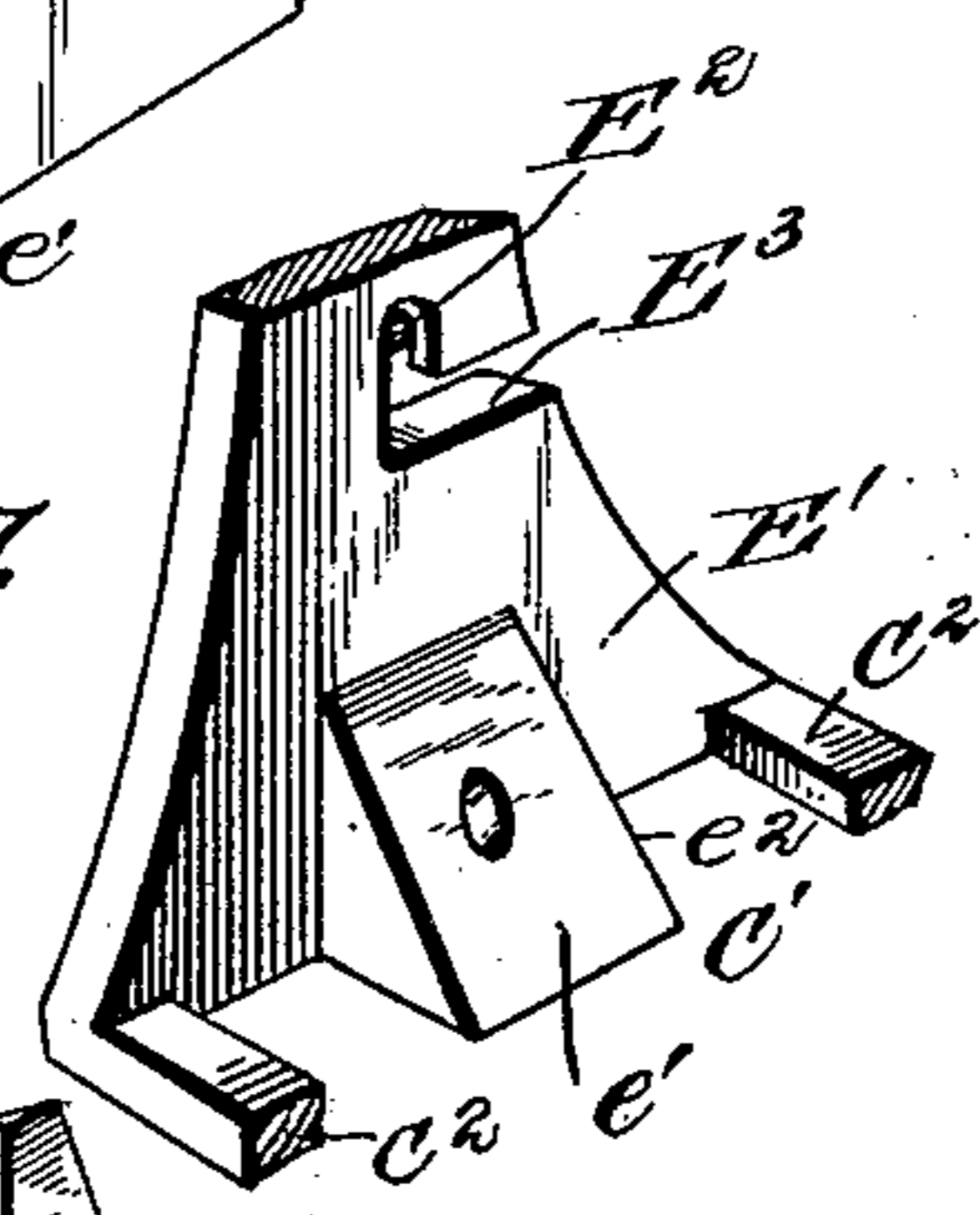
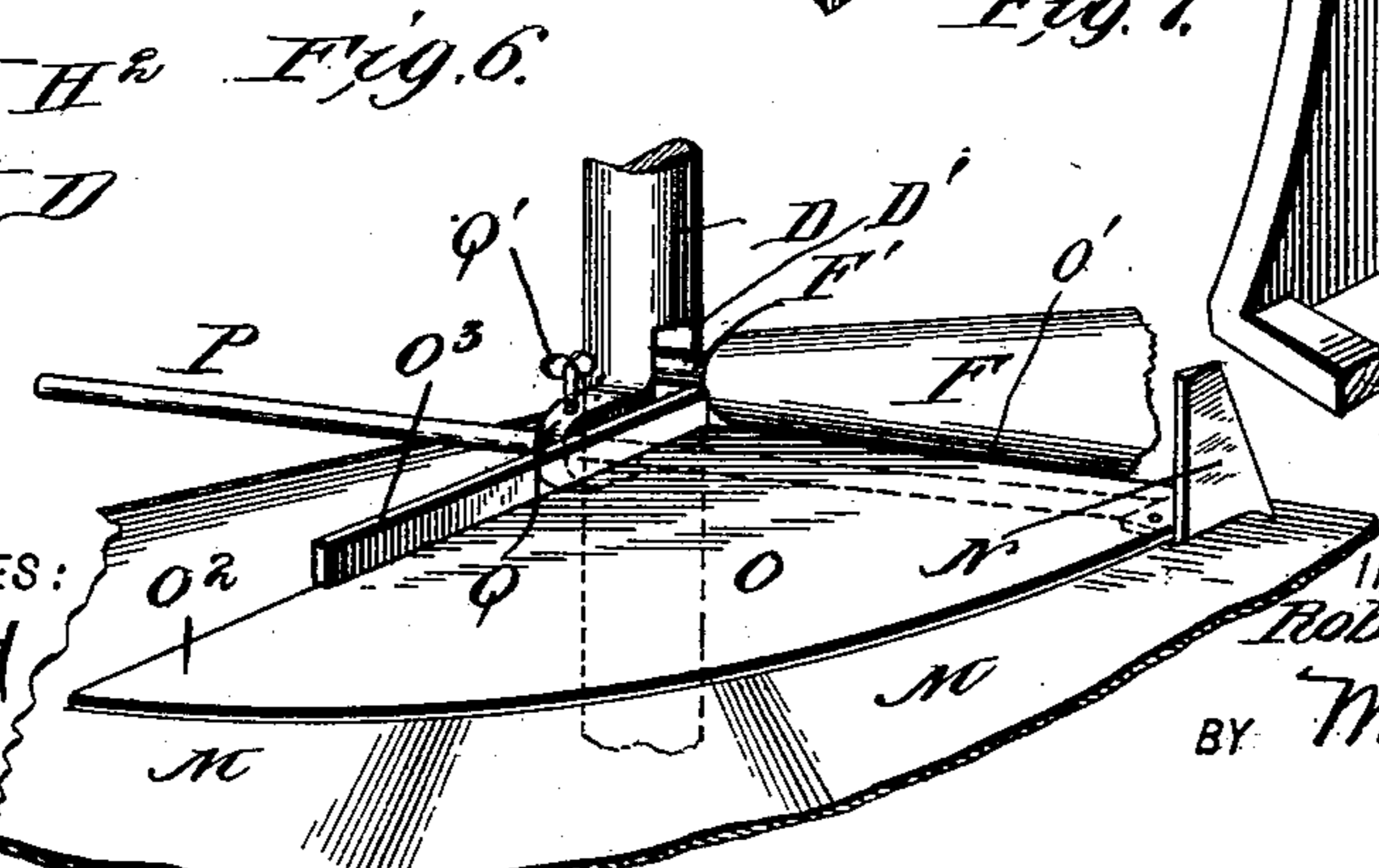
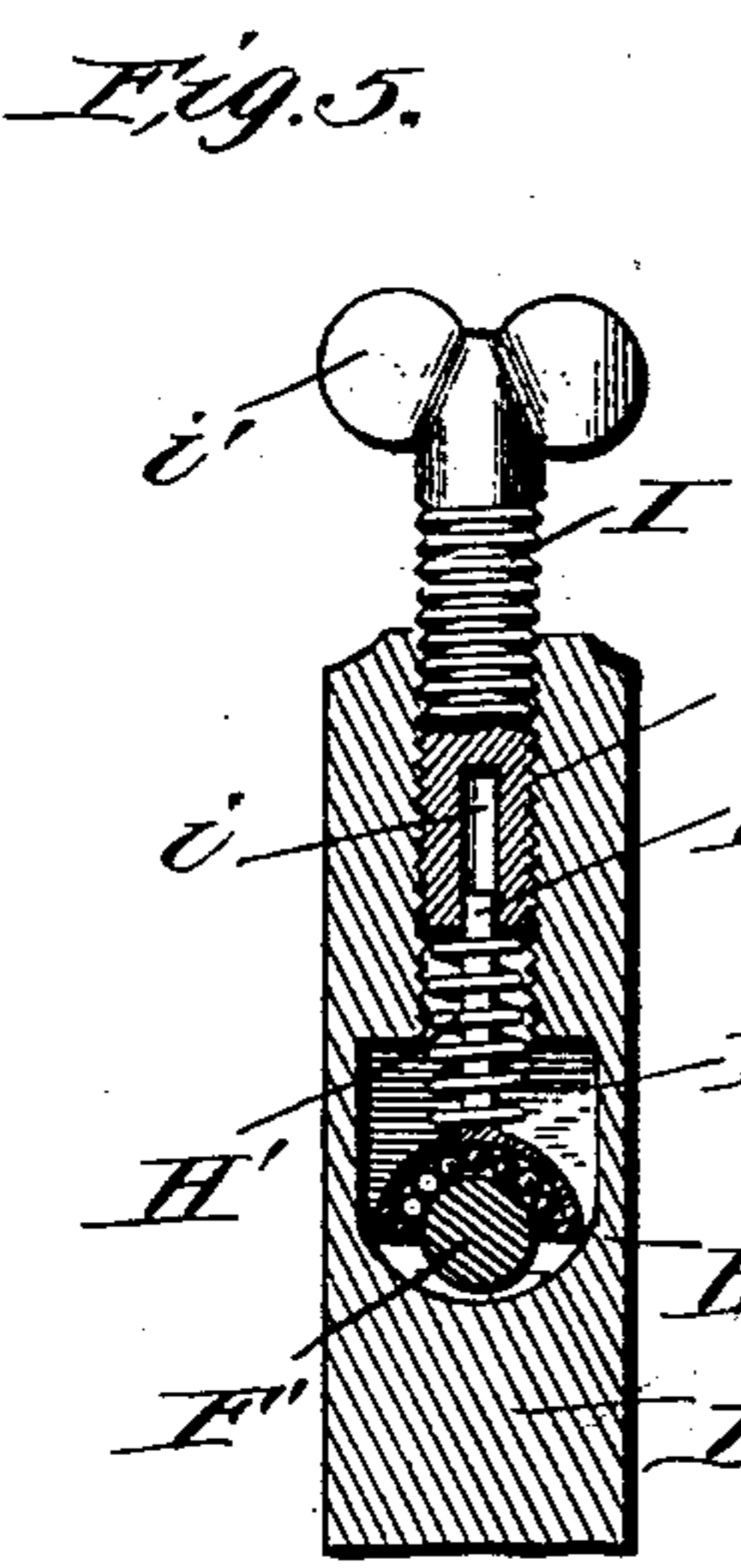
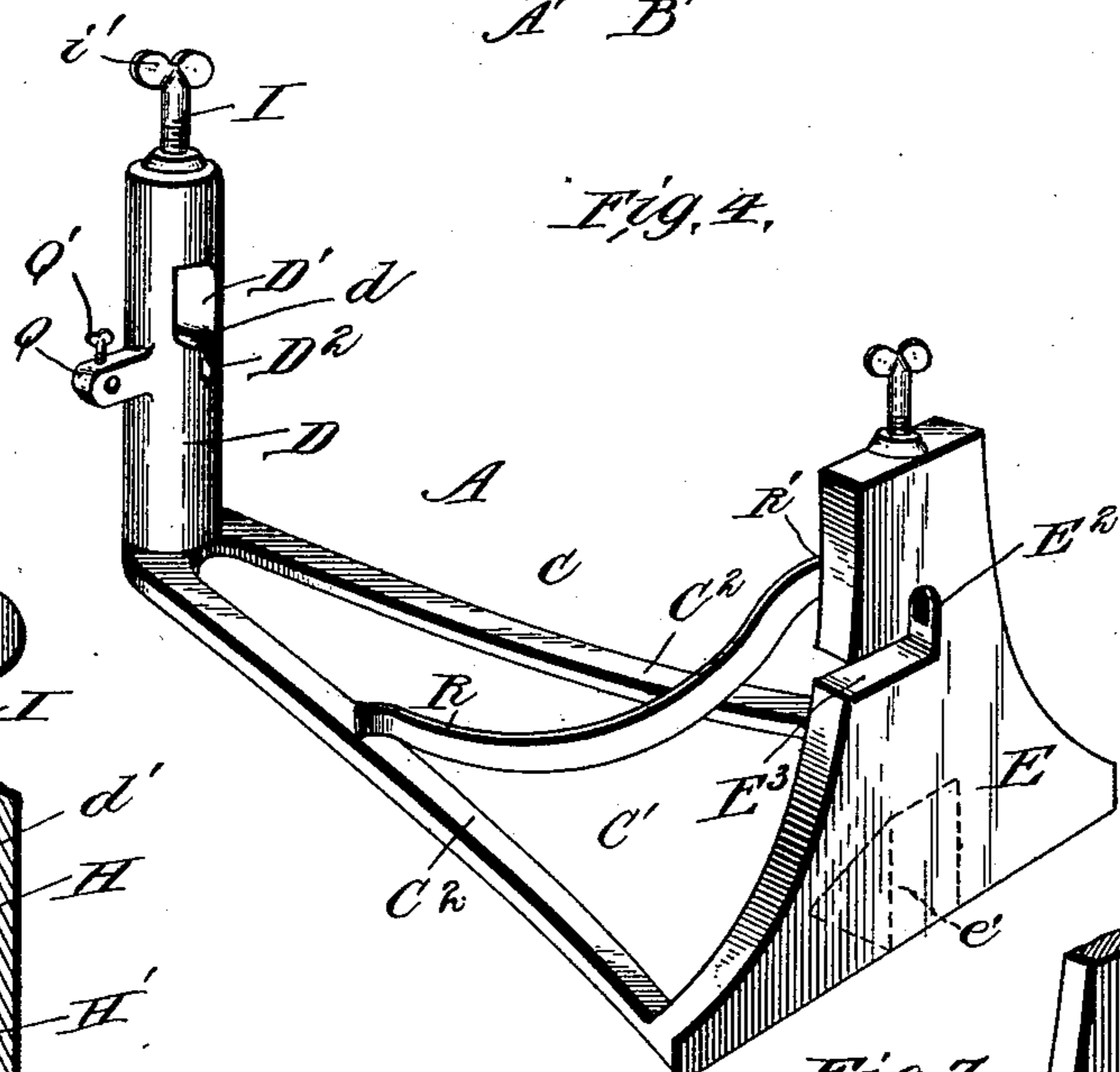
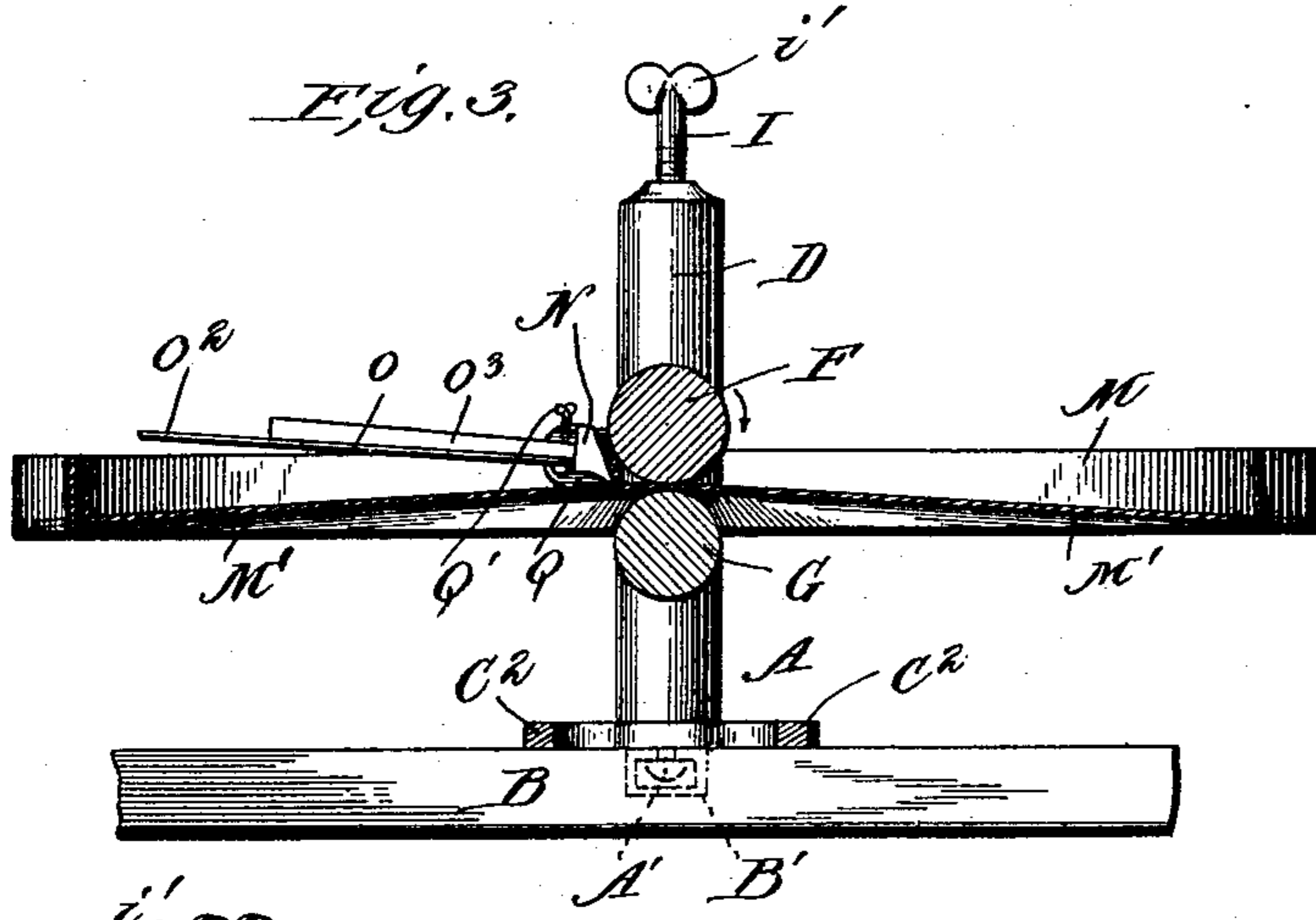
ATTORNEYS

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# UNITED STATES PATENT OFFICE.

ROBERT I. A. MASON, OF HAMPTON, VIRGINIA.

## DOUGH-KNEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 714,004, dated November 18, 1902.

Application filed April 7, 1902. Serial No. 101,707. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT I. A. MASON, a citizen of the United States, residing at Hampton, in the county of Elizabeth City and State of Virginia, have made certain new and useful Improvements in Dough-Kneading Machines, of which the following is a specification.

My invention is an improvement in machines for use in kneading dough; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a vertical transverse section of the machine on about line 1 1 of Fig. 2. Fig. 2 is a top plan view of the machine. Fig. 3 is a transverse section on about line 3 3 of Fig. 1. Fig. 4 is a detail perspective view of the bearing-frame for the opposing rollers. Fig. 5 is a detail sectional view illustrating the inner bearing for the upper roller. Fig. 6 is a detail perspective view, partly broken away, illustrating the device for shifting a portion of the kneaded dough over the other portion of the dough; and Fig. 7 is a detail perspective view, partly broken away, showing the inner side of the outer upright of the bearing-frame.

My machine, as shown, includes a main frame A, which supports the operating devices, and may in practice be secured to a shelf or table-top B by the means shown or in other suitable manner. As shown, I provide the main frame A on its under side, at its inner end, with a headed stud A', which engages in a socket B' in the upper face of the shelf B, the outer end of the frame A being provided with a clamp A<sup>2</sup>, having a set-screw A<sup>3</sup> to bind beneath the shelf or table-top B, the clamp being swiveled or otherwise secured at A<sup>4</sup> to the main frame A at the outer end of the latter. By this means the main frame A can be quickly applied to or removed from the table-top or shelf whenever desired.

The frame A has a base C, which may be cut away at its center C' for lightness and to form the said base into the separated side bars C<sup>2</sup>, which connect the central standard D with the outer upright E, the base C and parts D and E being preferably made integral, as will be understood from Figs. 1 and 4. The central standard D is provided at D' and

D<sup>2</sup> with bearings for the inner ends, respectively, of the upper and lower rollers F and G, presently described. The upper bearing D' is suitably formed at its lower end *d* to form a rest for the trunnion F' at the inner end of the roller F, and this bearing D' is intersected from above by an opening *d'*, in which operates the shank H and spring H' of a box H<sup>2</sup>, which rests upon the trunnion F' and is supplied with balls or similar antifriction devices, as best shown in Fig. 5. This box H<sup>2</sup> rests upon or against the upper side of the trunnion F' and receives the upward thrust of said trunnion, the operating strain upon the roller F being upward, as will be better understood from the following description: The opening *d'* is threaded to receive the screw I, whose lower end has a socket or central opening *i* to receive the pin or shank H, and its upper end *i'* is adapted to be conveniently turned to adjust the screw I to vary the tension of the spring H', as may be desired.

The bearing D<sup>2</sup> is simply an opening in which turns the inner trunnion G' of the roller G, the outer trunnion G<sup>2</sup> of said roller G turning in a bearing E' in the inner face of the upright E near the lower end thereof. In securing the bearing E' it is preferred to provide a block or boss *e*<sup>2</sup> on the inner face of the upright E at the lower end thereof in order to increase the area of the base of the frame A at such point and also to provide a strong bearing for the lower roller, the face *e'* of the block *e*<sup>2</sup> being inclined and standing approximately parallel with the outer end of the roller G, as best shown in Figs. 1 and 7.

The outer trunnion or shaft F<sup>2</sup> of the roller F journals in a bearing E<sup>2</sup> in the upright E, such bearing having a lateral slot E<sup>3</sup> for convenience in introducing and removing the trunnion F<sup>2</sup>, and a box J<sup>2</sup>, spring J', and screw K, corresponding to the similar parts shown in Fig. 5, are employed to resist upward pressure on the trunnion or shaft F<sup>2</sup>, as will be understood from Fig. 1. The shaft F<sup>2</sup> has a handle L by which it can be turned.

The rollers F and G are in the form of truncated cones and stand opposite each other, with their bases or large ends directly opposite each other and the axis of the roller G underlying the axis of the roller F, so the



surfaces of the rollers will stand opposite each other, as will be understood from Figs. 1 and 3. The pan M, which supports the dough, has a bottom M' and an upwardly-projecting rim M<sup>2</sup> at the outer edge of the bottom. This pan also has a central opening M<sup>3</sup>, which fits around the central standard D, and the annulus produced between the central opening M<sup>3</sup> and the outer rim M<sup>2</sup> operates between the rollers F and G, as shown in Figs. 1 and 3, so the turning of the roller F will operate to revolve the pan and the dough placed therein, the dough being kneaded between the upper roller F and the pan and the stress of such operation being supported by the roller G, as will be understood from Figs. 1 and 3. In the described operation if dough be placed in the pan M and the roller F be turned in the direction indicated by the arrows in Figs. 1 and 3 the dough will be caused to pass beneath the roller F and between the same and the pan M and will pass thence to the cutter N, as shown in Figs. 2, 3, and 6. This cutter N is shown as an upright blade supported at the outer edge of the shifting-plate O immediately adjacent to the roller F, the plate O being arranged with its front edge O' bearing upon the bottom of pan M and inclining thence upwardly toward its rear or delivery edge O<sup>2</sup>, as shown in Figs. 3 and 6. The plate O is provided with an upright flange O<sup>3</sup> at its inner edge, which aids in shifting the cut section of dough outwardly, so it can be delivered upon the other section in the operation of the machine. The plate O on its edge O' adjacent to the roller F is of a width not exceeding one-half the width of the dough-layer as it is discharged from the roller F, and as the dough may be delivered to the roller F at different points along the same I prefer to make the shifting-plate adjustable, so it can be set along the roller F to any desired point. To this end I provide the shifting-plate O with a shank or rod P, which is adjustable through a perforated lug Q on the standard B and can be secured in any desired adjustment by a set-screw Q', as will be understood from Figs. 2 and 6. In the operation of this construction a layer of dough discharged from the roller F will be severed by the cutter N into two sections, the outer section being carried around by the pan M, while the inner section is forced up on the shifting-plate O and along the same, being deflected outwardly by the flange O<sup>3</sup> and delivered at O<sup>2</sup> upon the upper side of the outer section, thus doubling the layer discharged by the roller F, so the dough will be again carried around by the pan in proper condition to be again operated upon by the roller.

It will be understood from the drawings and foregoing description that the rollers operate one immediately above the other and that the working pressure is exerted along a line lying in the plane passing through the axes of both frustrums and the vertical section of the inner standard.

In order to spread the dough in both directions, I prefer to employ a spring R to force the dough toward the center of the pan in the process of kneading. This spring R is secured at one end R' to the outer standard and extends thence into and operates within the pan to shift the outer section of the cut layer of dough inwardly, as will be understood from the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A dough-kneading machine comprising the main frame having the central standard, an outer upright, and the base connecting said standard and upright, the standard and upright being provided with bearings for the inner and outer ends of the upper and lower rollers, the upper and lower rollers extending one above the other and journaled at their inner ends in the standard and at their outer ends in the upright, said rollers being in the form of truncated cones and means being provided whereby the upper roller may be turned, the pan having its bottom provided with a central opening fitting over the standard, and said bottom being arranged to operate between the upper and lower rollers, the shifting cutter arranged in rear of the upper roller and adapted to divide the layer of dough discharged from the upper roller into inner and outer sections and to deliver the inner section onto the outer one, substantially as set forth.

2. The combination substantially as herein described, with the framing having a central standard, and an outer upright, and a pan operating between the said standard and upright, and the upper and lower rollers arranged one above and the other below the pan and journaled at their inner ends in the standard and at the outer ends in the upright, the lower roller being of one length with the upper one, whereby the pan will be supported by the lower roller throughout the length of the upper roller, substantially as and for the purposes set forth.

3. A machine substantially as described, comprising the framing having an inner standard and an outer upright, and provided in said standard and upright with upper and lower bearings for the rollers, the upper roller journaled at its ends in the upper bearings of the standard and upright, and the lower roller journaled at its ends in the lower bearings of said standard and upright, said rollers being of substantially the same length and tapered toward their inner ends, substantially as and for the purposes set forth.

4. A machine substantially as described, comprising a pan having its bottom in the form of an annulus with a central opening, the central standard fitting in said opening, the outer upright, the upper roller bearing above the pan-bottom and journaled at its ends in the standard and upright, and the lower roller bearing below the pan-bottom



and journaled at its ends in the standard and upright and underlying the upper roller throughout the length of the latter, substantially as set forth.

5 5. The combination with the framing, the pan and the roller by which the dough is pressed into a layer on the bottom of the pan, of the shifting device arranged to receive a section of the layer delivered by said roller, and means for severing the layer into sections whereby one section may be delivered on top of the other section to thus double the dough and prepare it for a subsequent treatment by the roller, substantially as set forth.

15 6. The combination with the pan and the roller for pressing the dough into a layer upon the said pan, of the shifting device having a base-plate arranged at its edge next to the roller to strip dough from the pan and elevated at its opposite or delivery edge and provided with a shifting-flange, and means for severing into sections the layer of dough delivered from the roller, substantially as set forth.

25 7. The combination of the framing, the pan, the upper and lower rollers bearing above and below the pan and tapering toward their inner ends, the cutter arranged in rear of the upper roller and adapted to sever the layer of dough into sections, and the stripper by which to strip the inner section from the pan and to deliver the same upon the outer section, substantially as set forth.

35 8. The combination with the pan and the rollers, of the severing and shifting device by which the layer of dough delivered from the roller will be severed into inner and outer sections, and the inner section be delivered

upon the outer section, and means whereby the said shifting and severing device may be secured in different adjustments relatively to the roller, substantially as set forth. 40

9. The combination with the frame having a central standard, and the pan having a central opening fitting over said standard, of the rollers bearing above and below the pan, and the shifting device supported from the standard and adjustable along the upper roller and provided in its outer edge adjacent to the said roller with a knife by which to sever the layer of dough delivered from said roller into inner and outer sections, substantially as set forth. 50

10. The combination of the framing having a central standard, an outer upright, and the base connecting the same, and having said standard and upright provided with bearings for the upper and lower rollers, the upper and lower rollers tapered toward their inner ends and journaled at said ends in the central standard and at their outer ends in the upright, the pan having its bottom provided with a central opening fitting around the standard, and inclining upwardly toward said central opening, and the shifting device supported adjustably in connection with the standard, and having a knife or cutter, and a shifting-plate arranged at one edge adjacent to the bottom of the pan, and inclining thence upwardly toward its opposite or delivery edge, substantially as and for the purposes set forth. 60 70

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Witnesses:

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STEPHEN CLARK.