

No. 791,489.

PATENTED JUNE 6, 1905.

C. H. OCUMPAUGH.
SASH BALANCE.

APPLICATION FILED MAR. 15, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

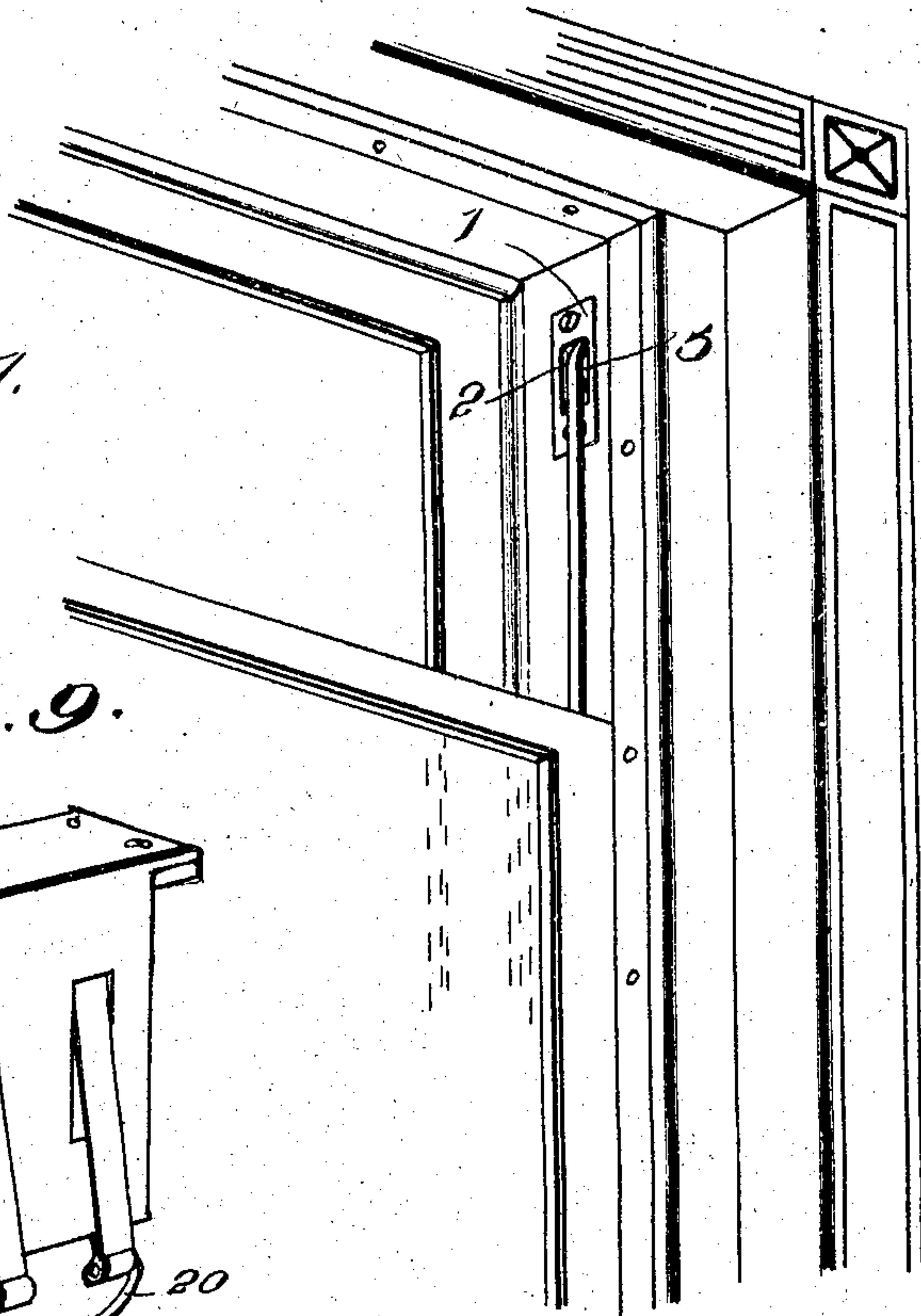


Fig. 9.

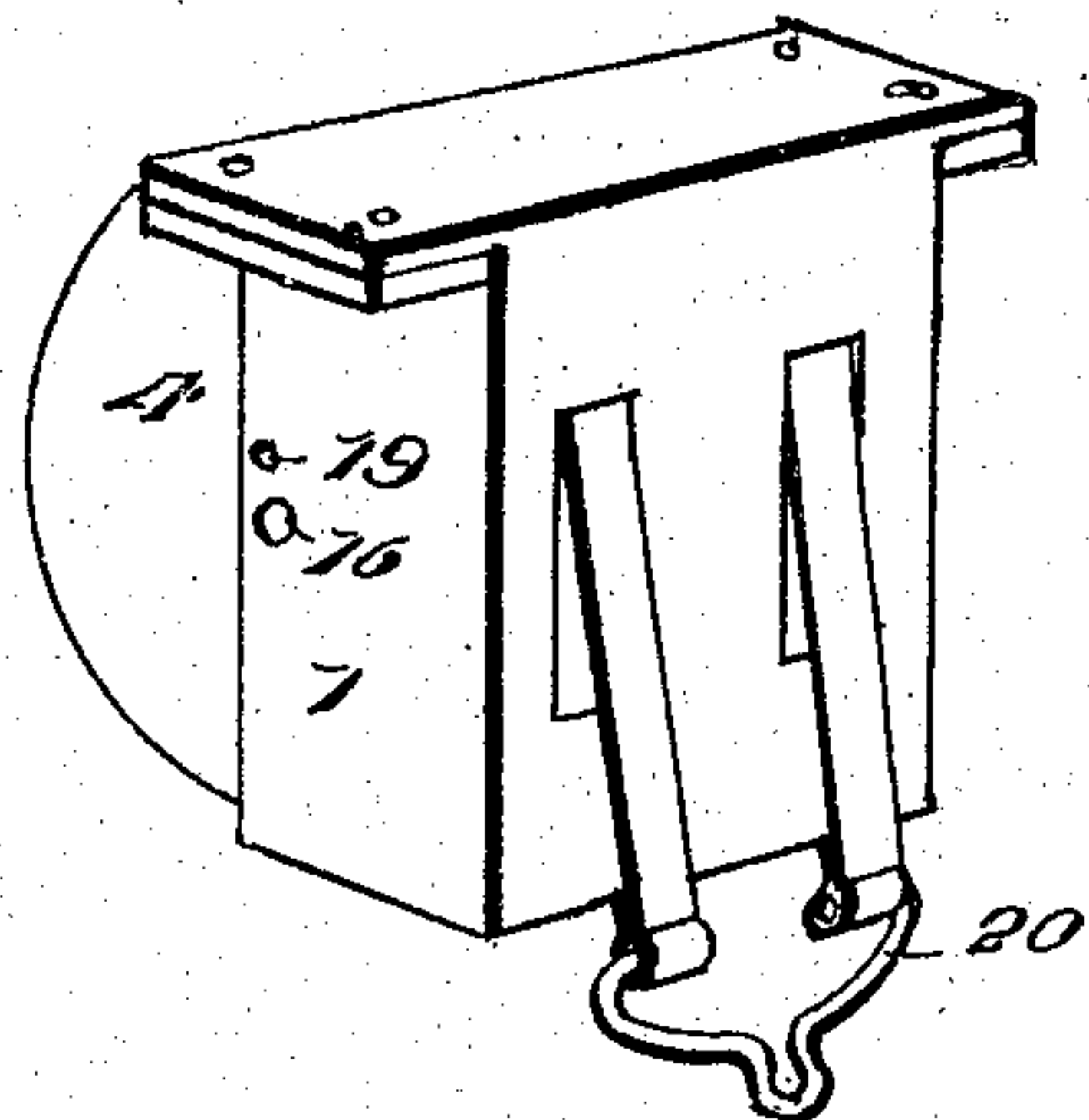


Fig. 2.

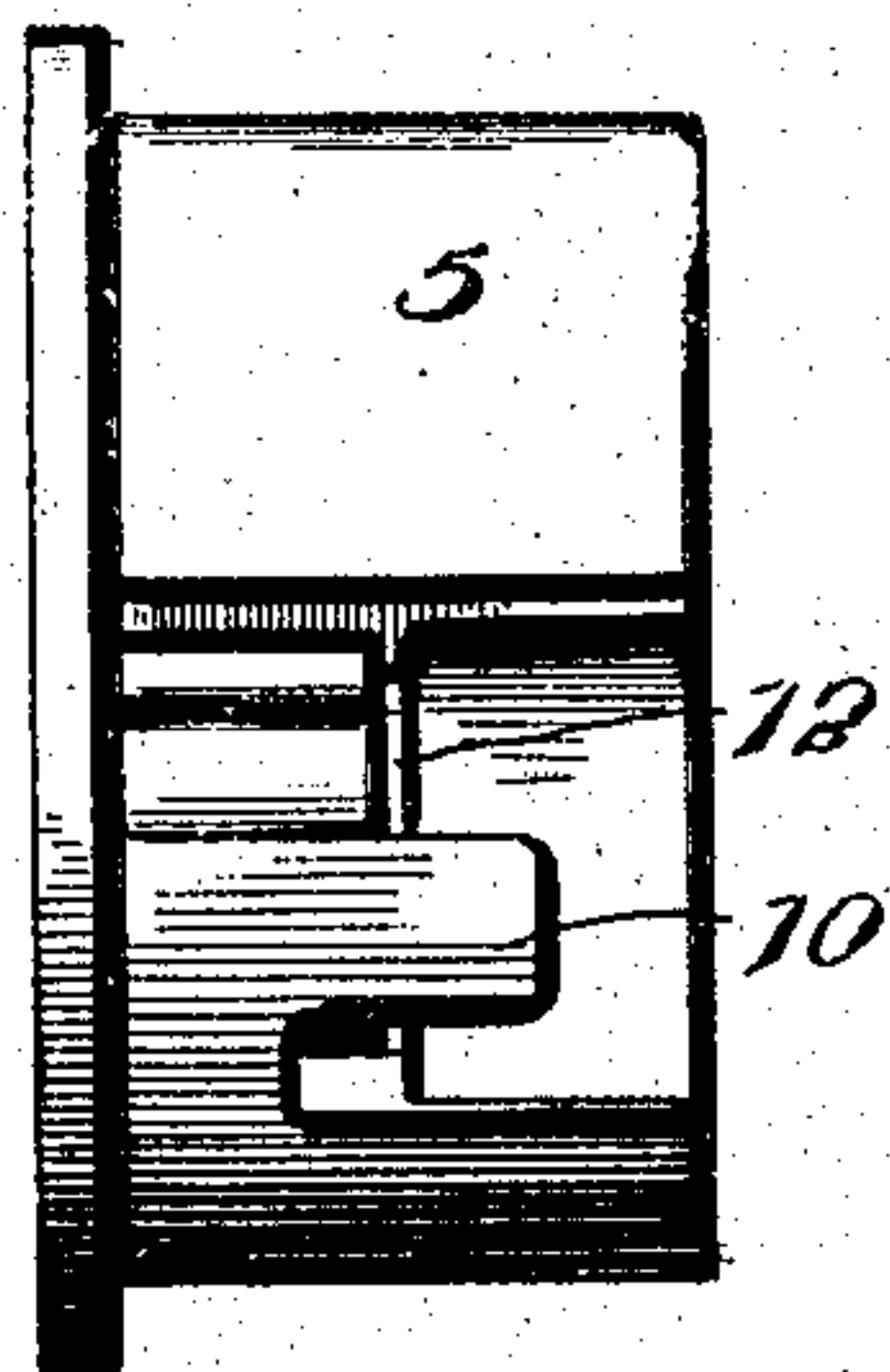
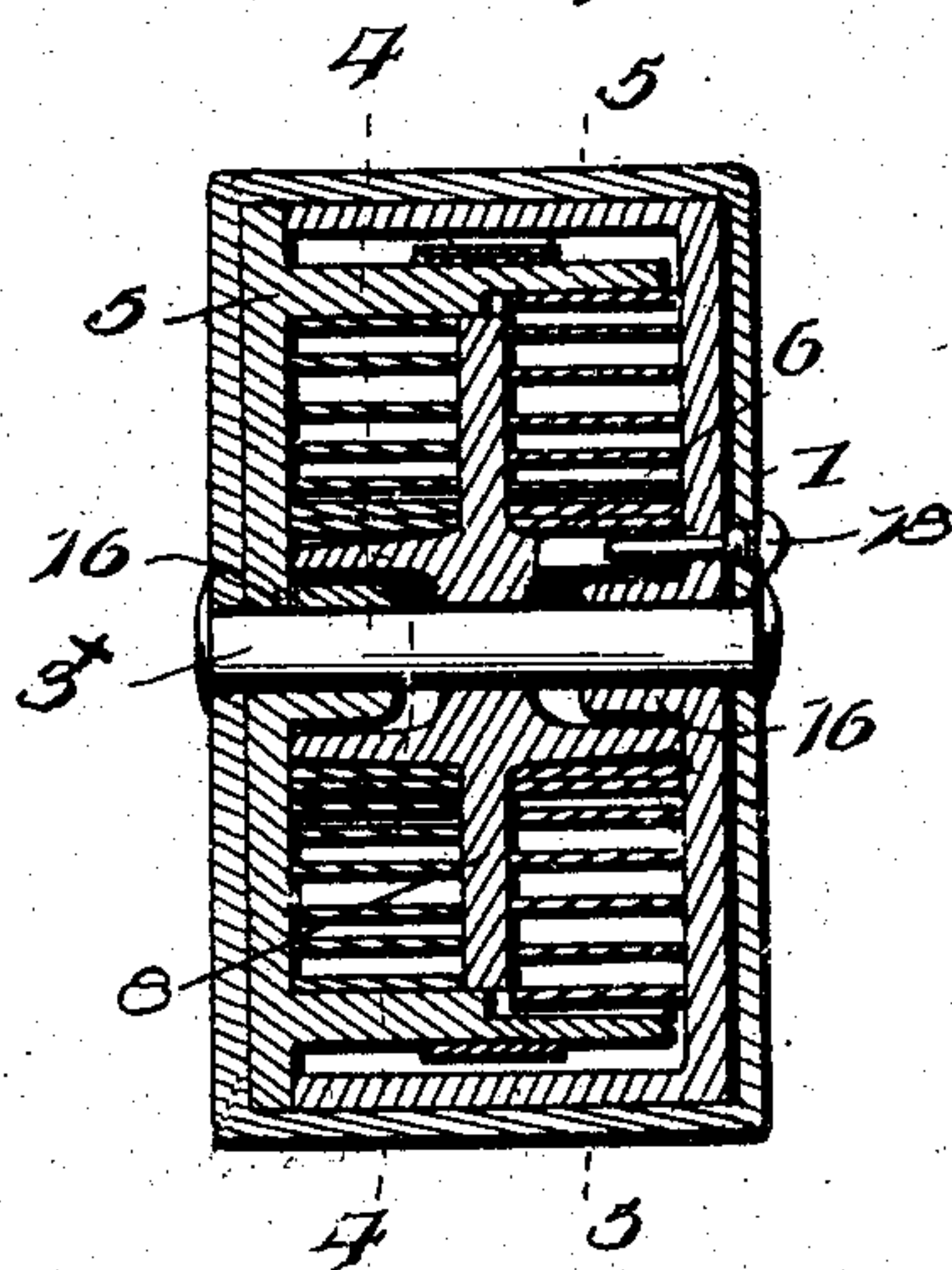


Fig. 3.



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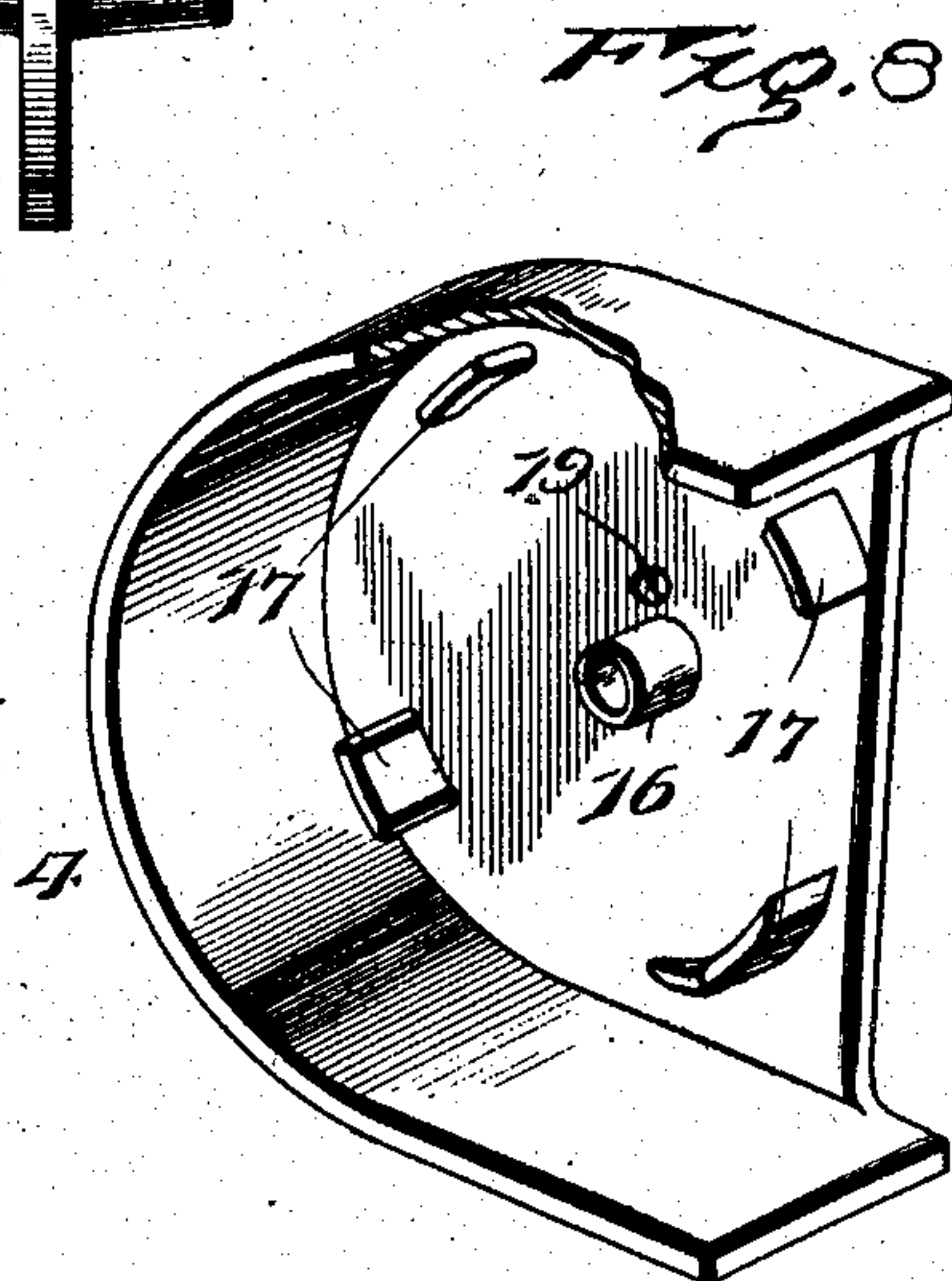
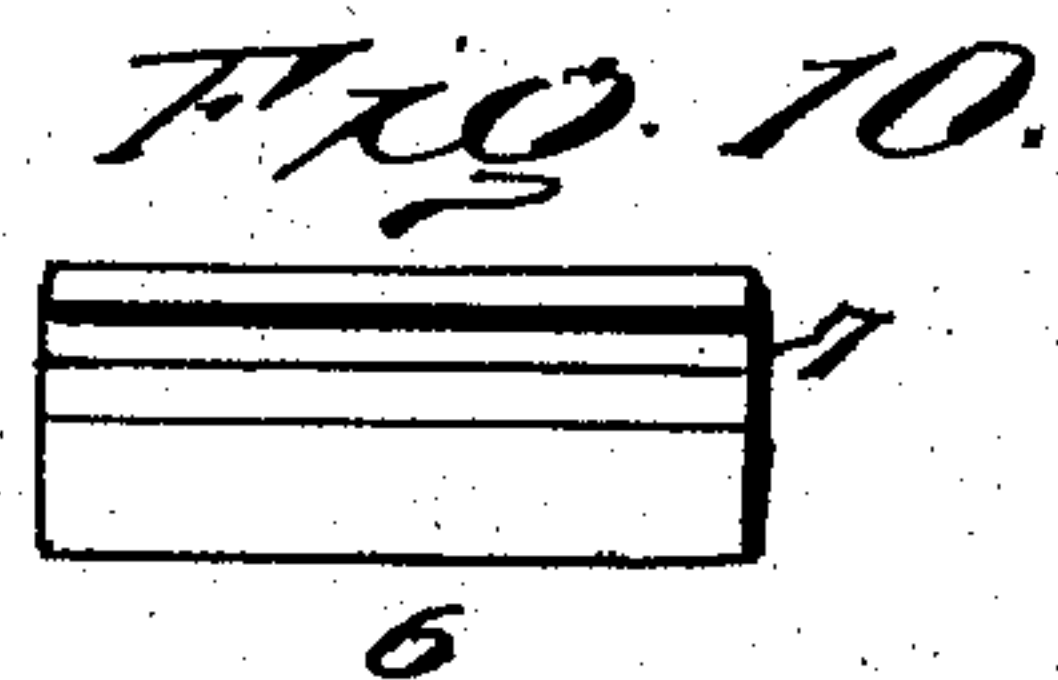
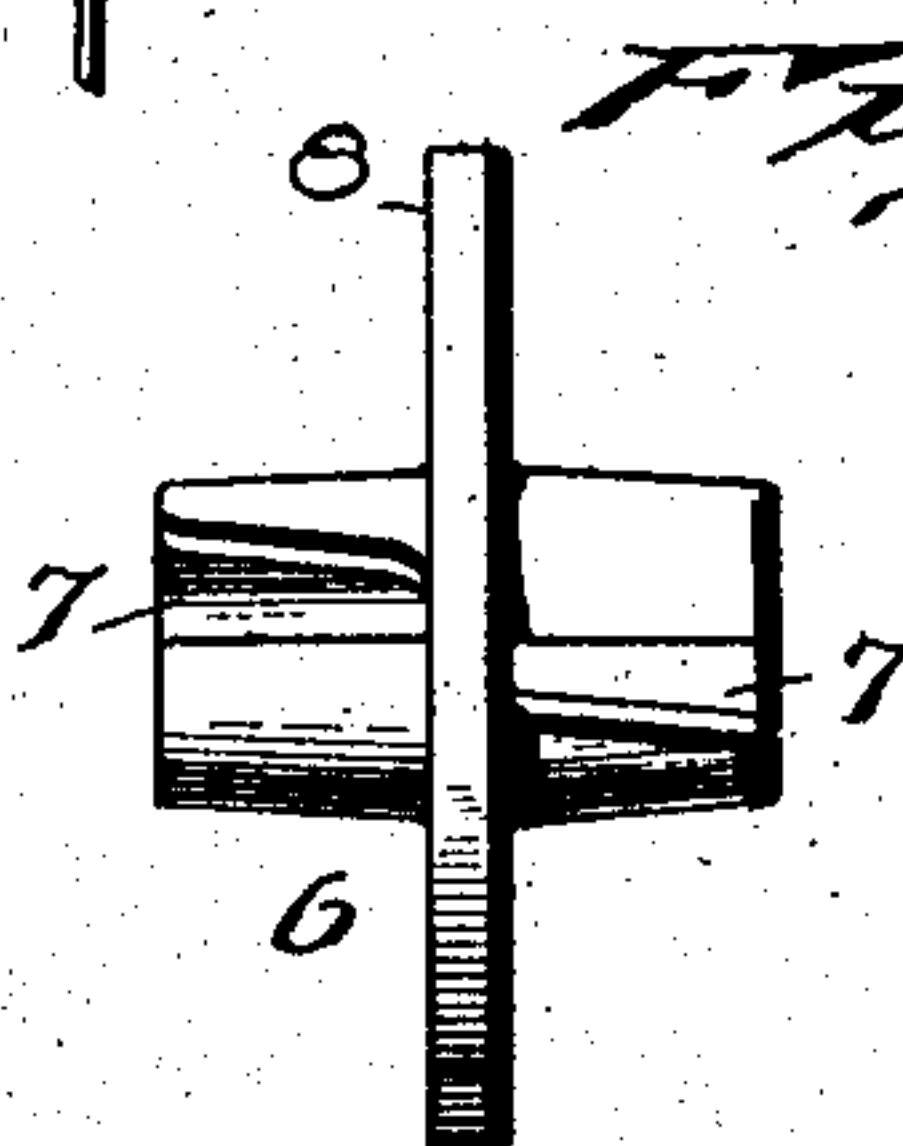
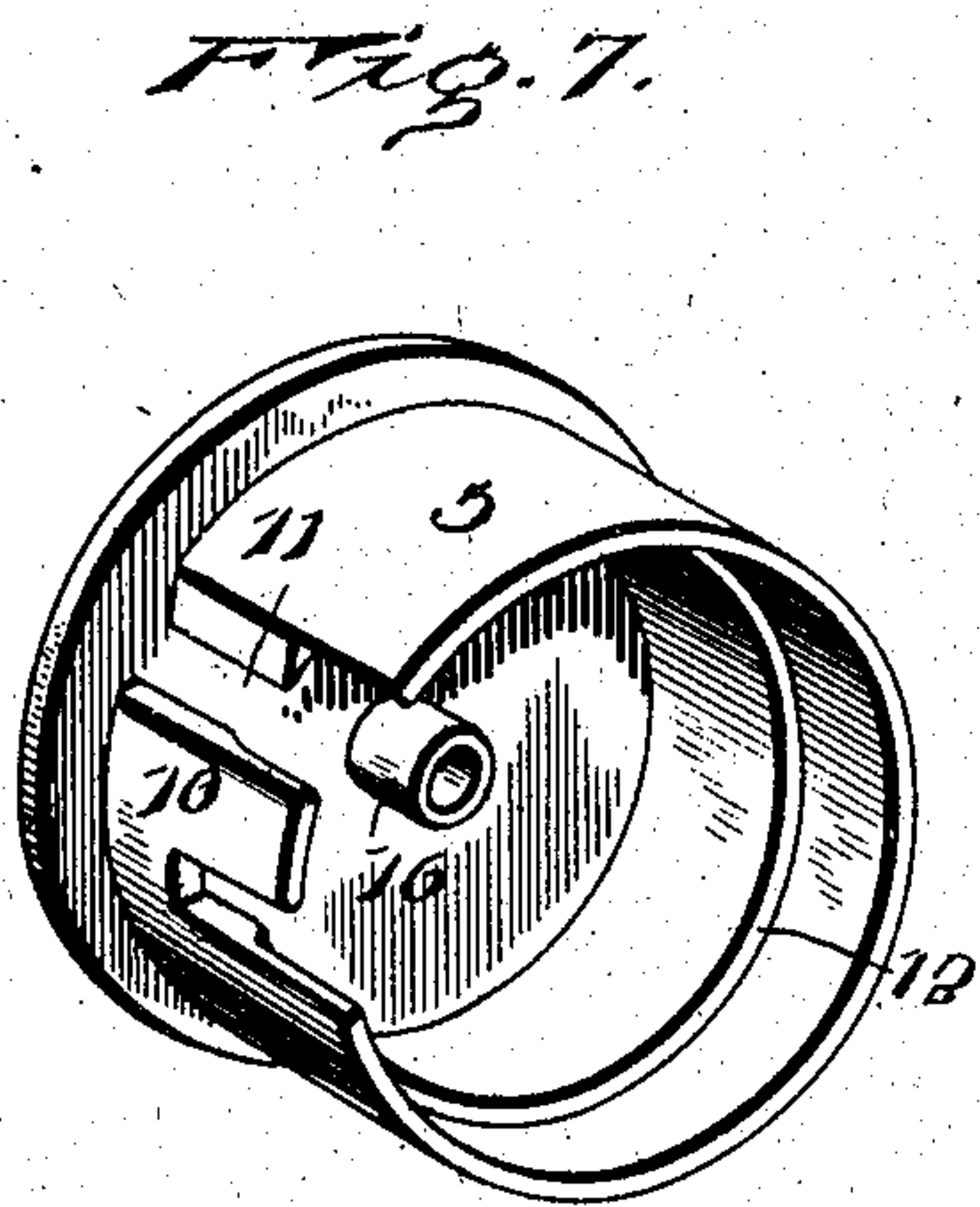
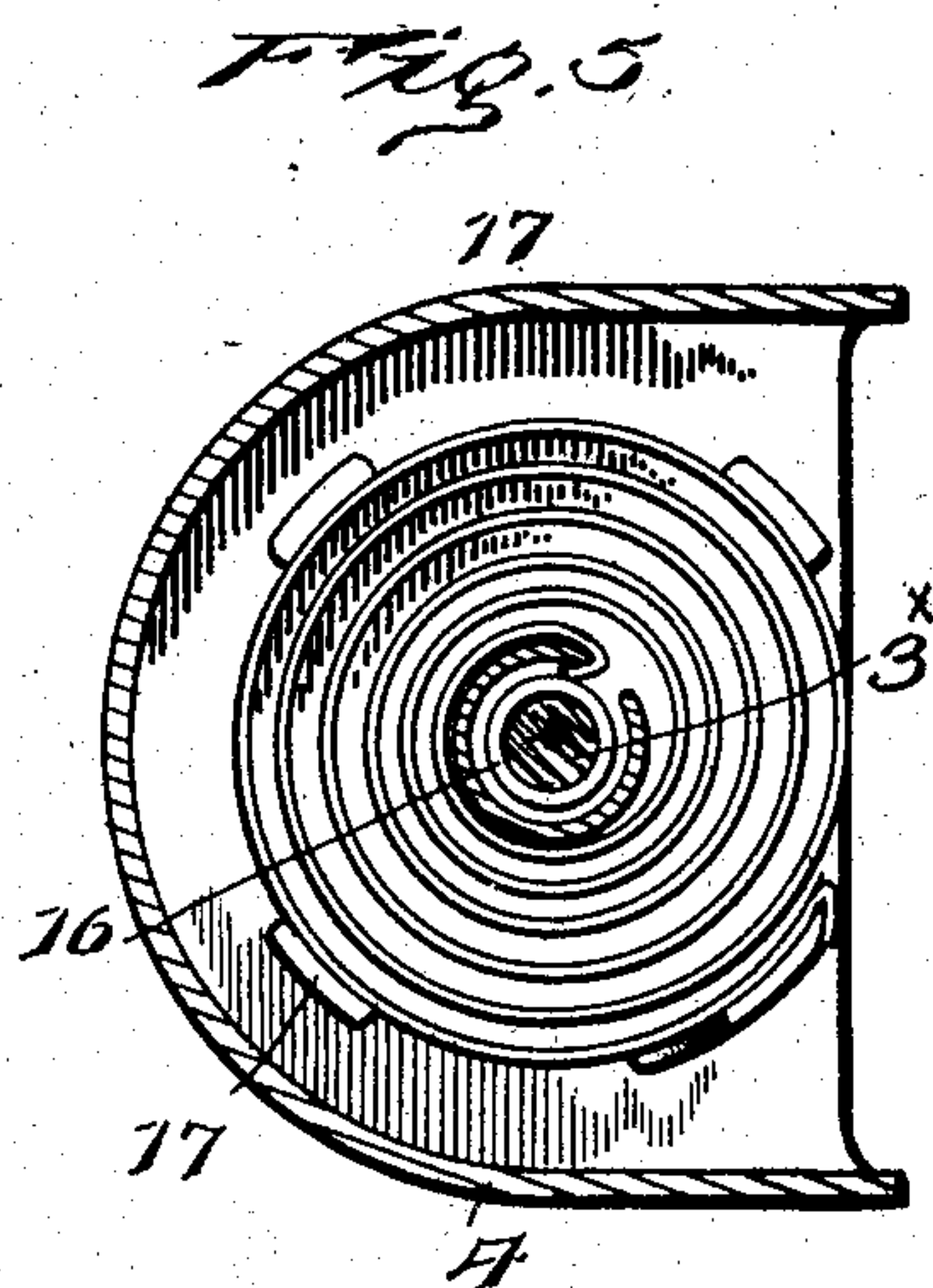
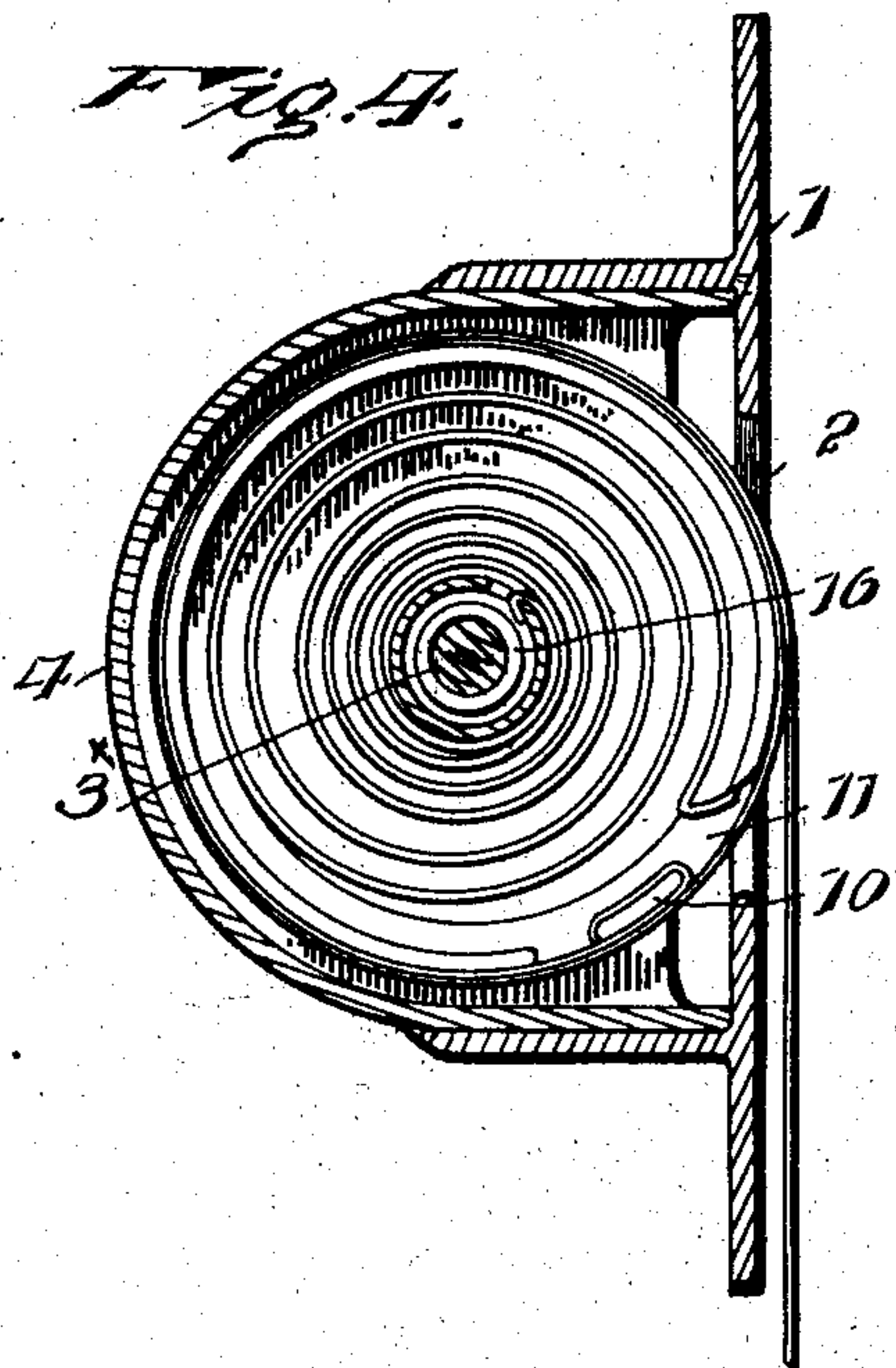
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 791,489, dated June 6, 1905.

Application filed March 15, 1904. Serial No. 198,197.

To all whom it may concern:

Be it known that I, CHARLES H. OCUMPAUGH, a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Sash-Balances; 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 the same.

The invention relates to spring sash-balances, which heretofore have been limited in respect to the "run" of the cord or tape, for the reason that a single spring has been employed and that such spring necessary for a longer run would require a mortise of objectionable depth.

The objects of the present invention are to overcome this difficulty and to effect it by means permitting the use of springs now in use of standard size and to do it in a manner that will increase the run of each cord or tape and to secure other advantages.

In the accompanying drawings, Figure 1 is a perspective of the device applied to a window. Fig. 2 is a front view of a spring-winding cup. Fig. 3 is a vertical central section of the device inclosed in the frame. Fig. 4 is a section on line 4-4 of Fig. 3. Fig. 5 is a section on line 5-5 of Fig. 3. Fig. 6 is an elevation of a rotatable sleeve about which the springs are coiled in practice. Fig. 7 is a perspective of the cup. Fig. 8 is a perspective of the hood that incloses the cup. Fig. 9 is a view of a modification. Fig. 10 is a view of a modified detail.

Numeral 1 denotes a sash-balance frame having an opening 2 for a cord, tape, or equivalent and having two openings 3 for a shaft or pin 3^x to support a hood 4, cup 5, and sleeve 6, the latter being supported mediately by hollow trunnions 16. The cup or winding device is journaled or rotatably supported on shaft 3^x near the adjacent wall of the hood and near one end of the sleeve or spring axis.

The sleeve 6 comprises two parts, each having a slot 7 to provide for connecting the end of a spring thereto and having between them a web or partition 8 to separate springs supported on the two parts of the sleeve, said

parts together constituting an axis common to the springs. This axis may at each end receive loosely a hollow trunnion 16, one on the hood and the other on the cup.

The spring-containing and cord-winding cup 5 has a post 10 for the attachment of a cord or the like, which extends through the slot 11 and is wound on the cup and connected to a sash in usual manner. This cup has two chambers of unequal diameter separated by a step 12. The inner chamber, of least diameter, contains a spring connected at 10 (see Fig. 7) to the cup and at 7 (see Fig. 6) to the sleeve or spring axis. The outer chamber contains a spring and preferably also the web or partition 8. The hood also has, in effect, two chambers, one situated within the posts 17, which constitutes a mutilated ring or step. These posts are mainly useful in assembling the parts, but are not essential in all cases, and neither is the step 12. The hood itself being in the nature of a support or secondary frame need not in all cases be distinct from the main frame. The first chamber, situated within said posts, holds a single spring and the other, situated exteriorly of the first, contains the winding device and a spring within said device. The springs being connected, as shown, to the cup, hood, and thimble, act oppositely on the latter when the cord is wound on the cup, whereby one spring is auxiliary or supplemental to the other and without necessitating an increase of the diameter of the spring-containing devices.

The cup 5 is a winding device, the cord being wound on its exterior. Assuming that a cord is wound on the cup and that the springs are not under tension, a pull on the cord will rotate the cup connecting the cord and through the medium of the outer spring rotating the sleeve a little more slowly, thereby contracting the inner spring until such time as it is put under tension, whereupon it holds the sleeve, and the pull of the cord continuing the outer spring is put under tension. In some cases a removable pin or screw 18 is inserted at 19 in the hood near a trunnion 16, as indicated in Fig. 8, to engage a slot 7 in the sleeve to prevent the rotation; in which case the inner spring—that is, the one next the bottom

of the cup—if supplied will be inoperative. In practice said inner spring can be thus made idle, if desired, or it may be omitted in some cases and subsequently supplied, if found desirable, the screw-stop being used or not, according as it is desired to use one or more springs.

A plurality of hoods and cups may be combined, as indicated in Fig. 9, in which two tapes are shown connected at 20, the use of such connection not being essential, however, in all cases. A tandem arrangement substantially as set forth in my Patent No. 596,216, of December 28, 1897, would not depart from the present invention. It is not essential in all cases that the sleeve and shaft 3^x be made separate pieces. It is also obvious that the web 8 is not indispensable and that the sleeve might be made with a thicker wall and having a single slot, substantially as indicated in Fig. 10, and such variations and others of a similar and obvious character are contemplated by the present invention.

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

1. In a spring sash-balance, a hood and two rotatable spring-winding parts, a spring connected at one end to one of the parts and at the other end to the other part and removable means for holding the said latter part from rotation, whereby a single spring may be used or more if a longer run is desired.

2. In a spring sash-balance, a hood, a cord-winding device, a rotary sleeve, a shaft supporting the winding device and the sleeve, and means for holding the sleeve against rotation if desired.

3. In a spring sash-balance, a winding device having a cord thereon and a stepped cover or hood having interior parts of different diameters, one containing a spring only, and the other containing a spring, a winding device and a cord.

4. In a spring sash-balance, two springs, an axle adapted to receive an end of each of the two springs and having an extension forming a partition for separating the two springs.

5. In a spring sash-balance, an axle having a solid periphery at or near its longitudinal center and having a spring-receiving slot over each side of the center, the said two slots extending in a general longitudinal direction.

6. In a spring sash-balance, a winding device, a hood, and two springs, one only of the springs being connected to the winding device and the other to the hood, and a movable connection, the inner ends of said springs being attached to said connection.

7. In a spring sash-balance, a hood, a wind-

ing device, attached to the hood and two springs, one spring only being attached to the winding device, and the two springs and the winding device having a common axis, said axis being rotatable and each spring attached to it.

8. In a spring sash-balance, a hood, two springs, a tape-winding device inclosing one of the springs, one spring being connected with the winding device and the other with the hood, and a connection between two springs permitting them to be wound as one continuous spring.

9. In a spring sash-balance, a hood, a coiled spring, a cord-winding device, and means for extending said spring consisting of a second spring-coil, and a rotatable part, the inner end of each spring being fixed to said rotatable part.

10. In a spring sash-balance, a hood and a cord-winding device adapted to receive two springs having a common axis, one of the springs arranged as a right-hand and the other as a left-hand spring, an end of one of the springs being connected to the winding device, and an end of the other connected to the hood, and a movable device connecting the adjacent ends of the two springs.

11. In a spring sash-balance, a hood, a cord, a cord-winding device, a rotary sleeve, a shaft supporting the winding device and sleeve, and means for connecting a second spring to said sleeve and winding devices to prolong the run of the cord.

12. In a spring sash-balance, a frame, a cord-winding device, two springs connected to a rotary part, and an axle within said rotary part, the said winding device being supported on the axle at one end of the said part.

13. In a spring sash-balance, a frame, a cup constituting a cord-winding device, and having chambers to hold two springs in parallel planes, a right-hand spring, a left-hand spring, a rotatable axis common to the springs, and a cord, the balance being operative with one spring only or with two as desired.

14. In a sash-balance, the combination with a cord-winding device of two coiled springs acting conjointly upon it to prolong the run of a cord in the same direction, one only of the springs being connected with the pulley, and an axis for the springs both springs being connected to said axis.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES H. OCUMPAUGH.

Witnesses:

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