

I. B. THOMAS & P. CLARE.

CORE MAKING MACHINE.

(Application filed Aug. 14, 1900.)

(No Model.)

2 Sheets—Sheet 1.

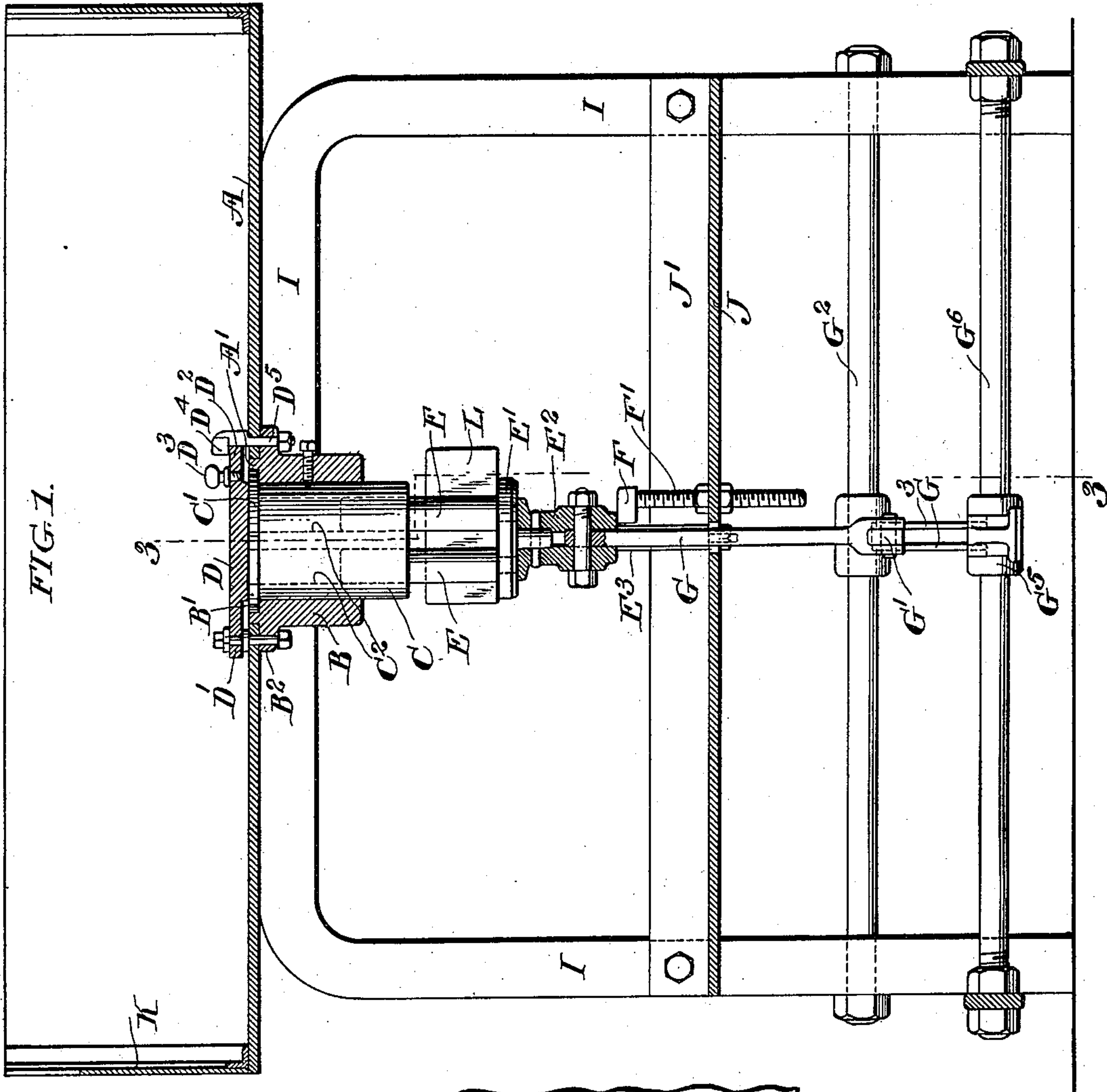
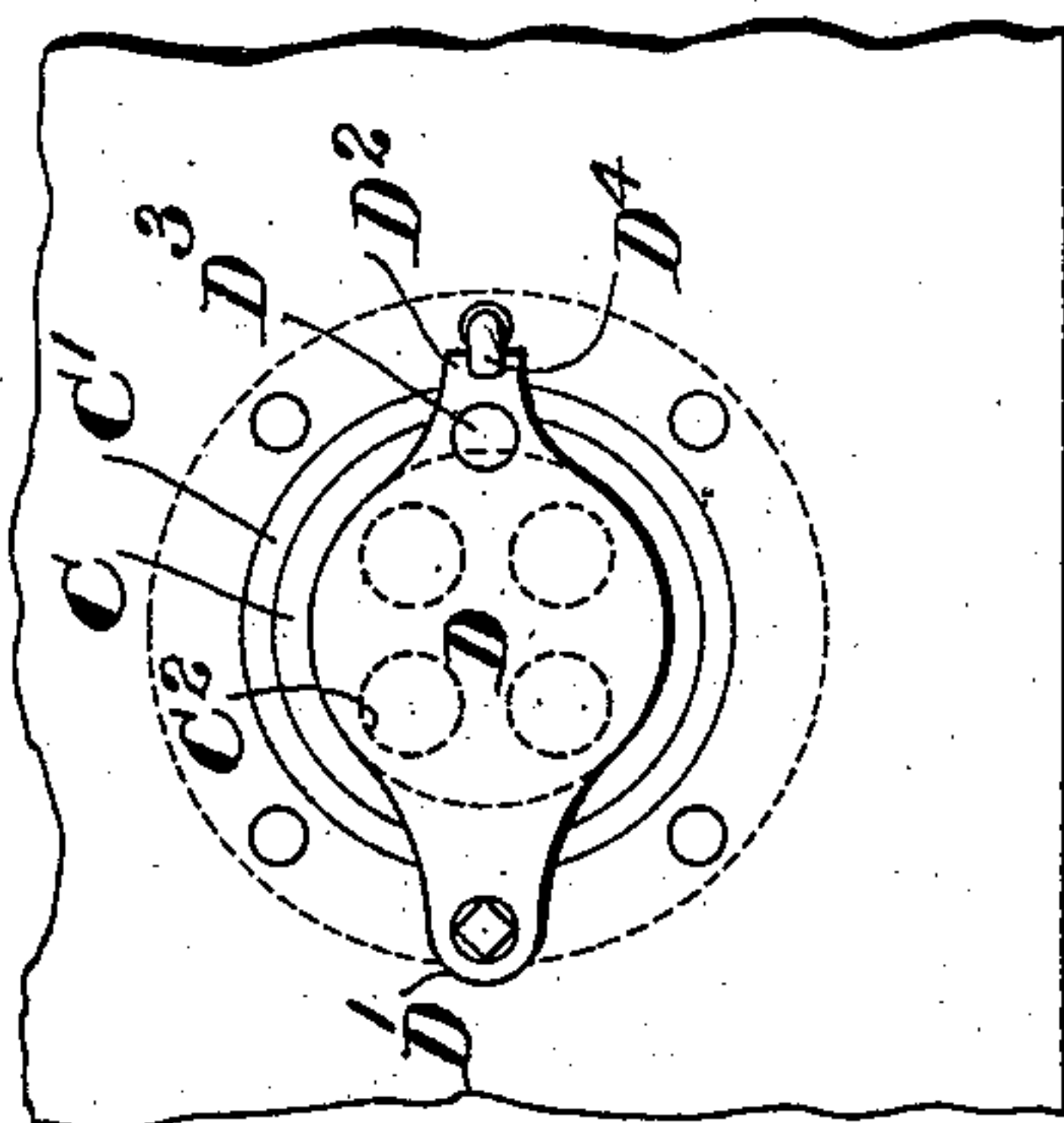


FIG. 2.



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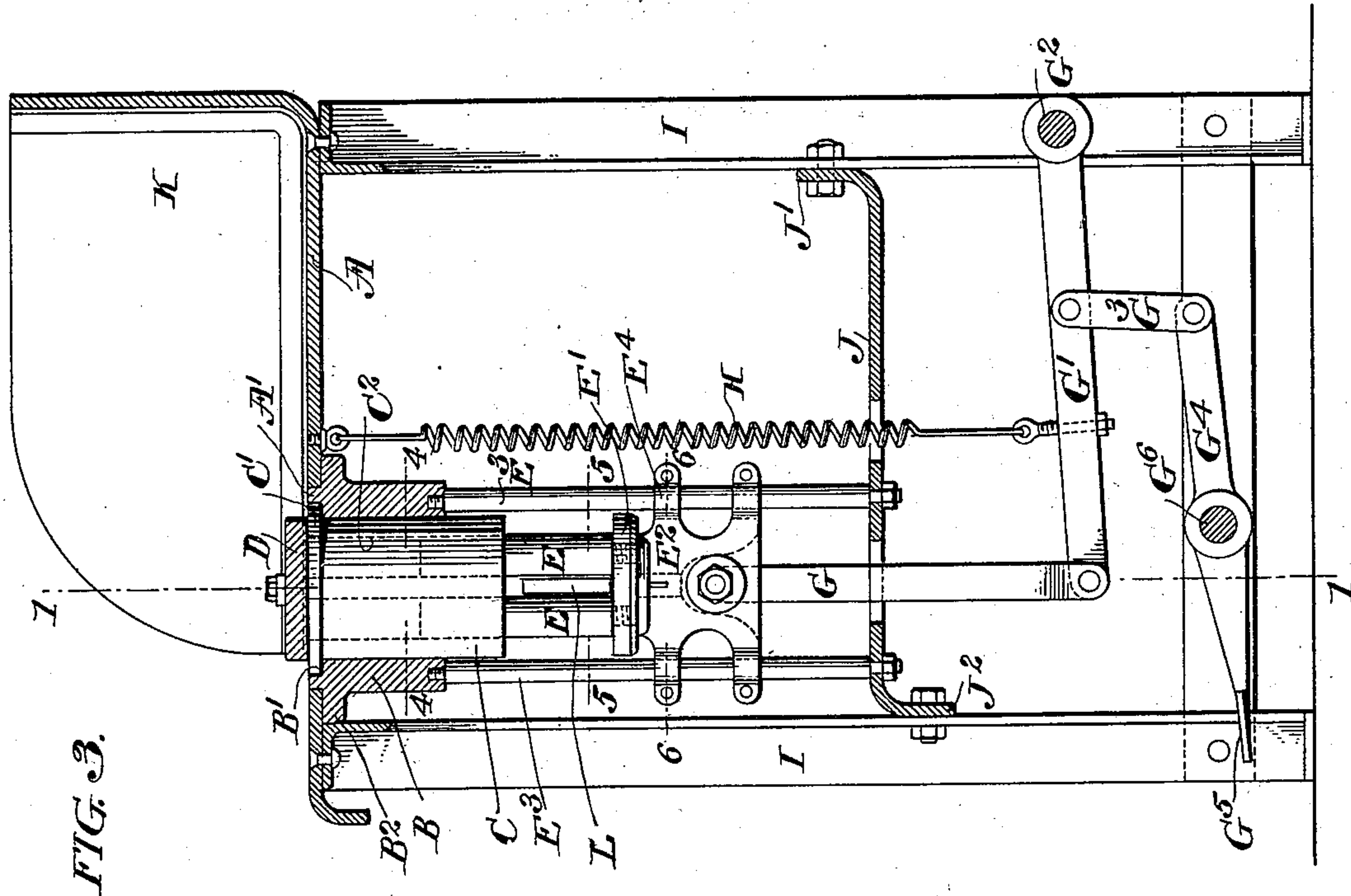


FIG. 3.

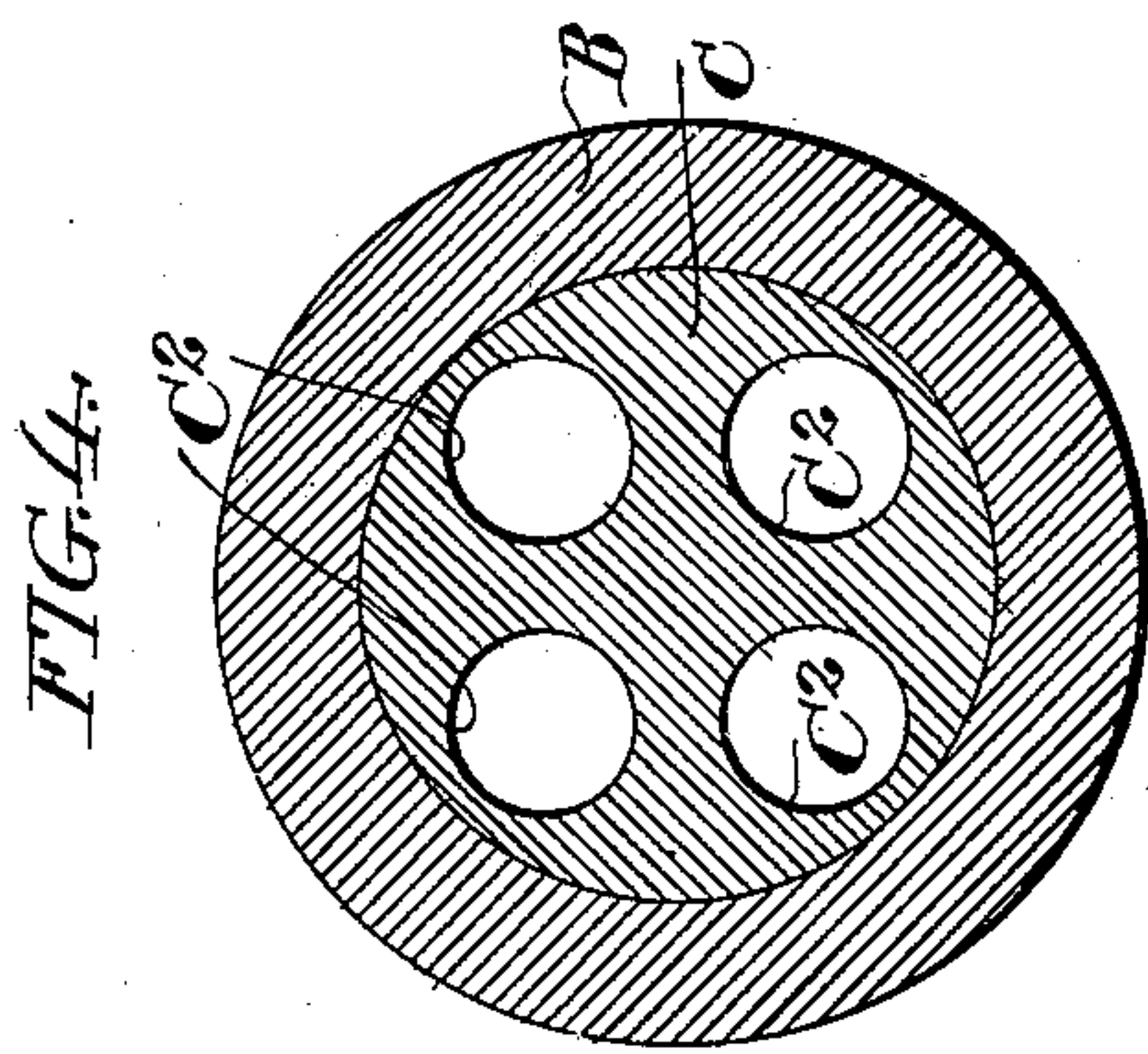


FIG. 4.

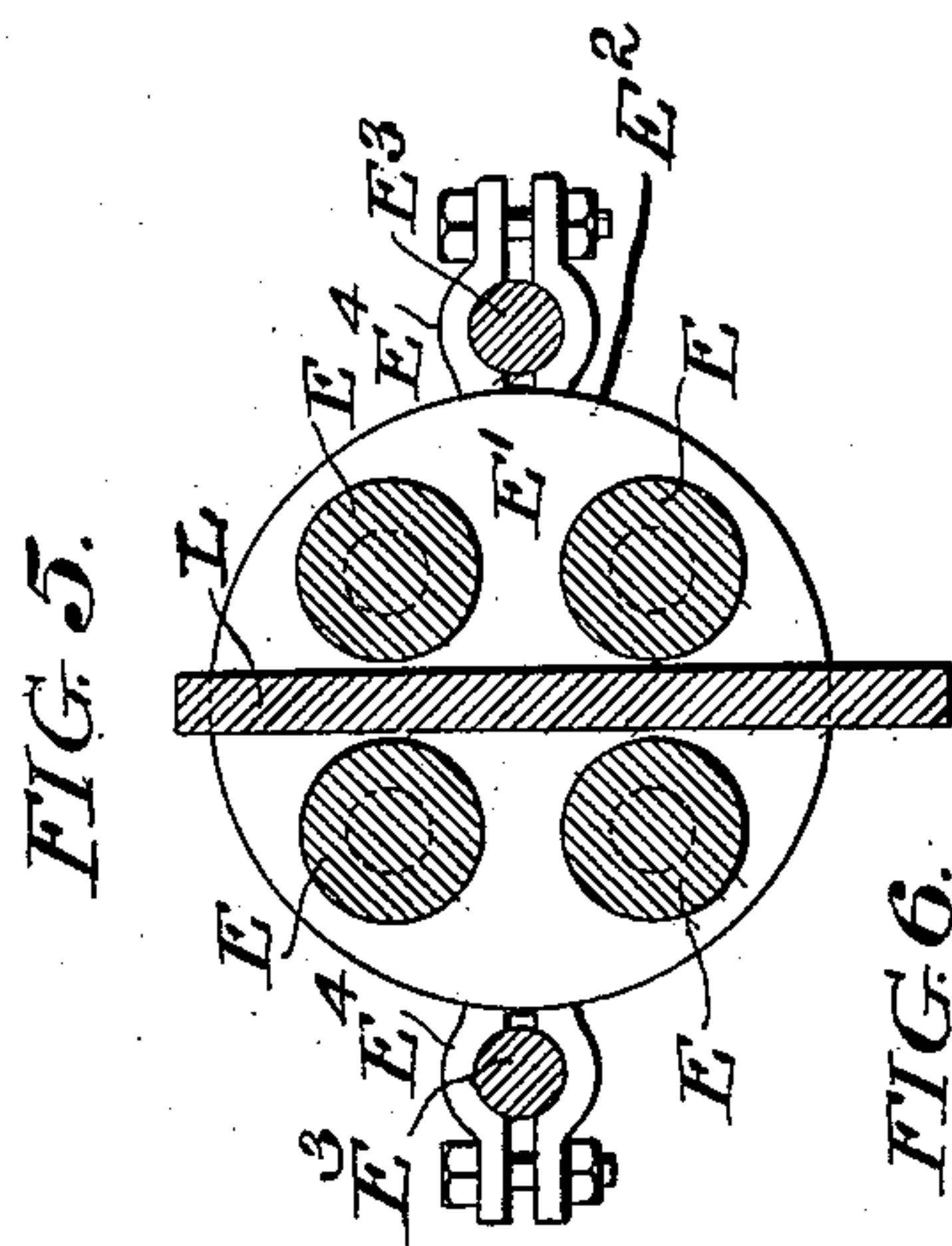


FIG. 5.

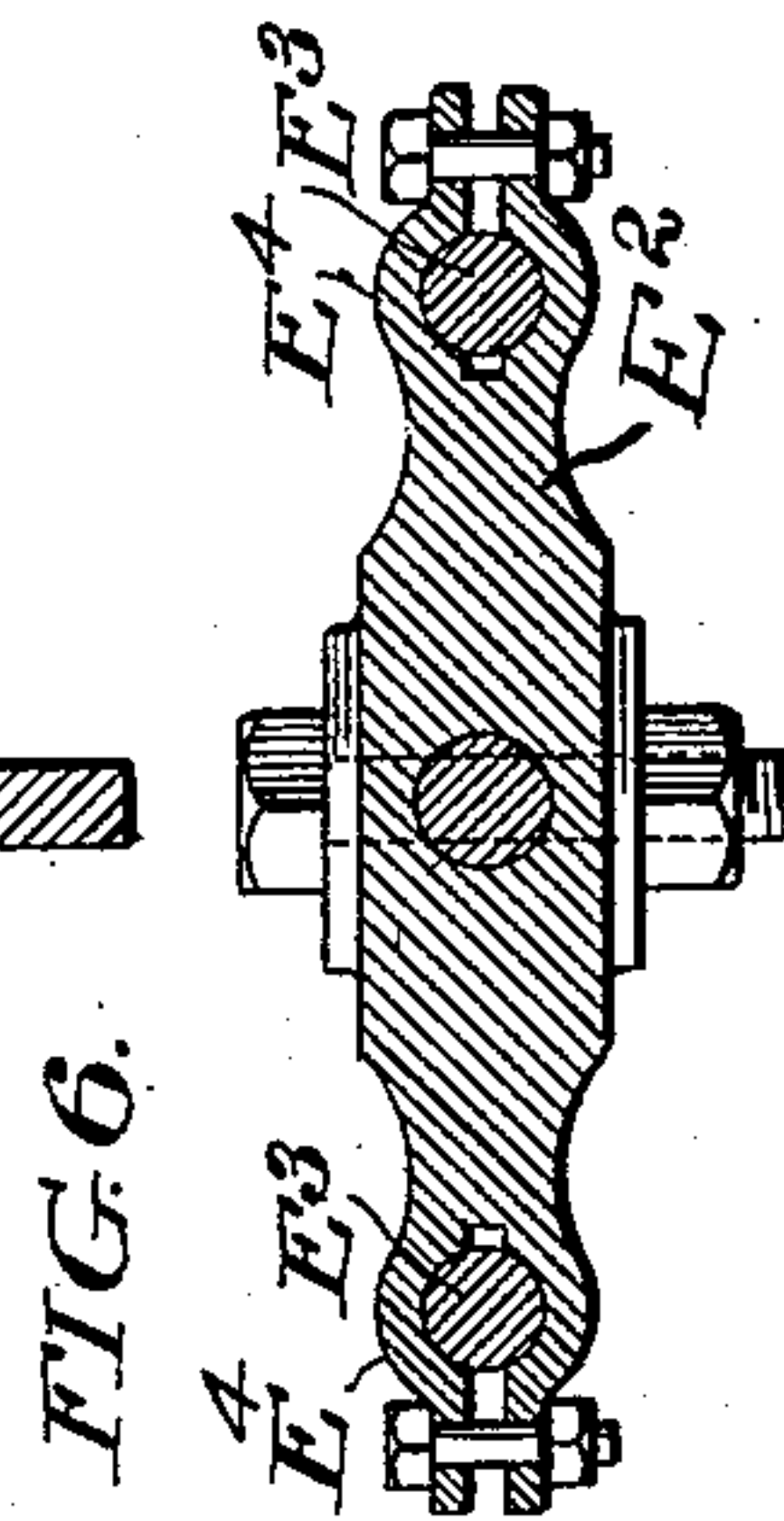


FIG. 6.

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UNITED STATES PATENT OFFICE.

ISAAC B. THOMAS AND PETER CLARE, OF ALTOONA, PENNSYLVANIA.

CORE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 698,758, dated April 29, 1902.

Application filed August 14, 1900. Serial No. 26,844. (No model.)

To all whom it may concern:

Be it known that we, ISAAC B. THOMAS and PETER CLARE, citizens of the United States of America, residing in the city of Altoona, in the county of Blair, in the State of Pennsylvania, have invented certain new and useful Improvements in Core-Making Machines, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

Our invention relates to machinery for making cores for casting out of sand, the object of our invention being to provide a machine of great simplicity of construction in which sand cores can be made with great rapidity and with practically absolute homogeneity of composition and compression.

The nature of our improvements will be best understood as described in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a front view of our machine, shown partly in section on the line 1 1 of Fig. 3. Fig. 2 is a plan view showing the way in which the lid is secured to and operates in connection with the core-box. Fig. 3 is a side elevation of the machine, taken on the section-line 3 3 of Fig. 1. Fig. 4 is a cross-section on the line 4 4 of Fig. 3; Fig. 5, a cross-section on the line 5 5 of Fig. 3, and Fig. 6 a cross-section on the line 6 6 of Fig. 3.

A indicates a platform or table for supporting the sand, K indicating back and rear walls for the table, and A' an opening formed through the table. The table, as shown, is supported on an angle-iron frame, (indicated at I I,) J indicating a horizontal plate connecting the front and rear angle-irons and secured thereto by its bent ends J' and J².

B is a bushing secured to the table so as to extend beneath the opening A'. Preferably this bushing extends flush with the top of the table and is provided with an annular flange B², by means of which it is bolted to the under side of the table. It is also preferably formed with an annular recess B' at its top to receive the top annular flange of the core-boxes C, which are formed with annular flanges C' and are adapted to fit nicely in the bushing B, the core-boxes being readily removable, so that a number of different sizes and forms may be used at will.

C² C², &c., indicate the longitudinal cavities forming the core-boxes, which extend through the box C from end to end and have such conformation as is desired for the cores to be made. As shown, the core-box C is adapted to make four cores at each operation of the machine.

D is a cover for the core-box, which fits over the top thereof when the box is filled with sand and is secured with sufficient firmness to resist the upward thrust of the plungers, to be described. As shown, the cover D is formed with an extension D', by means of which it is pivoted to a bolt, and with an opposite extension D², which when the cover is in position on the core-box lies beneath a lug D⁴, formed on a bolt D⁵.

D³ indicates a handle by means of which the lid is swung into and out of position to cover the core-box.

E E, &c., are plungers longitudinally movable in the box C and of sufficient length to in their uppermost position come flush with or even slightly above the top of the box C. These plungers, as shown, are secured to a platform E', which in turn is secured to a cross-head E², the laterally-extending arms E⁴ of the cross-head working on vertical rods E³ E³, which are secured at top to the bushing B and at bottom to the plate J. For convenience in taking up wear the arms E⁴ of the cross-head are split, as best shown in Figs. 5 and 6.

F (see Fig. 1) is a stop which extends beneath the cross-head and serves to limit the lowermost position to which the plungers E can move in the core-box, this position being that in which the core-box is charged with sand. This stop should be made adjustable, so as to provide for different conditions, and this is conveniently done, as shown in the drawings, by securing it to the end of an adjusting-screw F', supported on the platform or plate J.

G is a connecting-rod extending from the cross-head E² to a lever G', pivoted on a transversely-extending rod G² and actuated, through a link G³, by a treadle-lever G⁴, pivoted on a transversely-extending rod G⁵, G⁵ indicating a foot-treadle.

H indicates a spring, the function of which is to balance the weight of the plungers, cross-

head, and connecting devices, so that while they normally rest in their lowermost position they can be moved upward with little more exertion than is necessary for the compression of the sand.

Of course it will be understood that in place of the treadle mechanism shown any convenient mode of applying power, either manual or mechanical, may be used without modification of our invention.

It is highly desirable not only that the position of the plungers should be uniform when the core-box is being charged with sand, but also that the movement of the plunger should be uniform in the act of compressing the sand into cores, thus insuring not only that each core shall be of the exact size of the others, but also that each core shall contain with substantial accuracy the same amount of sand, compressed to the same degree. For this purpose we provide a movable stop to limit the movement of the plungers in compressing. This may be of any convenient kind—as, for example, it may consist of a plate, as indicated at L, inserted between the plungers on the platform E' and serving to arrest their upward movement by coming in contact with the bottom of the core-box C. This stop is removed when the cover D is also removed, permitting the plungers to move upward, carrying the cores with them until they are expelled from the core-box.

In operation, the core-box being empty, the plungers assume their lowermost position—that defined by the stop M—and the lid D is swung to one side, leaving the top of the core-box open. Sand from the table A is then swept into the core-box until it is full and the lid D swung into position, moving over the top of the core-box without compacting the sand therein. The removable stop L being then in operative position, the plungers are moved upward by means of the treadle G⁵, compressing the sand in the core-box and beneath the cover D, until the upward motion of the plungers is arrested by the stop L, at which point the cores are completed. The cover D is then swung to one side and the removable stop L removed, whereupon the plungers are given a further upward impulse, moving through the core-box and pushing the cores before them until the cores are delivered at the top of the box.

It will be seen that our construction is such as to permit of very easy and very prompt substitution of one core-box C for another, with correspondingly easy substitution of one plunger or set of plungers E for another.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a core-molding machine, a core-box open at top to receive sand and discharge cores, in combination with a cover adjustable over the top of the core-box, one or more plungers working through the bottom of the core-box and of length sufficient to reach the top thereof, a stop regulating the lowermost position of the plunger or plungers in the core-box, a stop for limiting the upward movement of the plunger or plungers in pressing the cores said stop being removable when the cores are complete, and means for moving the plunger or plungers upward in the core-box to press the sand into cores and, after the removal of the cover and removable stop, to expel said cores.

2. In a core-molding machine, a core-box open at top to receive sand and discharge cores, in combination with a cover adjustable over the top of the core-box, one or more plungers working through the bottom of the core-box and of length sufficient to reach the top thereof, an adjustable stop regulating the lowermost position of the plunger or plungers in the core-box, a stop for limiting the upward movement of the plunger or plungers in pressing the cores said stop being removable when the cores are complete, and means for moving the plunger or plungers upward in the core-box to press the sand into cores and, after the removal of the cover and removable stop, to expel said cores.

3. In a core-molding machine, a table, as A, for holding loose sand having an opening, as A', in combination with a core-box receiving bushing B secured to the table and adapted to support a core-box with its top edge flush with the table, a core-box, as C, open at top to receive sand and discharge cores, one or more plungers working through the bottom of the core-box and of length sufficient to reach the top edge thereof, a stop regulating the lowermost position of the plungers in the core-box, means for moving the plungers in the core-box, a removable stop for limiting the upward movement of the plungers when compressing the sand, a sliding cover for the core-box and means for securing it on top of the same during compression.

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Witnesses:

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