

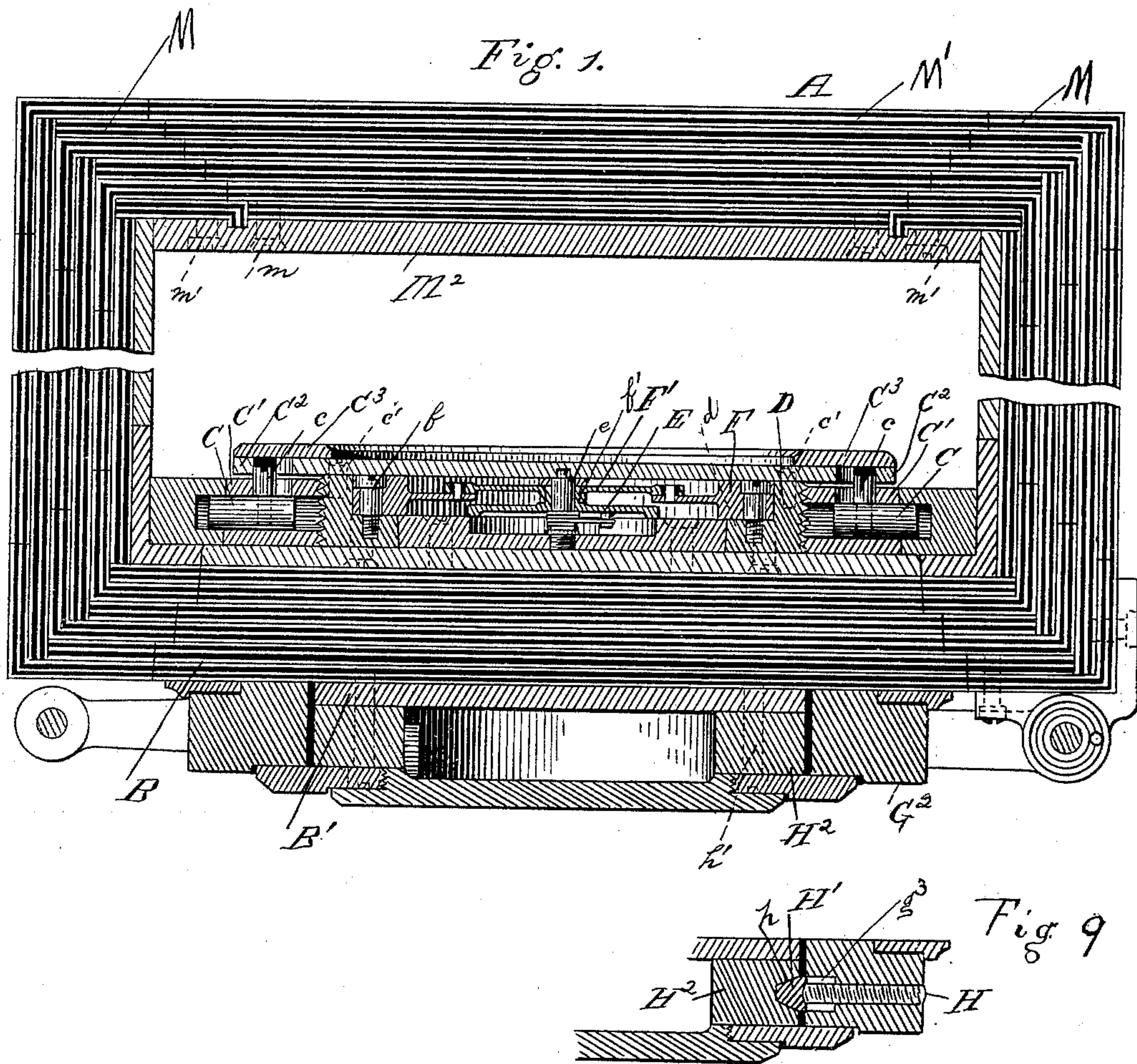
(No Model.)

4 Sheets—Sheet 1.

T. M. BRINTNALL.  
SAFE.

No. 488,960.

Patented Dec. 27, 1892.



Witnesses:  
Chas. Burnap  
Cyrus Burnap

Inventor  
Thomas M. Brintnall  
By his Attorney  
Halter N. Chamberlin

(No Model.)

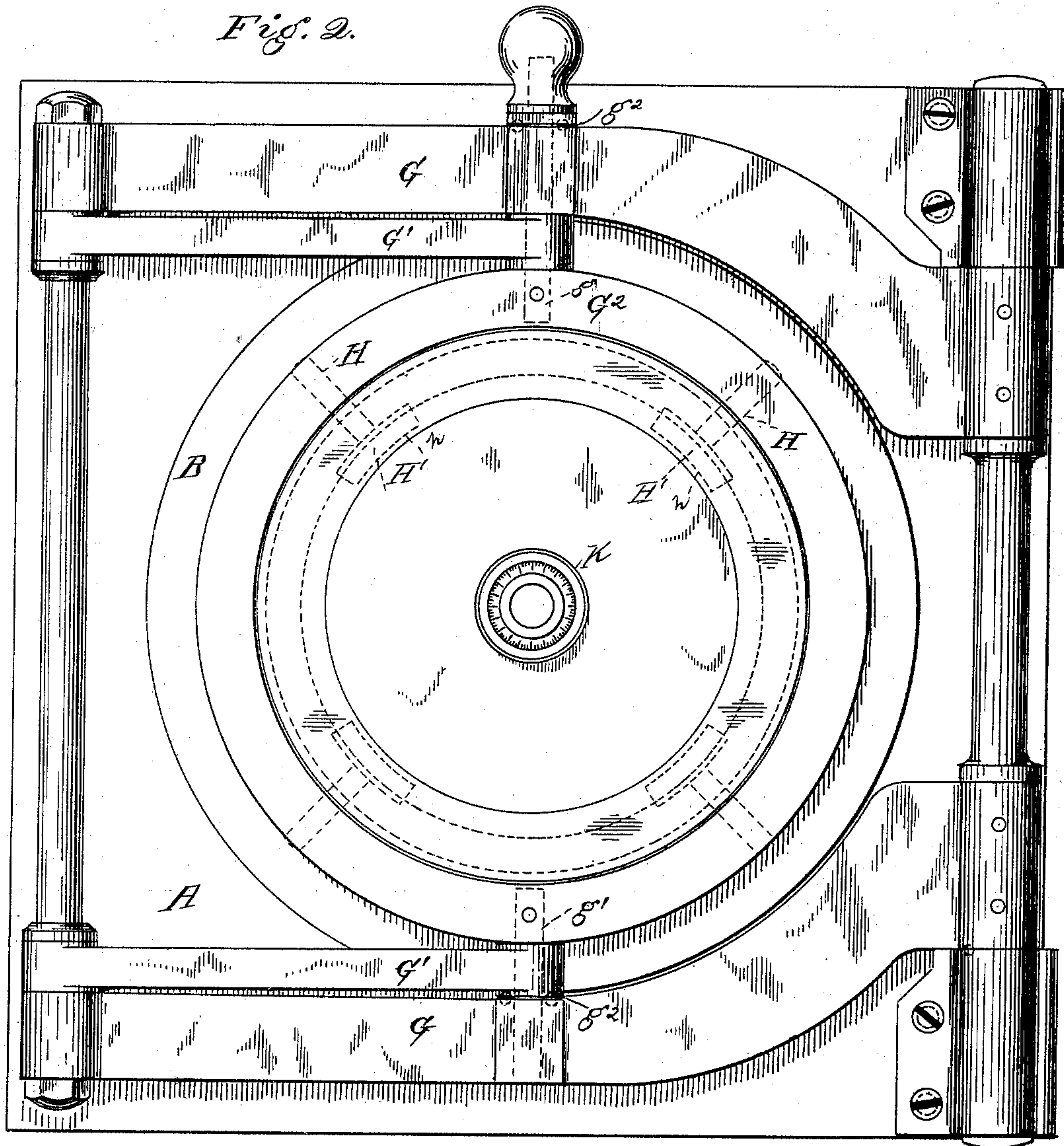
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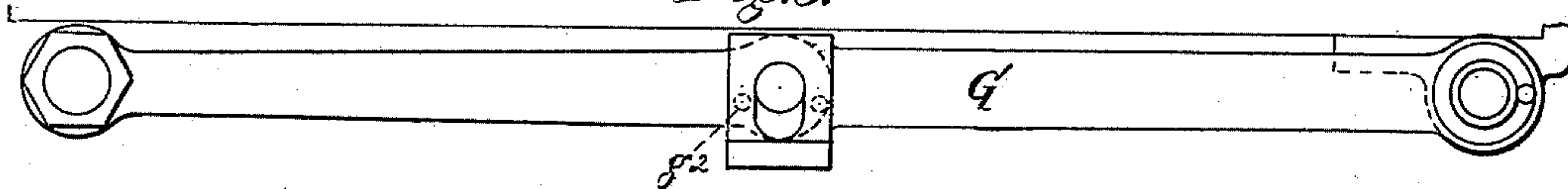
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*Fig. 2.*



*Fig. 3.*



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Fig. 4.

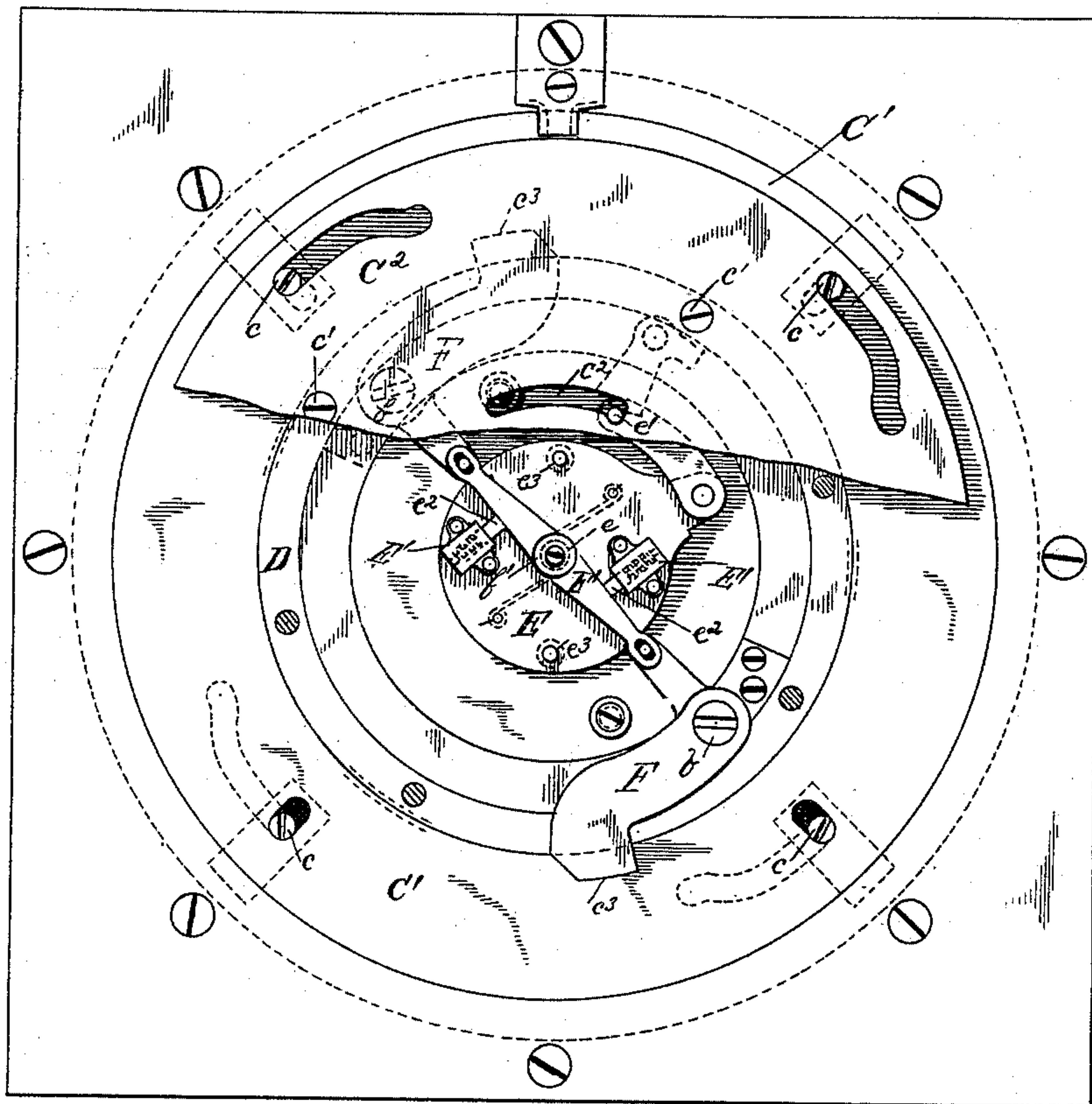


Fig. 5.

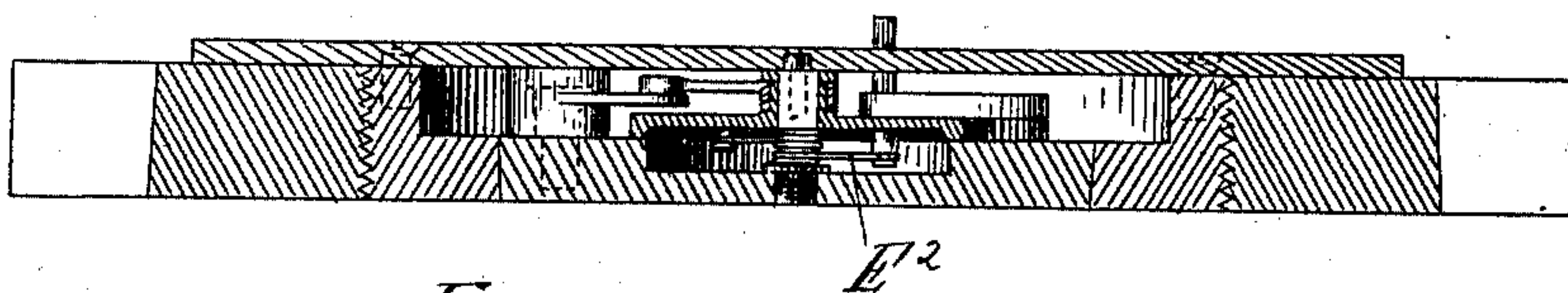
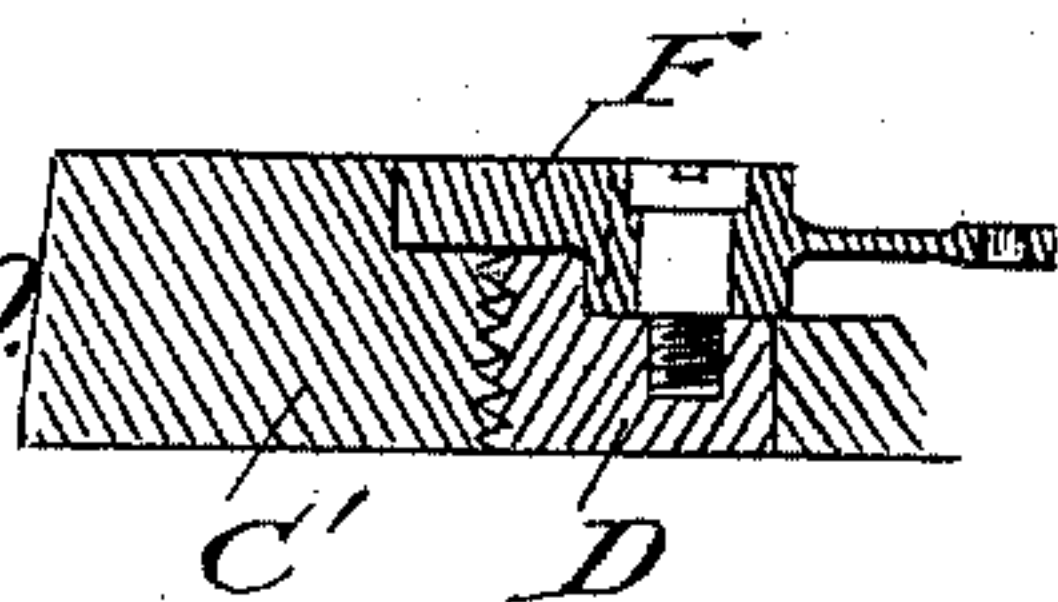


Fig. 10.



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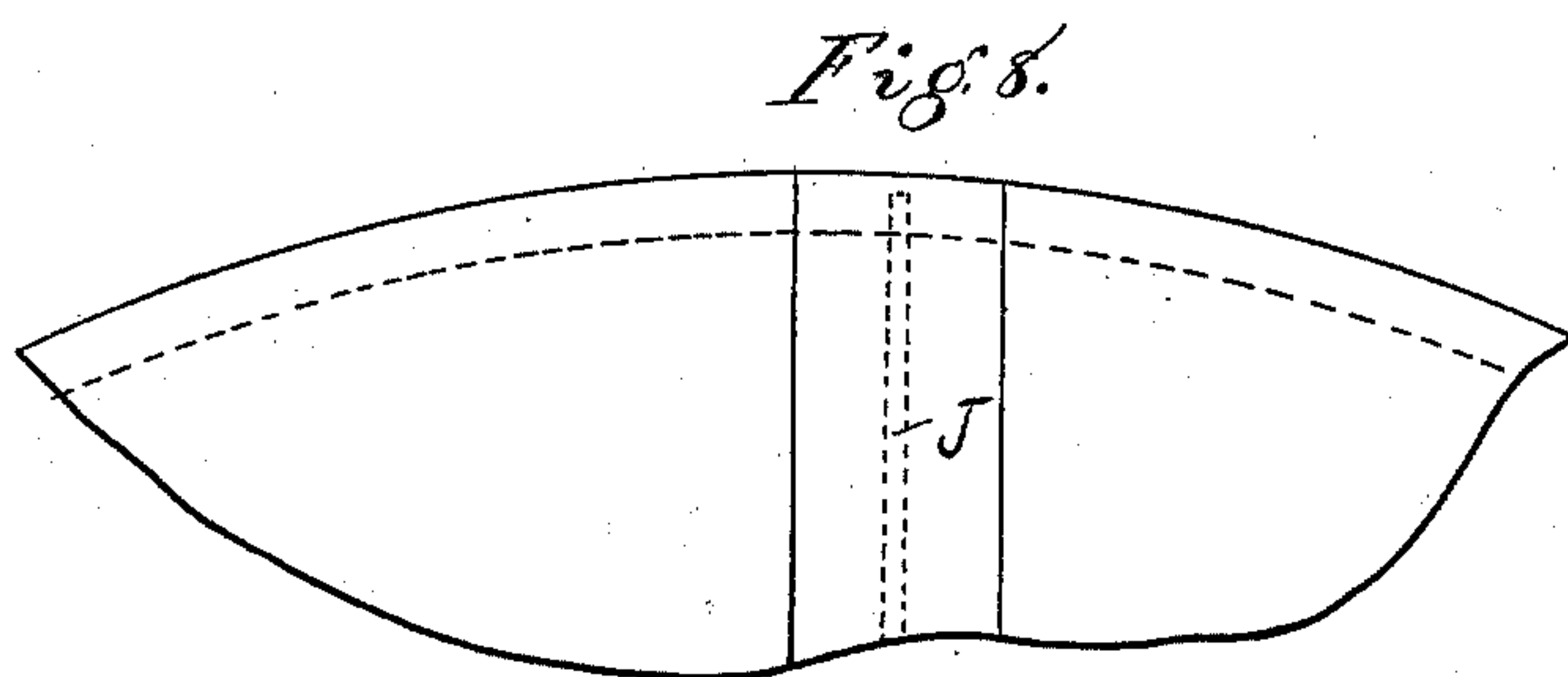
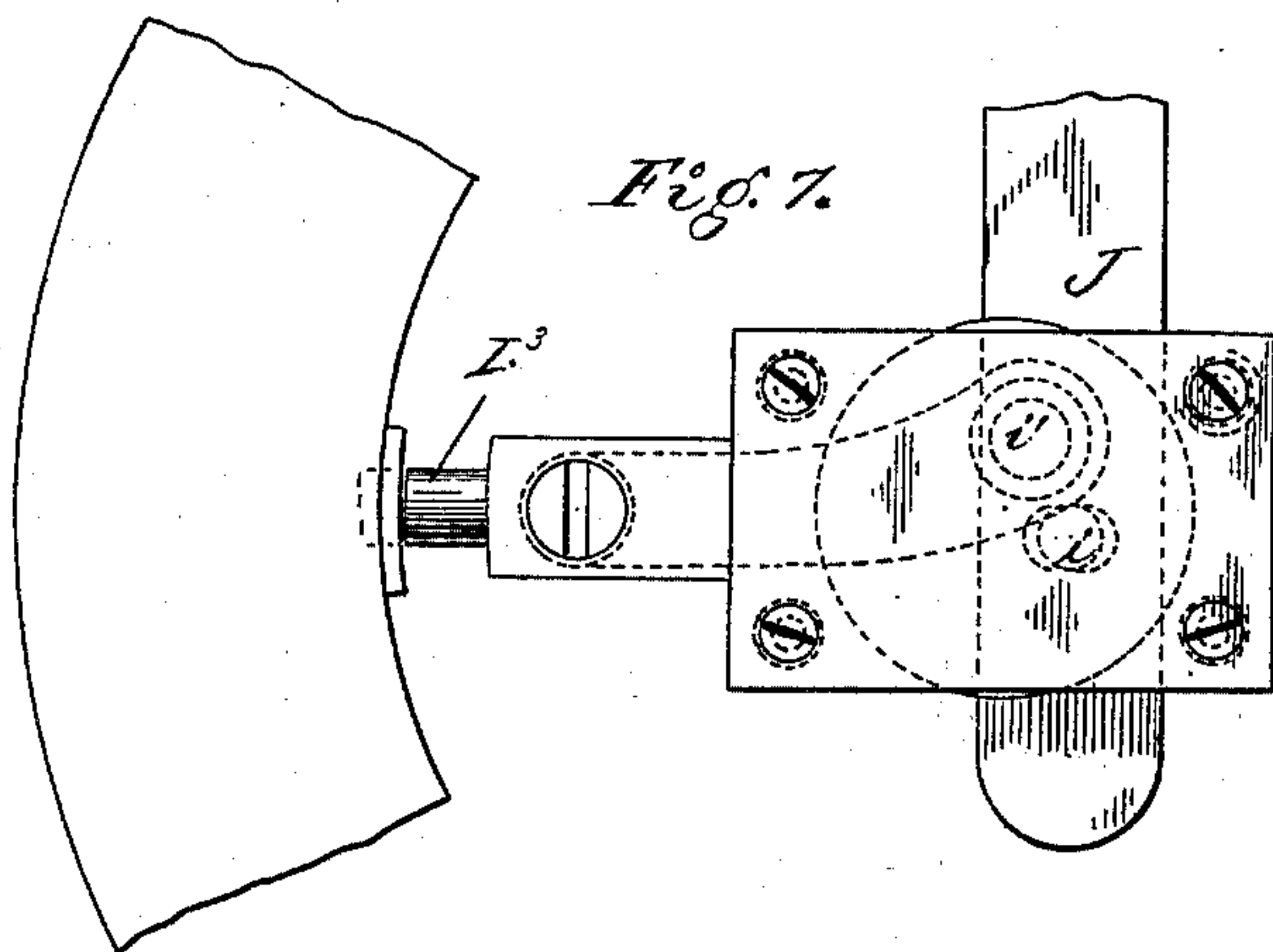
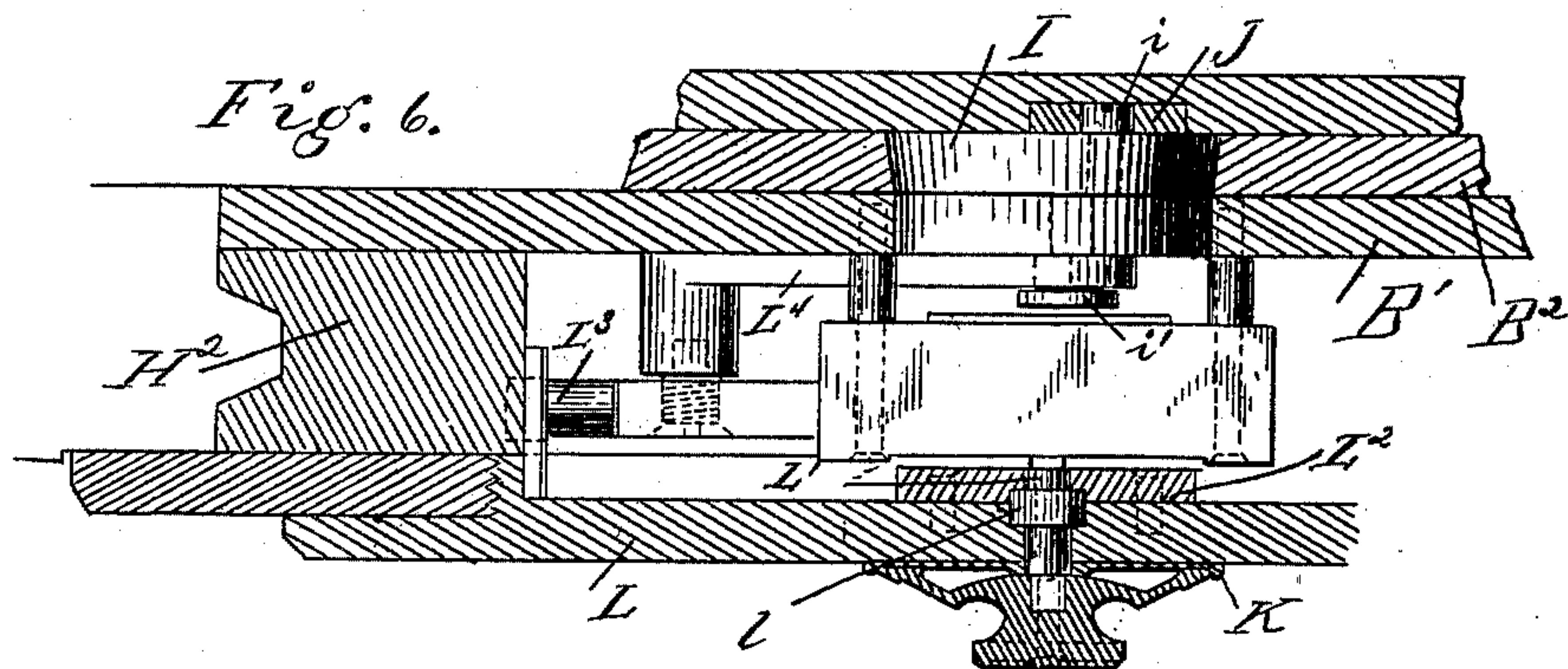
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# UNITED STATES PATENT OFFICE.

THOMAS M. BRINTNALL, OF MEDINA, OHIO.

## SAFE.

SPECIFICATION forming part of Letters Patent No. 488,960, dated December 27, 1892.

Application filed August 27, 1891. Serial No. 403,840. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS M. BRINTNALL, a citizen of the United States, residing at Medina, county of Medina, State of Ohio, have  
5 invented a certain new and useful Improvement in Safes, Vaults, &c.; and I 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  
10 and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of certain improvements on the construction set forth in an application filed by me  
15 February 16, 1891, Serial No. 381,542; and it consists in a combination of devices and appliances hereinafter described and claimed.

In the drawings: Figure 1—is a horizontal  
20 section of a safe embodying my invention. Fig. 2—is a front elevation of the same. Fig. 3—is a view of the under side of the lower long arm of the hinge. Fig. 4—is an enlarged elevation of the time lock or dogging  
25 mechanism. Fig. 5—is a horizontal section of the same. Fig. 6—is a horizontal section of a portion of the outer face of the door illustrating the combination or day lock mechanism. Fig. 7—is an elevation of a portion.  
30 Fig. 8—is a detail view of the locking bolt. Fig. 9 is a detail of construction. Fig. 10 is a detail of the dog F.

In carrying out the invention I will first  
35 enumerate briefly the parts employed to operate the locking bolts, the construction in this respect being substantially the same as that illustrated in my former application, A represents the body of the safe and B the main portion of the door. C are the bolts  
40 carried by the bolt ring C', the bolts being provided with lugs *c* which enter cam slots in the cam plate *c*<sup>2</sup> the latter being keyed to the door by the screws *c*'. C<sup>3</sup> is the covering plate or ring. D is a ring keyed to the door by the  
45 screws *d* and engaged to the bolt ring C' by a screw engagement. While I have shown this engagement in this application as well as in my prior application as made up of a number of screw threads, yet it is obvious that  
50 any form of an inclined or cam engagement between the two rings would serve the purpose. The operation of the bolts is the same

as in my former application, a stop on the frame engages the bolt ring C' as the door is closed and dogs it. A revolution of the door  
55 after it is closed causes the cam slots in the cam plate C<sup>2</sup> to shoot the bolts outward and thus lock the door.

I will now describe the mechanism whereby the door may be dogged in its locked position until intentionally released. E (Figs. 1  
60 and 4) is a plate or skeleton frame pivoted as at *e* to the door and within the confines of the ring D. This plate is provided with either one or two pins *e*' which extend up through  
65 the slots *c*<sup>2</sup> in the cam plate C<sup>2</sup>. F are dogs in the form of bell crank levers pivoted as at *f* to the ring D. F' is a lever pivoted as at *f*' to the pivot *e* the ends of the lever F' being pivoted to the ends of the short arms of  
70 the dogs F. E' are sockets on the plate, E, carrying spring impelled pins *e*<sup>2</sup>.

To set the dogging mechanism the operator grasps one of the pins *e*' and moves it around  
75 say to the right, as shown in Fig. 4. At the end of its travel it is caught and engaged by any suitable catch, whereby it may be held until intentionally disengaged. The pin is held by this catch until either a time piece, an electro  
80 magnet, or other agency operates on the catch to disengage it from the pin. The revolution of the plate E has brought the spring impelled  
85 pin *e*<sup>2</sup> to bear on the lever F' which in turn exerts a pressure on the dogs F and forces the outer ends outward. Now when the door is  
90 revolved to shoot the bolts these dogs ride into suitable notches *c*<sup>3</sup> in the bolt ring C' and dog the rings D—C' together thus preventing the revolution of the door until such time as the pin *e*' is released when the spring E<sup>2</sup> (Fig. 5)  
95 returns the plate E to its normal position. This backward rotation of the plate E moves the spring impelled pins *e*<sup>2</sup> away from the lever F' and brings the pins *e*<sup>3</sup> to bear on the lever. This acts to throw the dogs out of en-  
100 gagement with the ring C' and allows the door to be rotated. By thus providing two dogs say one at the top and one at the bottom and connecting them by the lever F', the weight of one dog in dropping out of its recess in the ring C' will help to raise the other dog at the bottom thus lessening the dependence on the spring E<sup>2</sup> to perform the function. It will also be observed that the lever F' is outside



or above the end of the dog to which it is pivoted, so that should the lever  $F'$  and plate  $E$  both be blown off by designing persons, the dogs still remain and prevent the door being opened. Then again it will be observed that the dogging mechanism is all housed within and protected by the ring  $D$  and plate  $C^2$ . It is obvious that instead of the spring impelled pins  $e^2$  for exerting a pressure on the lever  $F'$ , I might use any other form of spring to exert this pressure.

I will now describe the means whereby the door is supported and whereby it is adjusted to center it with respect to its opening.  $G$  are the long arms and  $G'$  the short arms of the hinge, they being similar to those employed in my previous application.  $G^2$  is the hinge ring on the door the pins  $g-g'$ —extending therefrom at the top and bottom into the hinge arms. In order that the friction may be reduced to a minimum, I provide the balls or friction rollers  $g^2$  where the weight of the door bears on the hinge arms.  $H$  are set screws extending through the hinge ring  $G^2$  and bearing on the shoes  $H'$  which in turn are set in and bear upon a channel  $h$  in the ring  $H^2$  which is rigidly engaged to the face of the door by the screws  $h'$ . By means of the set screws the door may be accurately adjusted to center it and in addition to forming bearings for the set screws the shoes  $H'$  prevent the door even should the screws be loosened from being taken out of the hinge ring until the upper shoes have been lifted up into the cavities or recesses  $g^3$  (Fig. 9) in the hinge ring. Thus should the set screws accidentally become loosened the door is prevented from falling out of its hinge ring.

I will now describe the construction of the combination or day lock.  $B'$  is a plate engaged to the main door plates by the bolts or screws which engage the ring  $H^2$  to the door and if desired by additional screws. Dove-tailed into the outer plate  $B^2$  of the door proper, is the spindle  $I$  which also passes through the plate  $B'$ . Located on this spindle outside of the center so that it forms a crank pin, is the pin  $i$  to which is engaged the bolt  $J$ . This bolt  $J$  extends through a channel in the main portion of the door to the outer edge so that when shot out to the locking position it enters a recess in the adjacent frame and thus locks the door against revolution. On the face of the door is the dial  $K$  of the combination lock and inside or behind the plate  $L$  are the tumblers. Instead of extending the spindle which operates the tumblers out to the dial, I provide an intermediate spindle  $L'$  having a collar  $l$  which is countersunk in the inner face of the plate  $L$  and held by the plate  $L^2$ . The spindle  $L'$  is bored and the orifice made angular so that the tumbler spindle entering the bore, the two are interlocked and a slight longitudinal play being provided for, so that should the dial or the spindle  $L'$  be struck by a blow, the tumbler spindle and tumblers would not be af-

fectured.  $L^3$  is the tumbler bolt, the end of which when the bolt is moved to lock it, enters a recess in the ring  $H^2$  thus preventing the plate  $L$  which has a screw engagement with the ring, and which acts as a covering plate to protect the screws  $h'$  from being rotated to remove it. Engaged to the tumbler bolt  $L^3$  is what may be termed the pitman  $L^4$  which is in turn pivoted to the face of the spindle  $I$  as at  $i'$ . As will be seen, the movement of the tumbler bolt acts through the pitman  $L^4$  to revolve the spindle  $I$ , which operates the bolt  $J$  to either lock or unlock it.

What I claim is:

1. In a circular door safe the combination of the frame or jamb the locking bolts and the door composed of a main portion and a ring or plate portion which is engaged to the frame or jamb by the bolts, said ring or plate engaged to the main portion of the door by a screw or cam engagement, the construction being such that when the door is revolved to shoot the bolts, the screw or cam engagement binds the door to its seat, substantially as described.
2. In a circular door safe the combination with the frame or jamb and the door of dogging mechanism to prevent the rotation of the door consisting of two or more dogs located at opposite points on the door and operated by a lever or plate to force them into and out of their dogging position, substantially as described.
3. In a circular door safe the combination with the frame or jamb and the door of dogging mechanism to prevent the rotation of the door consisting of two or more dogs pivoted to the door and adapted to enter recesses in a stationary portion, a plate adapted when rotated to be engaged and held until intentionally released, and a spring or springs on said plate adapted to simultaneously exert a pressure on the dogs, substantially as described.
4. In a circular door safe the combination with the frame or jamb and the door of two or more dogs adapted to prevent the rotation of the door, a lever connecting said dogs, and a plate carrying springs which exert a pressure on the lever and through it on the dogs, substantially as described.
5. The combination of the bolt ring  $C'$ —ring  $D$ , dogs  $F$ , plate  $E$ , lever  $F'$ , and springs adapted to exert a pressure on the lever, substantially as described.
6. The combination with the hinge ring carrying set screws with which to adjust the door, of the door having a groove or recess in which rest shoes, against which the set screws bear, substantially as described.
7. The combination with the hinge ring carrying set screws of the adjacent door ring having a groove in its periphery and shoes having beveled faces which bear in said groove, the ends of the set screws bearing on the shoes, substantially as described.
8. The combination with the hinge ring and



the adjacent door ring of one or more blocks or shoes having one portion in the hinge ring and the other portion in the door ring, substantially as described.

5 9. The combination with the door of a bolt housed within the main portion of said door, and adapted to enter a recess in the frame or jamb and dog the door against revolution, said bolt operated by a combination lock, sub-  
10 stantially as described.

10 10. The combination with a circular door having a combination lock on its face, of a bolt housed within the main portion of the door and intermediate connections between  
15 the said bolt and the combination tumbler bolt

whereby the movement of the tumbler bolt moves the main bolt, substantially as described.

11. The combination of the plate L, the tumbler bolt adapted to dog said plate against rotation, the main bolt housed within the main portion of the door, the spindle I and intermediate connections, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

THOMAS M. BRINTNALL.

Witnesses:

W. H. CHAMBERLIN,

K. C. STIMMEL.