

(No Model.)

2 Sheets—Sheet 1.

I. L. CRIPPEN, C. E. CROSBY & W. G. GORDON.
CONTRACTIBLE CORE BAR.

No. 583,789.

Patented June 1, 1897.

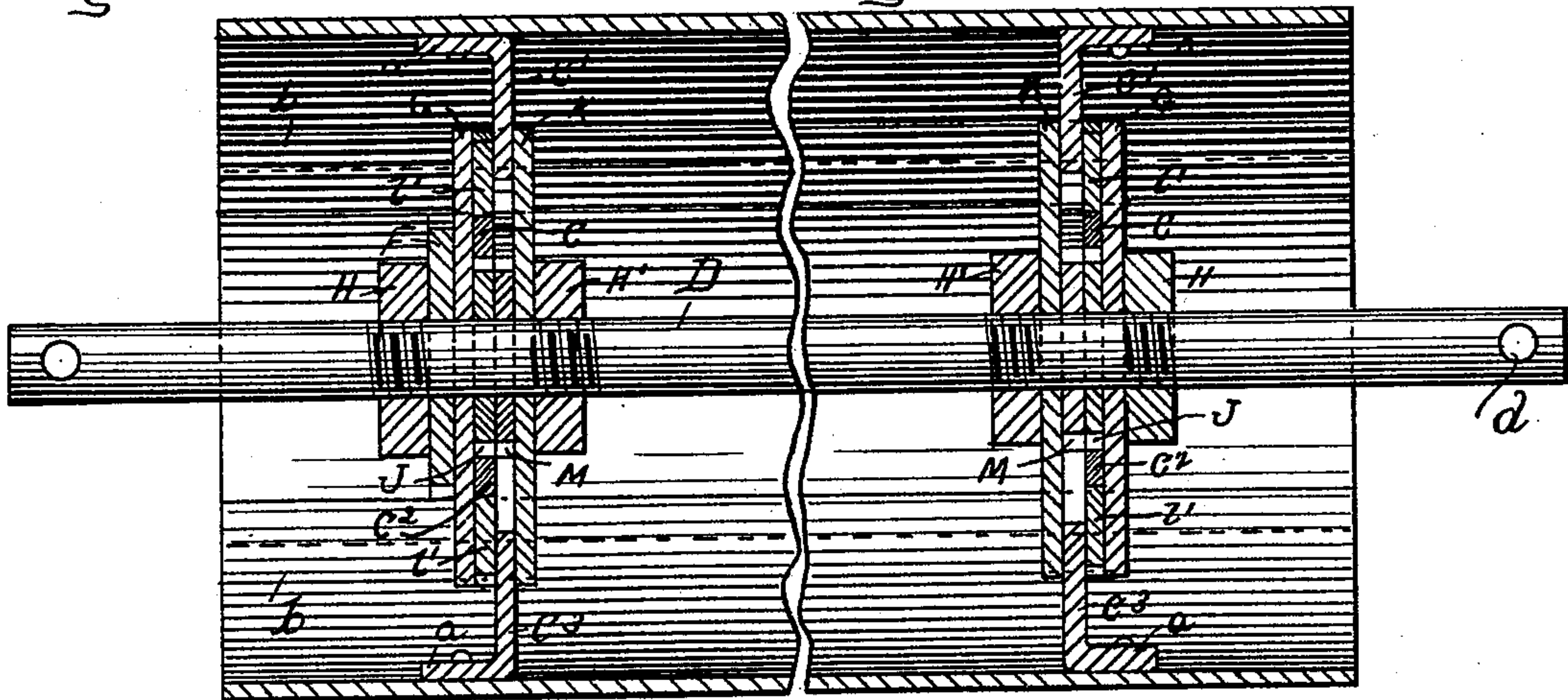
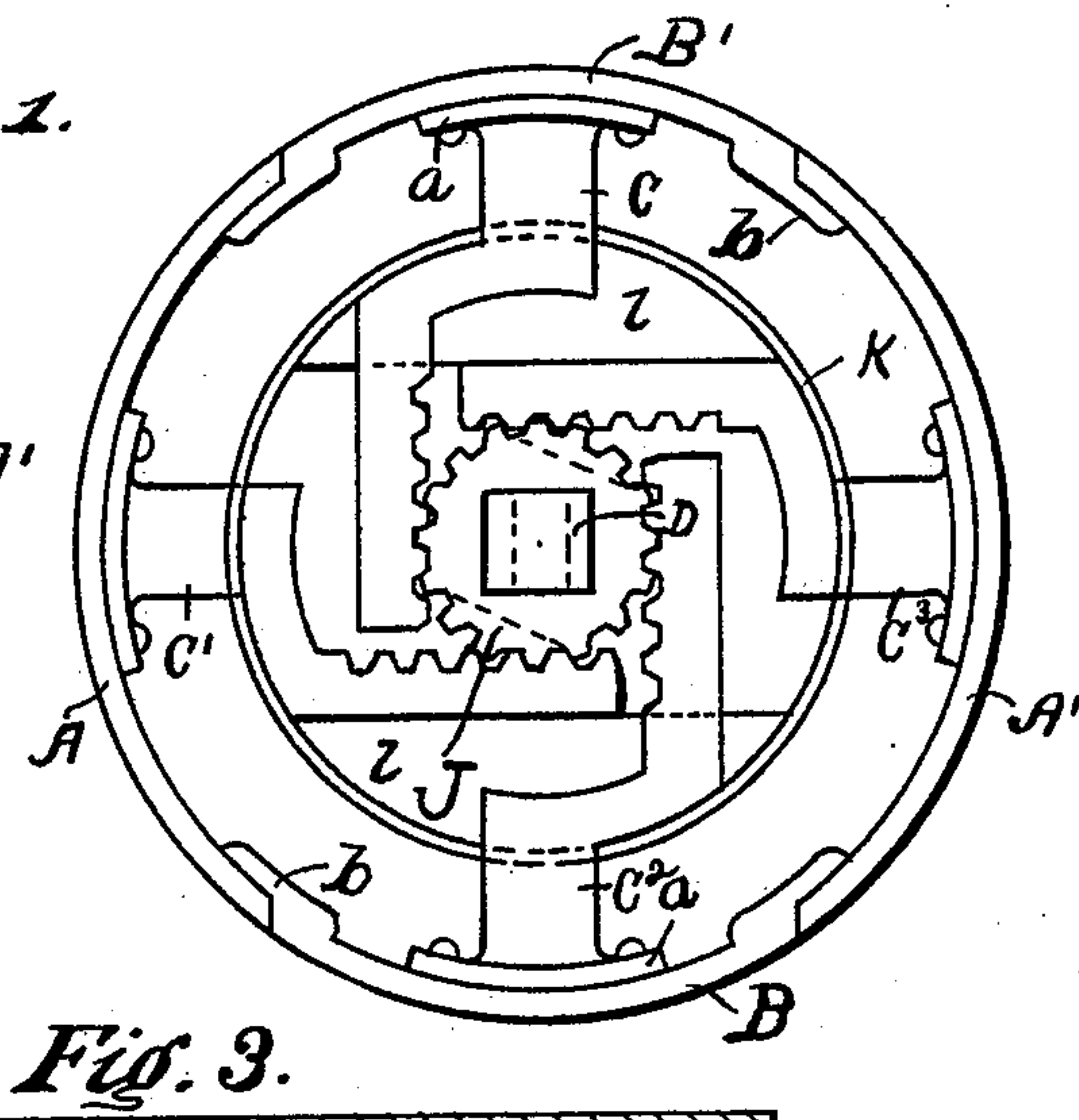
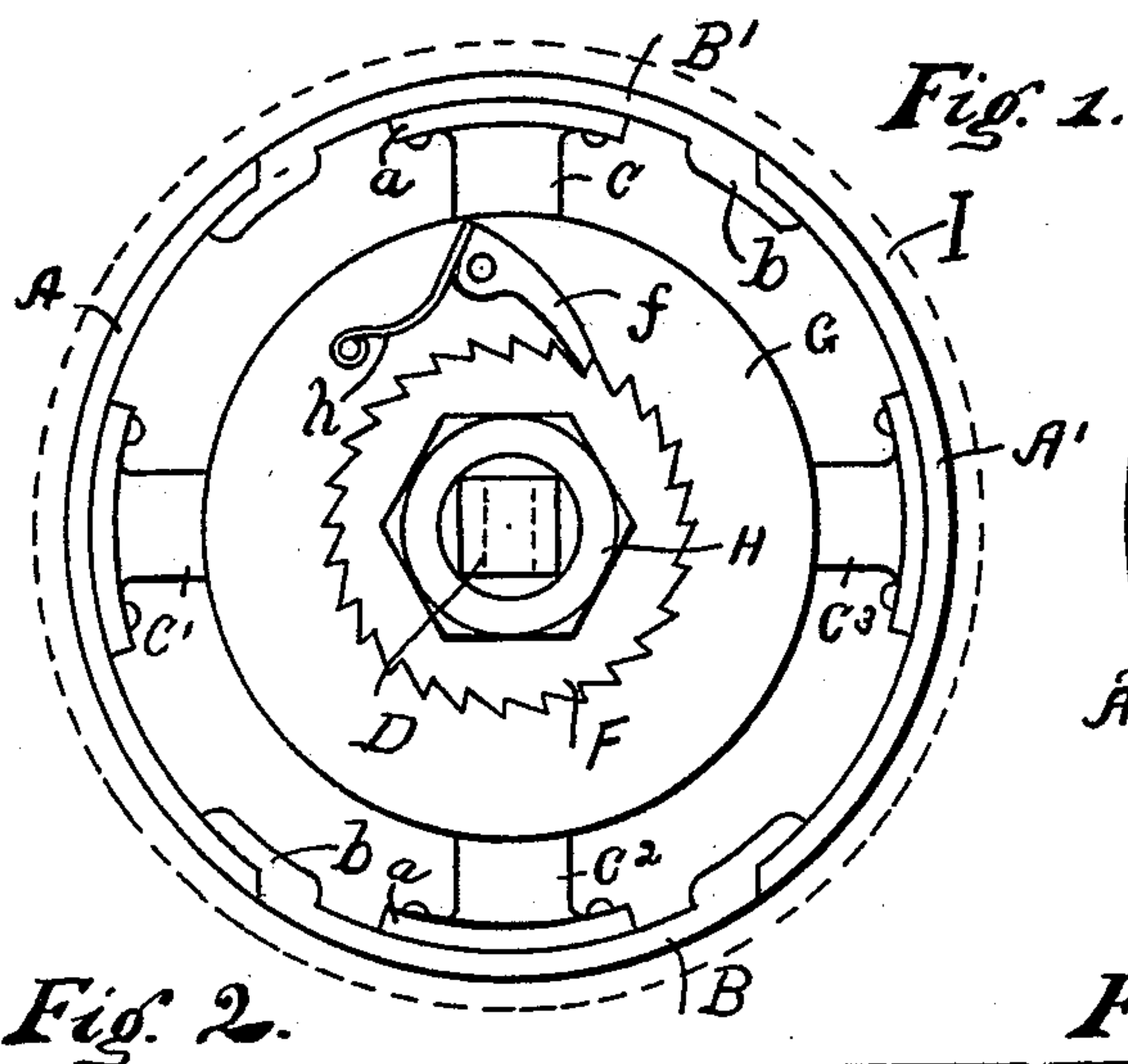
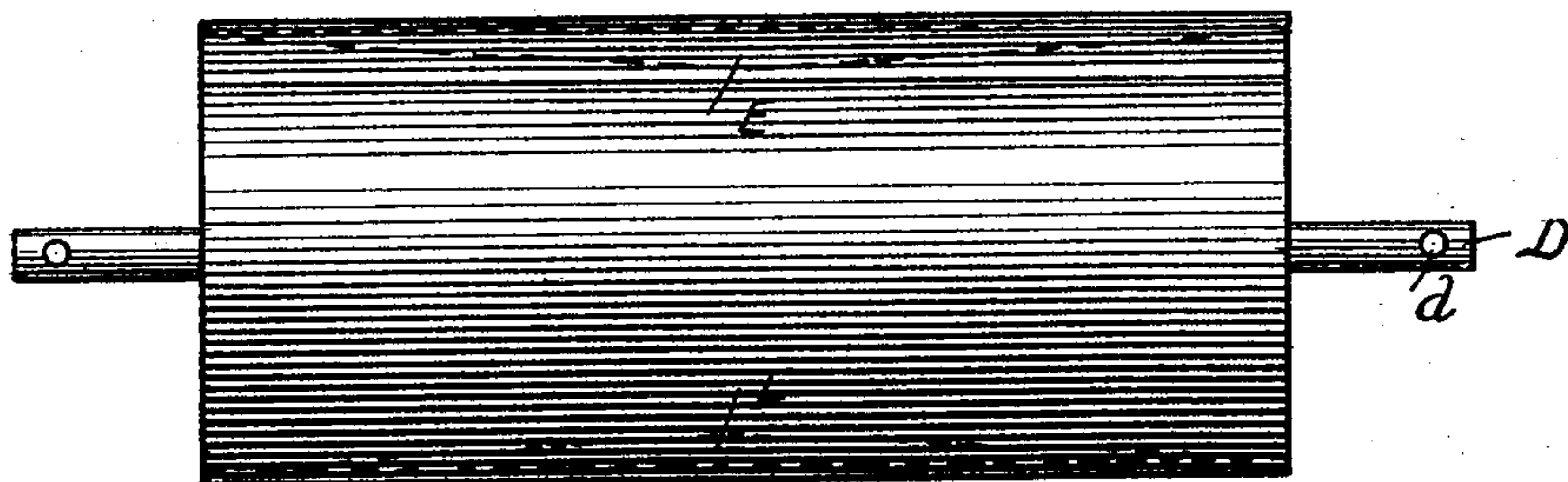


Fig. 4.

Witnesses.

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2 Sheets—Sheet 2.

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Patented June 1, 1897.

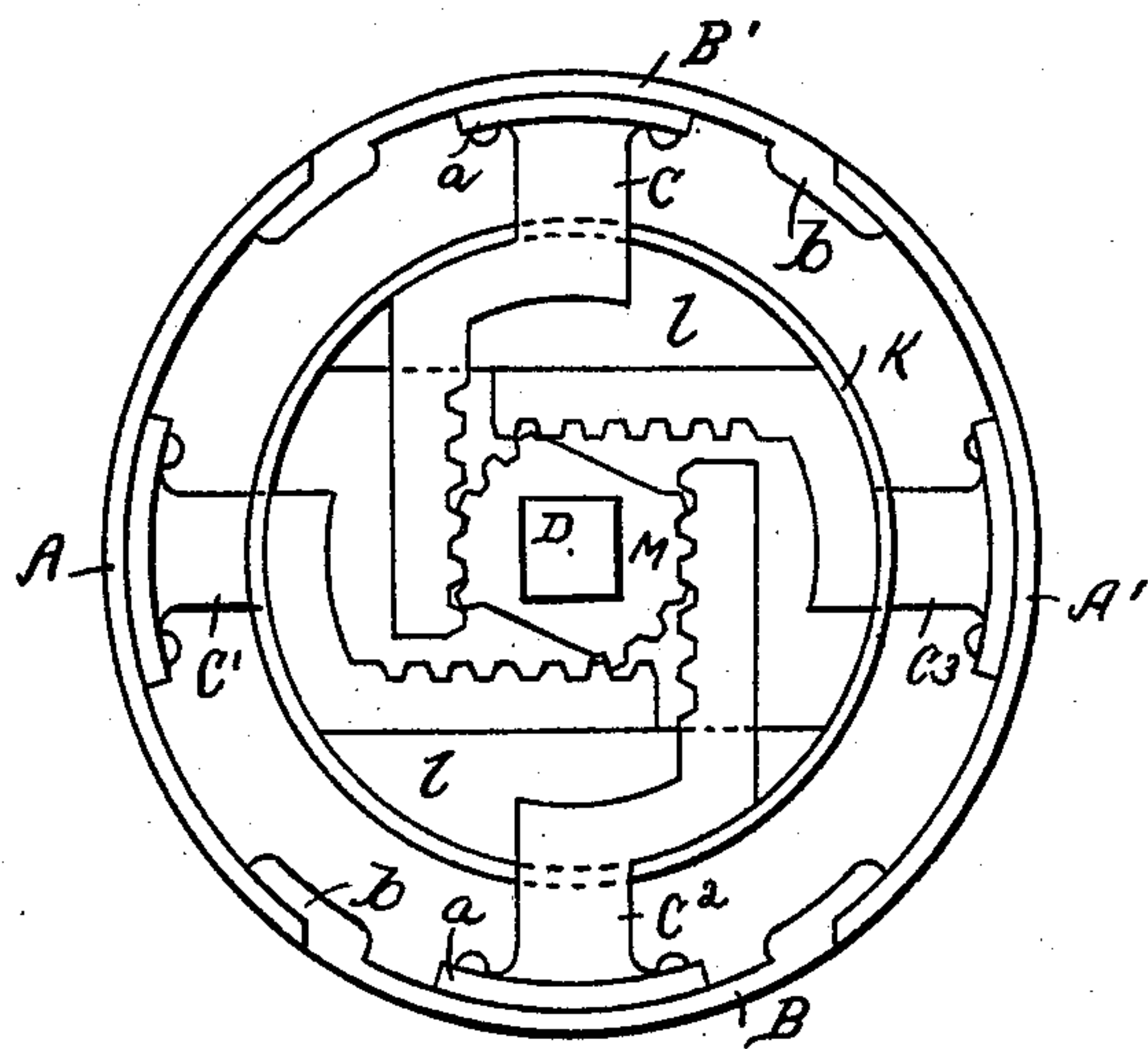


Fig. 5.

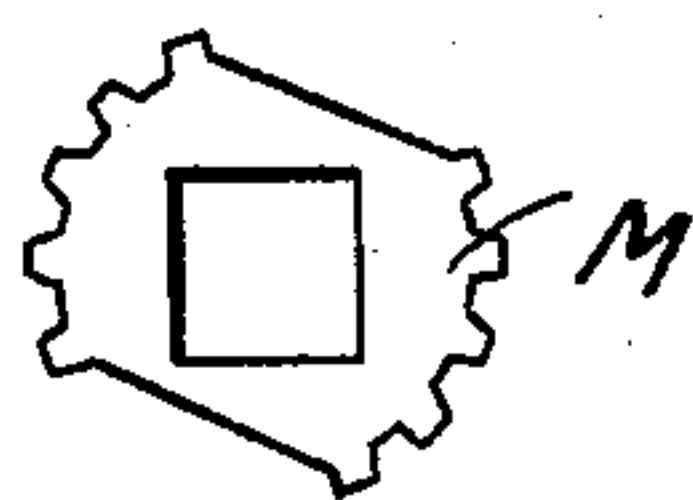


Fig. 6.

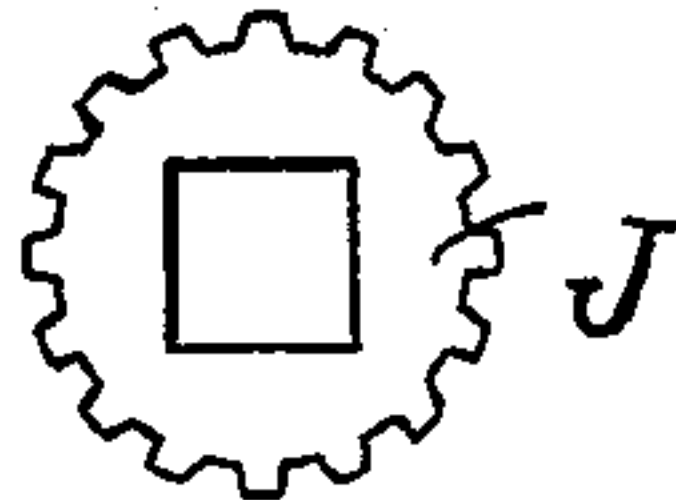


Fig. 7.

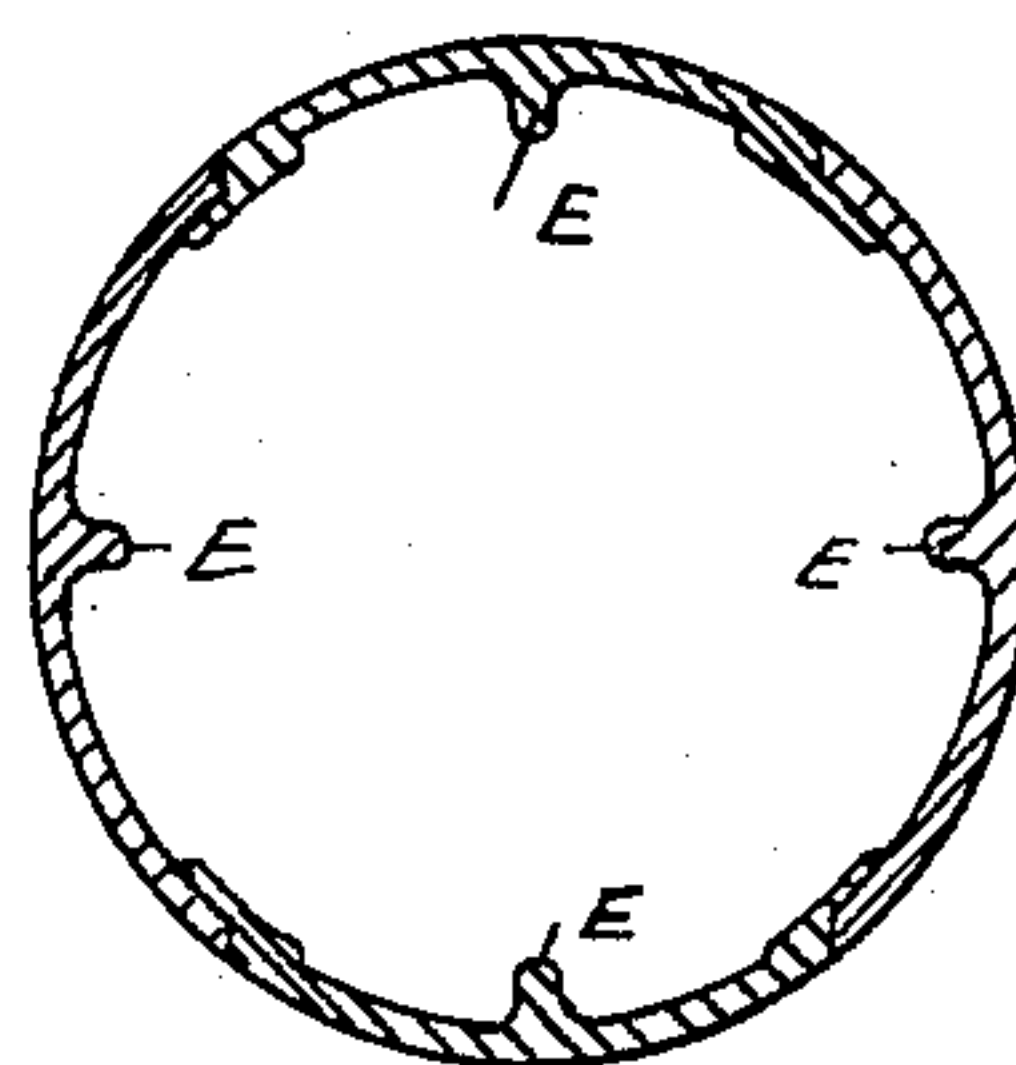


Fig. 8.

Witnesses.

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UNITED STATES PATENT OFFICE.

IRA L. CRIPPEN, CHARLES E. CROSBY, AND WILLARD G. GORDON, OF
INDIANAPOLIS, INDIANA.

CONTRACTIBLE CORE-BAR.

SPECIFICATION forming part of Letters Patent No. 583,789, dated June 1, 1897.

Application filed January 27, 1896. Serial No. 577,002. (No model.)

To all whom it may concern:

Be it known that we, IRA L. CRIPPEN, CHARLES E. CROSBY, and WILLARD G. GORDON, citizens of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Contractible Core-Bars; and we do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to a device for the use of foundrymen in making cores used in casting metallic pipe and cylinders; and it consists of a cylindrical sectional metallic core-bar or center for receiving loam in the usual way, the parts so arranged as to permit of the core-bar being contracted after the casting is made for the purpose of easily withdrawing the bar, as will be more fully shown and described hereinafter.

Our objects are to provide a core-bar which may be used for various sizes, which may be readily withdrawn and be rendered contractible after metal is poured around it, so as to permit of the contraction of the casting without injury either to the casting or bar and without binding the core; and with these objects in view our device is constructed of few parts, is easily and cheaply made, durable and economical in use, and free from the objections of other apparatus heretofore used for this purpose.

Referring to the drawings, Figure 1 is a longitudinal side view showing strengthening-ribs dotted in. Fig. 2 is an end view showing the securing ratchet and pawl used at one end. Fig. 3 is a view of the same end with the ratchet-wheel and cover removed from racks, showing operating mechanism. Fig. 4 is a longitudinal horizontally central sectional view. Fig. 5 is a view similar to Fig. 3, but with the wheel J removed. Figs. 6 and 7 are details of the gear or toothed wheels, and Fig. 8 is a transverse sectional view of shell of cylinder.

In the drawings, A A' B B' are sections of

a cylinder, which sections are normally held in place by means of arms C, C', C², and C³, attached thereto. One end of each of these arms is preferably constructed with a flanged foot *a* and is secured by means of bolts or rivets having countersunk heads on the outside of the cylinder. The opposite ends of these are offset, and the inner edges adjacent to the toothed wheels M and J, secured to the central bar D, have rack-teeth engaging with said wheels. The sections B and B' have offset lap edges *b* at their inner sides, which brace against the inside of the edges of the sections A A', keeping all the sections in a true circle. A case K incloses the offset ends of the arms, but has in the circular wall apertures through which the arms are slidable longitudinally. The case K has on its bottom guides *l*, against which the arms C' C³ are slidable and which keep them in contact with the gear-wheel M. Like guides *l'* are provided in the cap of the case for guiding the bars C and C². On the bar D, which is rotatable, are collars or nuts H' for securing the gear-case, and on the opposite sides of the cases are adjustable nuts H, which secure the caps G in place on the case K. At one end, between the cap of the case and the nut H, is a ratchet-wheel F, secured to the shaft D, and secured to the cap G is a pawl *f*, held in contact with the ratchet-wheel by means of a spring *h*. For convenience in rotating the bar D we provide a hole *d* in each end to receive a lever-bar. In the larger sizes of our bar a strengthening-rib E is attached or cast integral with the inner surfaces longitudinally of each section of the cylinder.

In practical operation the bar D is rotated so that the gear-wheels J and M, in connection with the teeth on the arms, force the arms outward against the rim of the case K, the pawl *f* locking the bar in this position. Loam I is then plastered on and turned true on the outside and dried in the usual way. The cylinder of the bar may be suitably perforated to afford vent when casting as well as to assist in retaining the loam. After the metal is poured around the core and has cooled sufficiently to set a bar or wrench is applied to the bar D and the pawl *f* disengaged from the ratchet-wheel F, after which

the bar is reversed to the left, the first movement actuating the arms $C\ C^2$ by means of the wheel J withdrawing the sections attached. A little further rotation brings the teeth on the wheel M in contact with the teeth on the bars C' and C^3 , withdrawing them, also allowing the casting outside to contract, and at the same time releasing the core-bar so as to be readily withdrawn.

Having described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a core-bar for foundry use, the combination of the cylinder composed of the movable sections, part of which have overlapping guiding edges; radially-adjustable arms secured at one end to said sections, and provided with rack-teeth at the edge of their body portions toward the center of said cylinder; the rotatable central bar; the circular cases supporting said bar and guiding said arms; the gear-wheels secured to said bar and engaging said rack-teeth, said gear-wheels being in pairs in each of said cases, and one of each of said pairs of wheels being devoid of teeth at two opposite sides whereby at a portion of their movement they are not in contact with said rack-teeth; means by which said central bar may be supported endwise; the ratchet-wheel secured to said bar; the pawl mounted on said case and engaging said ratchet-wheel, substantially as and for the purposes shown and described.

2. In a contractible core-bar for foundry use, having a hollow bar or cylinder composing the outer form in longitudinal sections, the combination of the arms C, C', C^2, C^3 , at-

tached at one of their ends to said cylindrical sections, the opposite ends of each of said arms having a parallel offset and rack-teeth on the edges adjacent to the center; a rotatable center bar D, having secured thereto a series of toothed wheels engaging with the rack-teeth on said arms, and a ratchet-wheel secured to said center bar having a pawl in engagement for securing said arms at their outward position in which the longitudinal sections form a cylinder, substantially as and for the purpose shown and described.

3. In a contractible core-bar, the combination with the operating center bar, of the sectional shell, the arms C, C', C^2, C^3 secured thereto; the rack-teeth on said arms; the toothed wheel M secured to said bar and engaging the teeth on said arms C', C^3 ; the toothed wheel J secured to said bar adjacent to said wheel M and engaging the teeth on said arms C, C^2 ; the cases K mounted on said bar provided with the removable cap G and guiding said arms the inner portions of which are supported thereby; the ratchet-wheel F secured to said bar adjacent to one of said cases, and the pawl f mounted on one of said caps and engaging said ratchet-wheel to lock it; substantially as and for the purposes shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

IRA L. CRIPPEN.

CHAS. E. CROSBY.

WILLARD G. GORDON.

Witnesses:

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E. S. SILVIUS.