

No. 735,787.

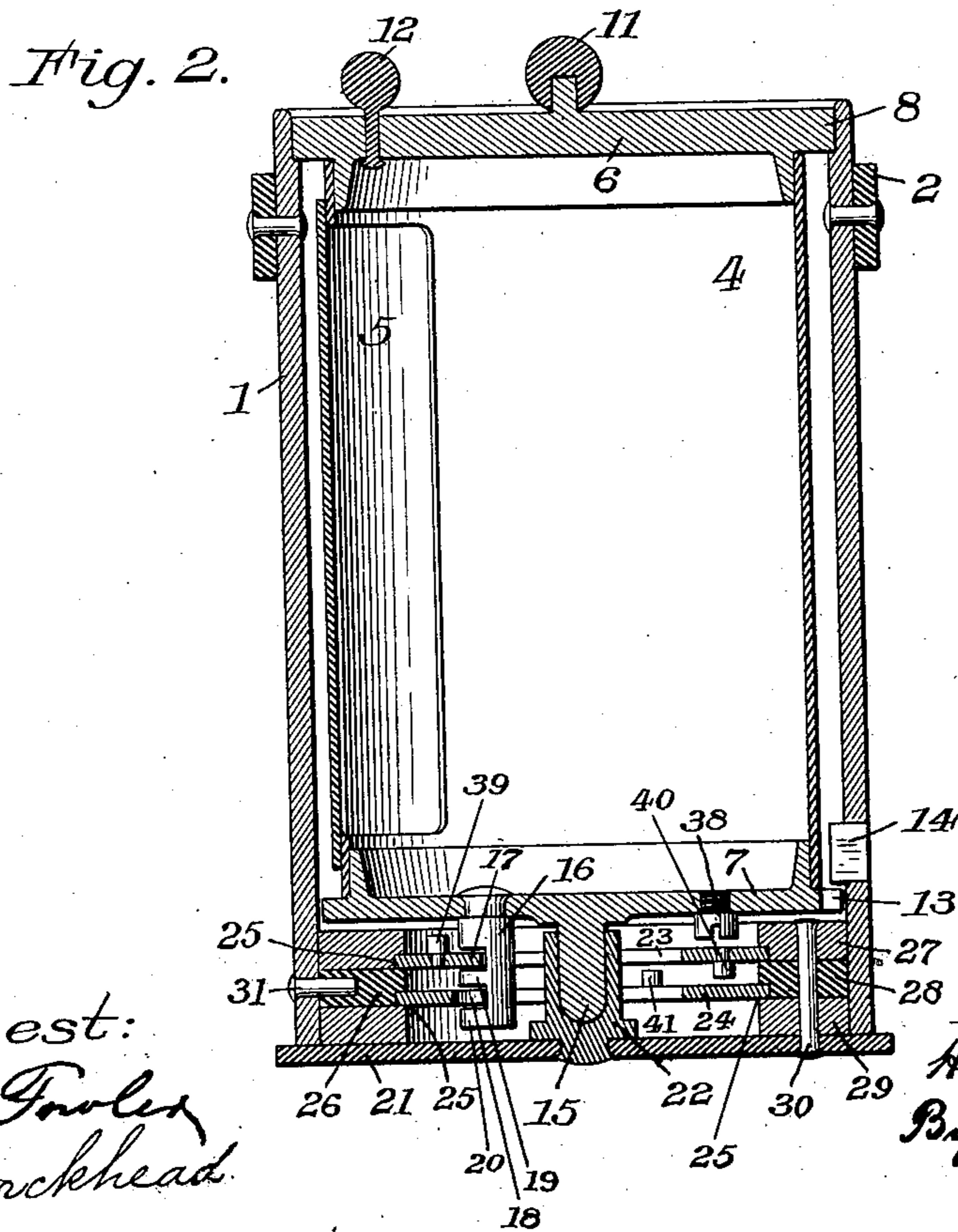
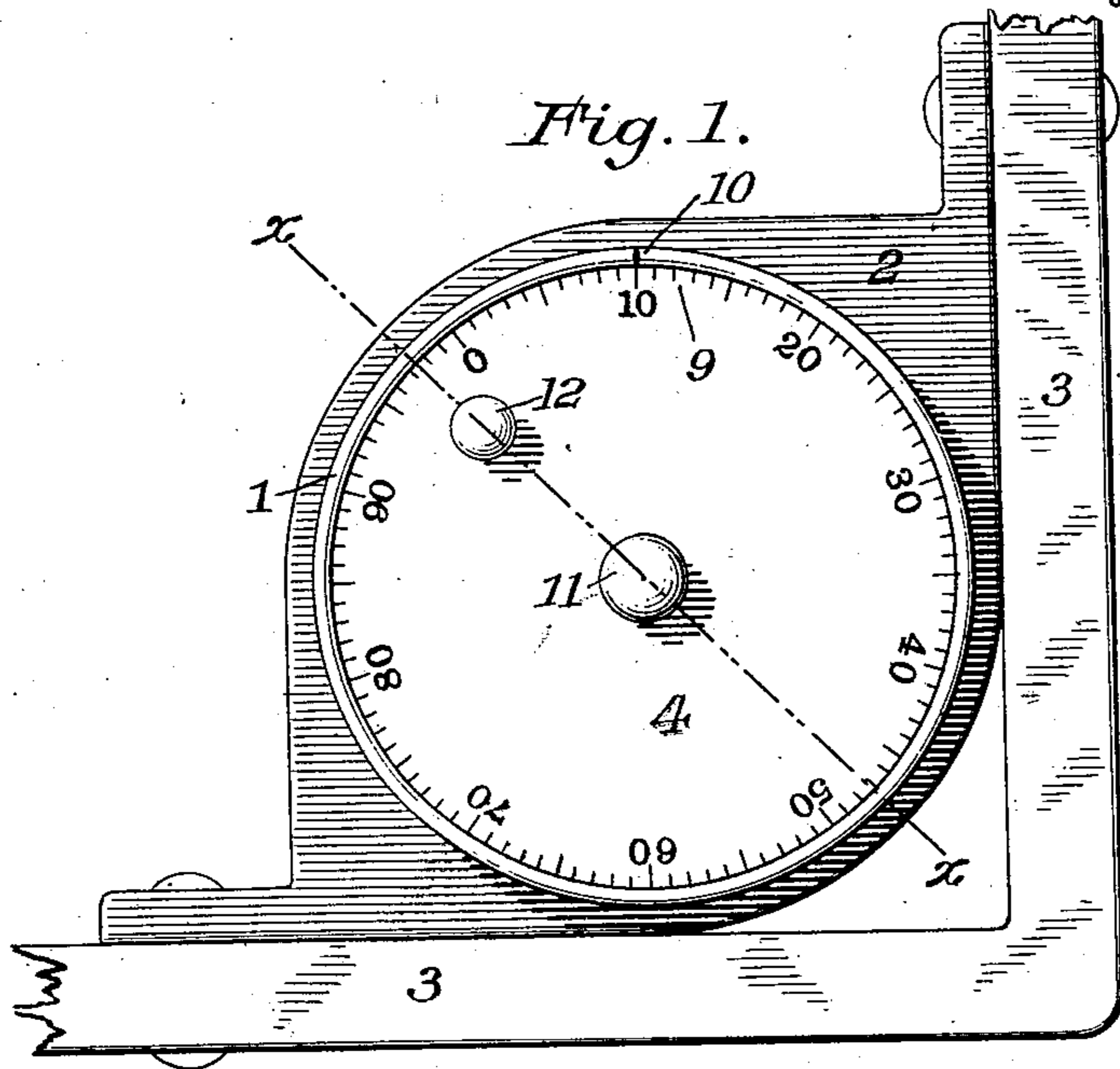
PATENTED AUG. 11, 1903.

H. C. LOWRIE.  
SAFE.

APPLICATION FILED DEC. 15, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 3.

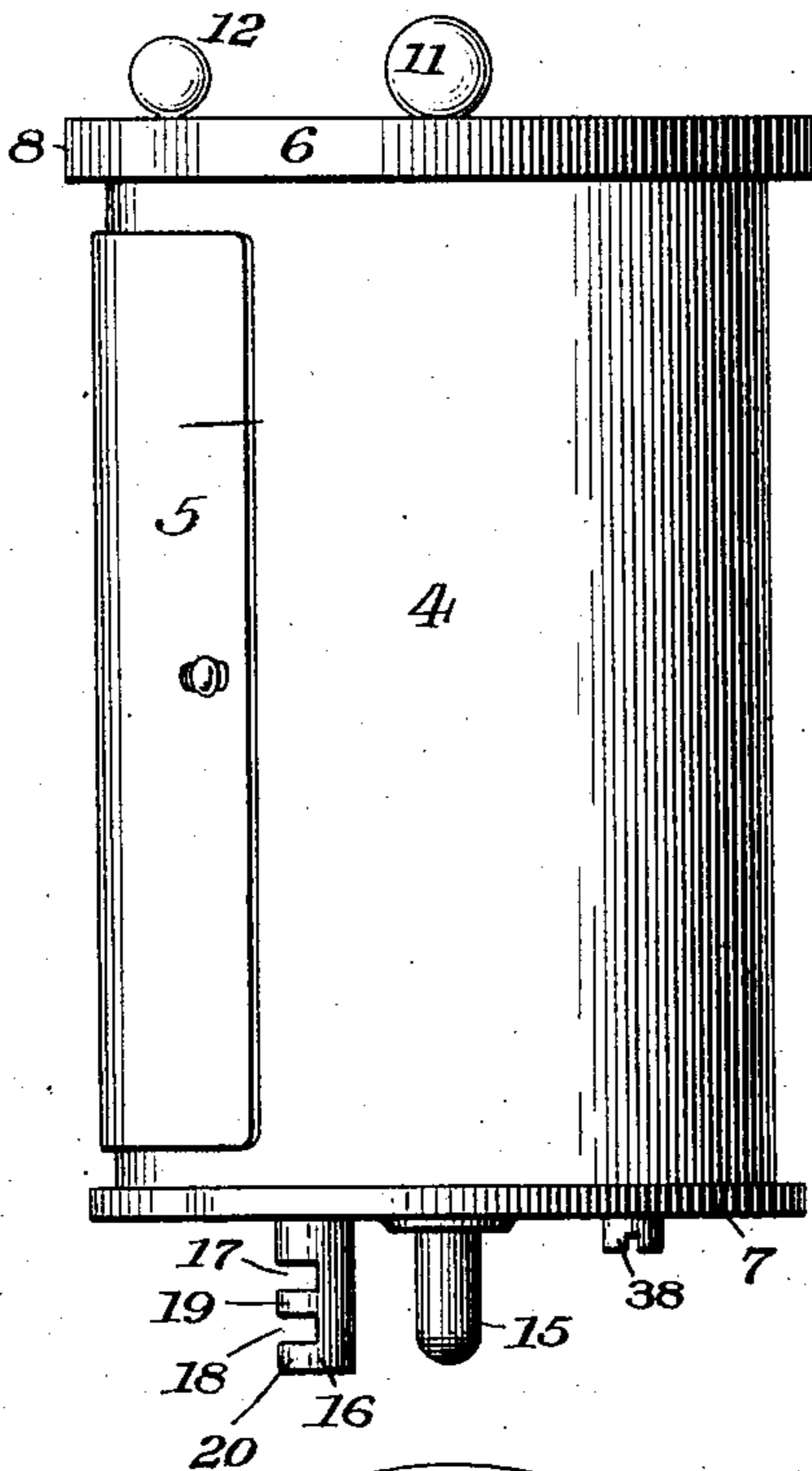


Fig. 5.

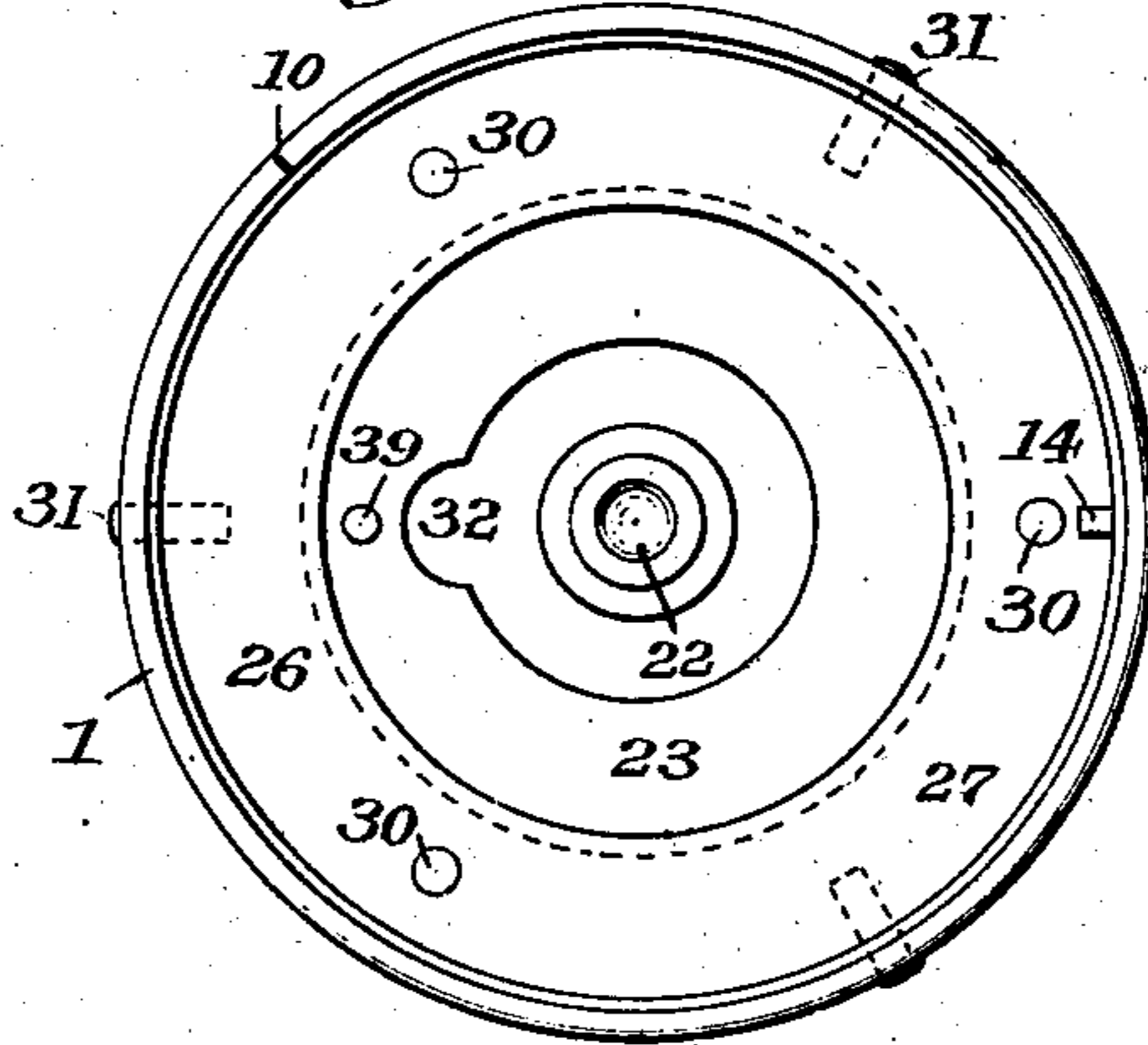


Fig. 6.

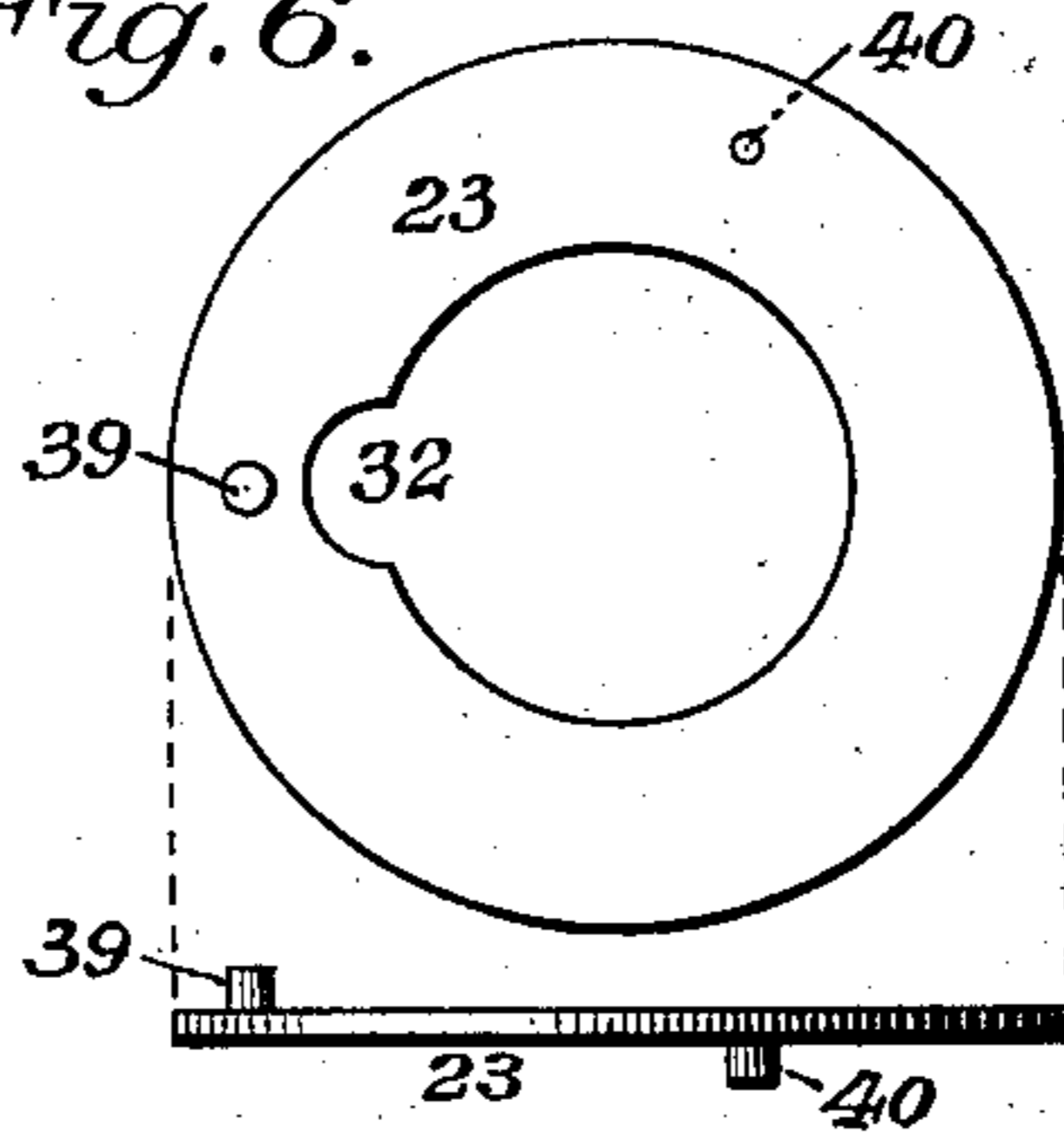


Fig. 4.

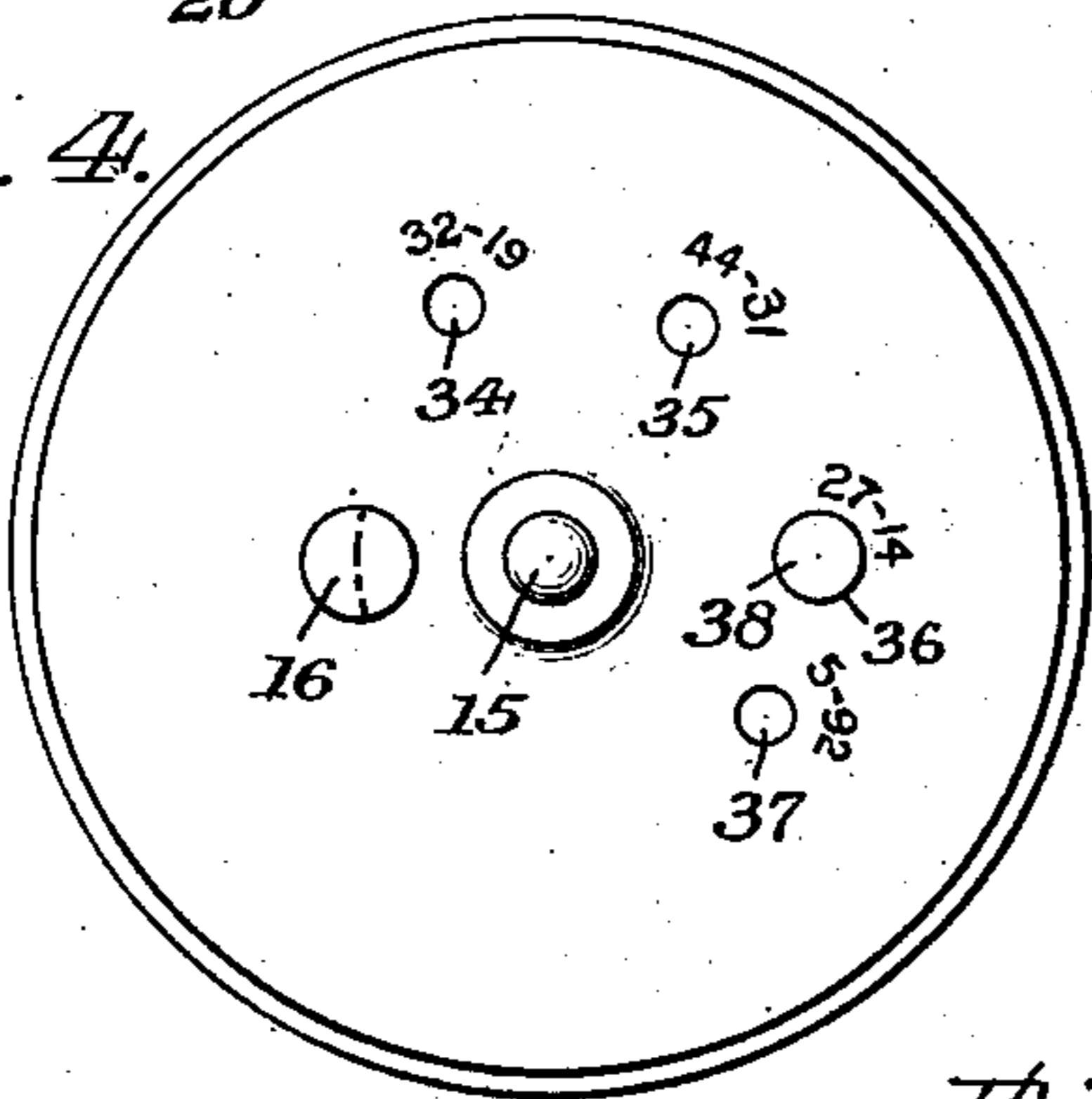


Fig. 7.

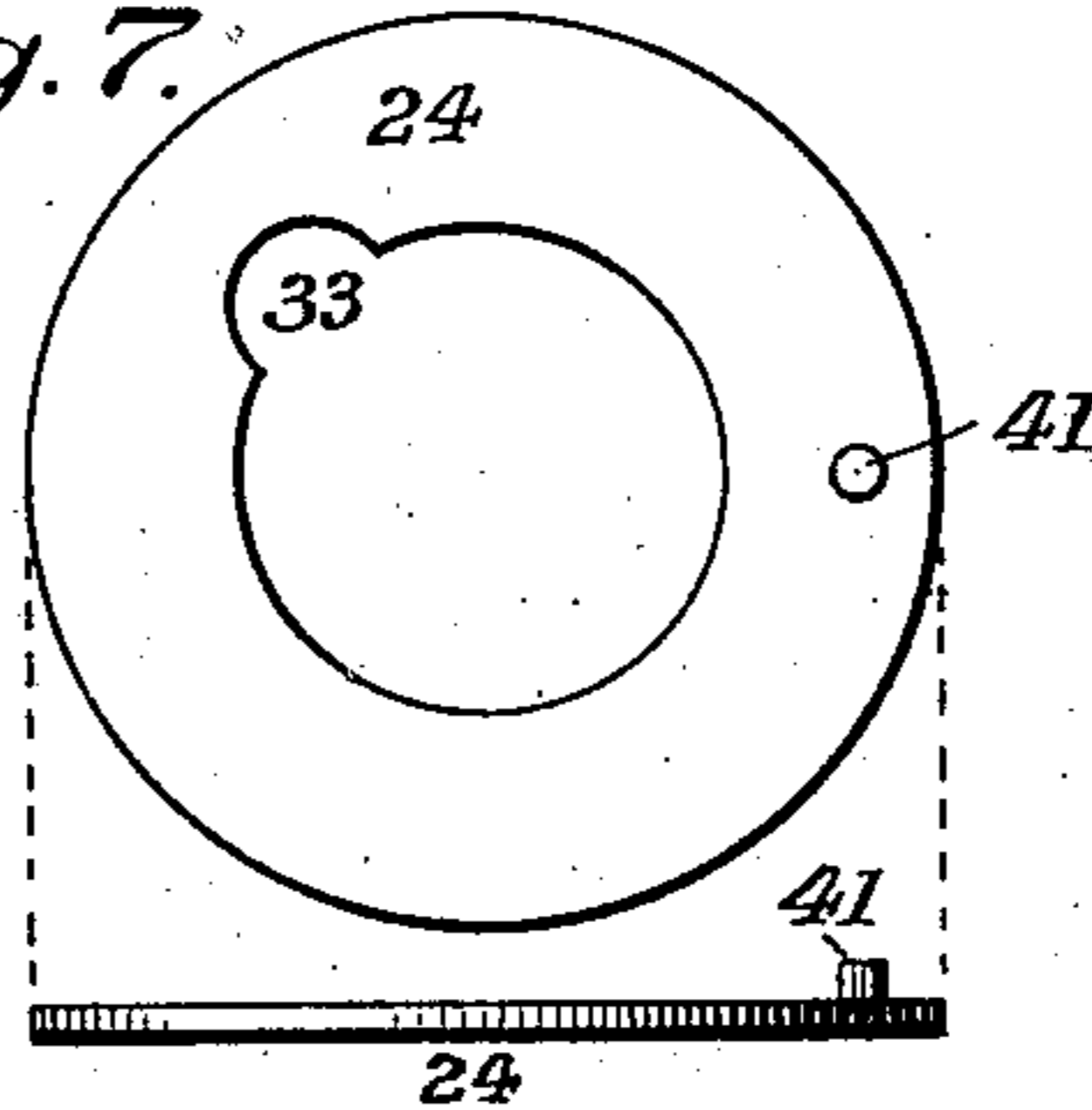
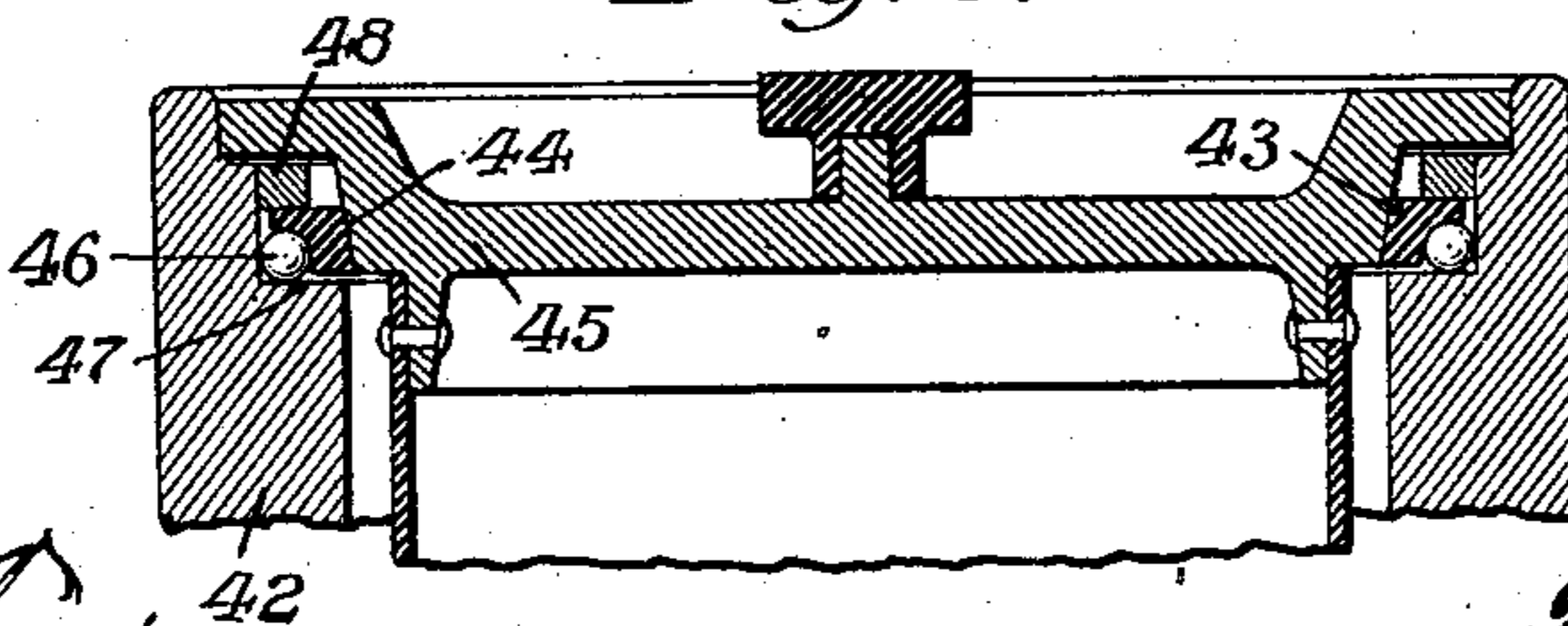


Fig. 8.



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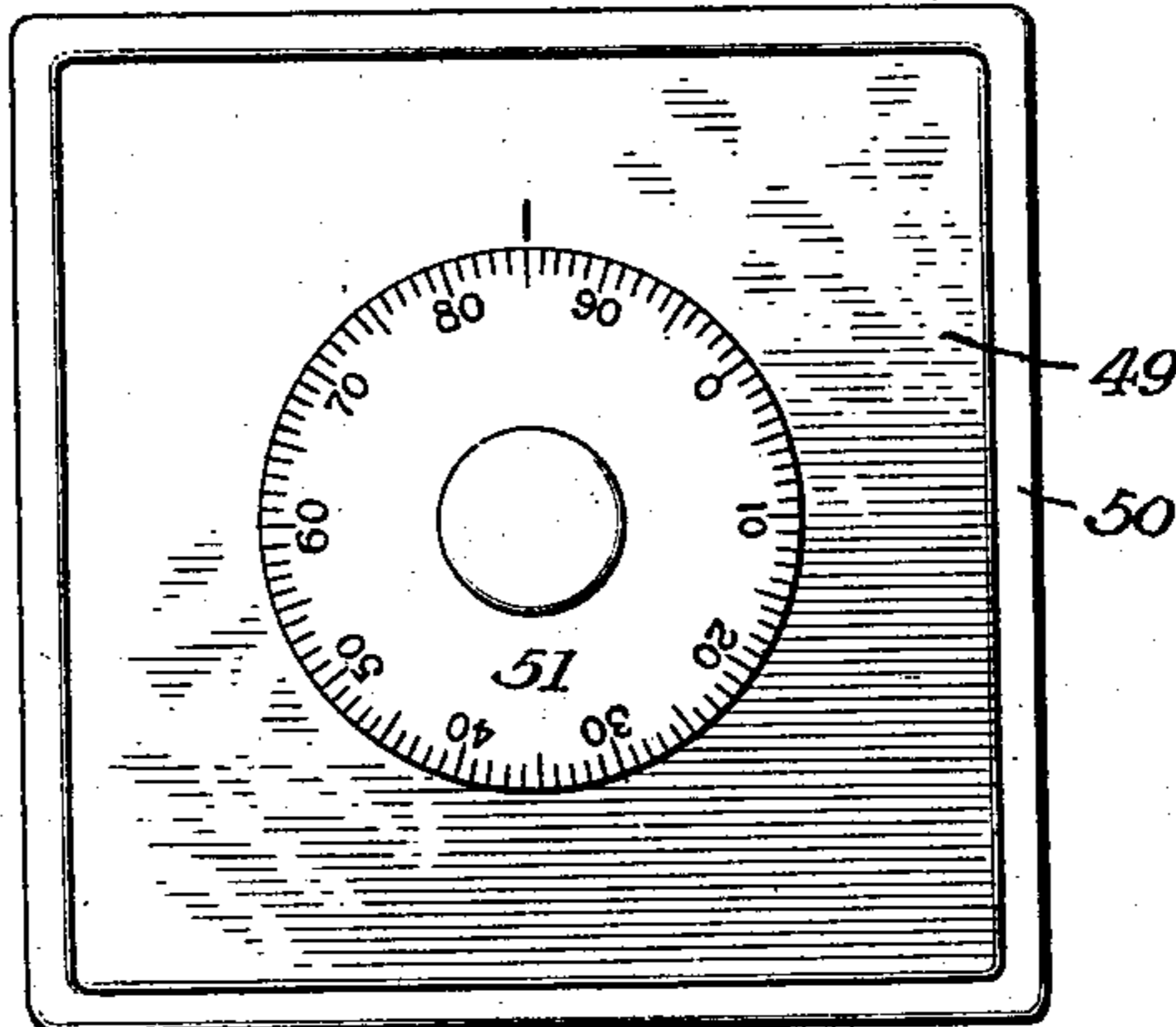
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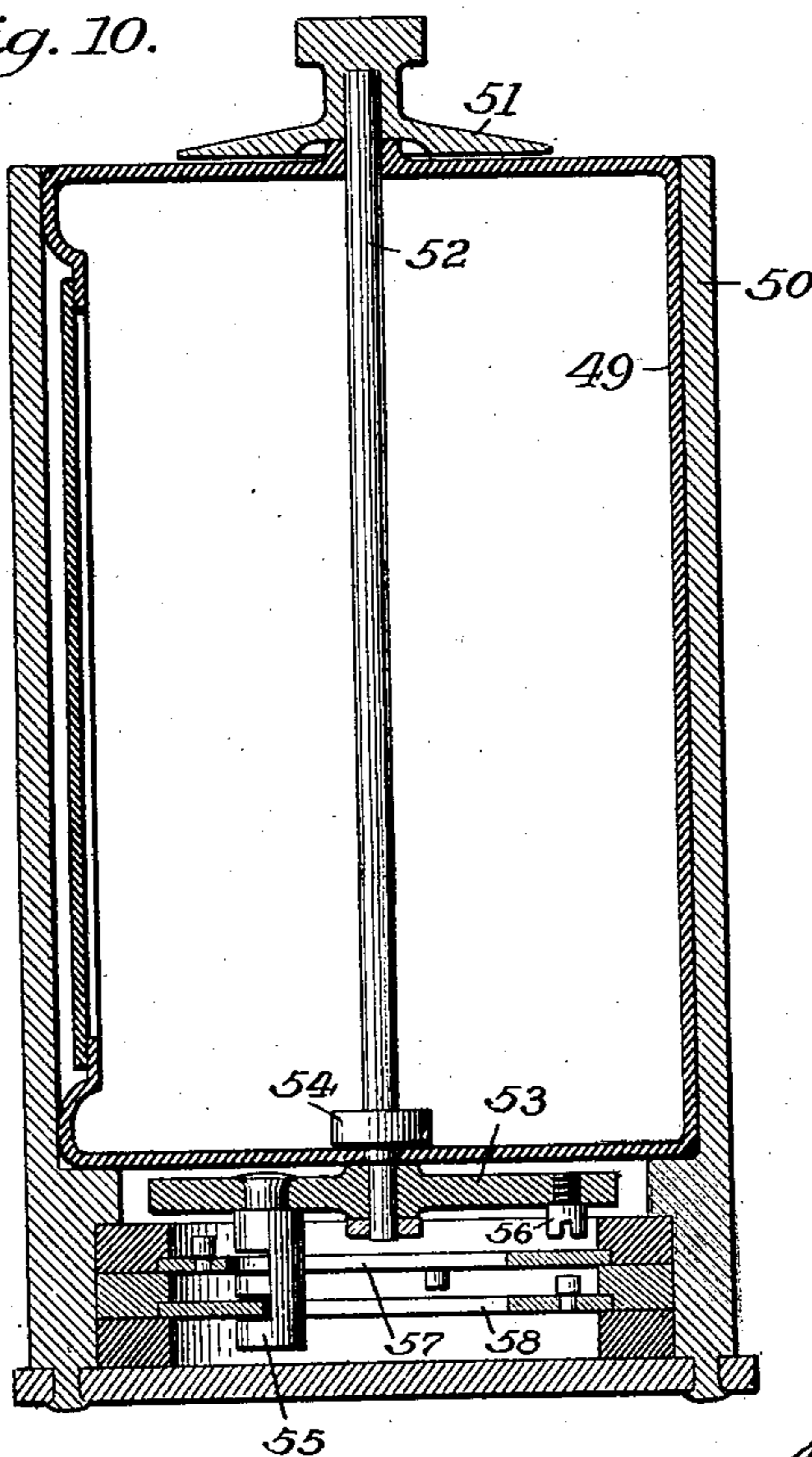
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3 SHEETS—SHEET 3.

*Fig. 9.*



*Fig. 10.*



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# UNITED STATES PATENT OFFICE.

HARVEY C. LOWRIE, OF DENVER, COLORADO.

## SAFE.

SPECIFICATION forming part of Letters Patent No. 735,787, dated August 11, 1903.

Application filed December 15, 1902. Serial No. 135,262. (No model.)

*To all whom it may concern:*

Be it known that I, HARVEY C. LOWRIE, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented new and useful Improvements in Safes, of which the following is a specification.

My invention relates to a safe in which money or articles of value may be secured against theft; and, broadly stated, it consists in the combination, with a receptacle having locking lugs or projections, of an inclosing case and locking mechanism for securing the receptacle in said case, said mechanism consisting of two or more separately-adjustable rotary tumblers or rings adapted by rotation to engage and disengage the locking-lugs on the receptacle, as will be hereinafter described.

Referring to the drawings furnished and forming a part of this specification, Figure 1 is a front or plan view of a safe embodying my invention designed to be secured in a trunk or traveler's case. Fig. 2 is a vertical sectional view of the same on line *xx* of Fig. 1. Figs. 3 and 4 are side and bottom views, respectively, of the receptacle removed from the receptacle-case. Fig. 5 is a top or front view of the receptacle-case, the receptacle being removed therefrom. Figs. 6 and 7 illustrate the rotary tumblers or locking-rings in top and edge views. Fig. 8 is a sectional view illustrating a rotary or antifriction bearing at the open end of the receptacle-case which is employed when the safe or receptacle is of large dimensions or designed to contain articles of considerable weight; and Figs. 9 and 10 illustrate a receptacle and inclosing case in top and sectional views, respectively, embodying a modified form of my invention.

A safe embodying my invention may be put to various uses and may be designed to be set or built into a wall or to be attached to a desk, bureau, or other article of furniture. In Figs. 1 to 7, inclusive, I show a safe designed to be secured in the corner of a trunk, the receptacle-case 1 being attached to a bracket 2, which is to be riveted to the walls 3 of a trunk, as clearly shown in Fig. 1. The receptacle 4, which is inserted and locked in the case 1, is in the form of a tube which is closed at both ends and provided with an

opening through the tubular wall for affording access to the interior chamber, said opening being provided either with a hinged or sliding door 5, as best shown in Fig. 3. The tubular wall of the receptacle is preferably composed of thin sheet metal, which is secured to forged or stamped metal end plates 6 and 7. The end plate 6 is larger in diameter than the main body of the receptacle, and its projecting edge 8 serves as a supporting-shoulder when the receptacle is in its case. On the outer face of the end plate 6 are numbered graduations 9, which, with an index 10 on the receptacle-case 1, serves as a guide to the rotary movements which must be given to the receptacle to release it from the locking mechanism, to be hereinafter described. The end plate 6 is also provided with a fixed knob or handle 11 and a rotatable knob 12, by means of which the receptacle may be rotated and withdrawn from its case. The end plate 7 is slightly larger than the body of the receptacle, and at one point in its periphery it is slotted, as at 13, to afford a passage-way for a feather-guide 14, which projects from the tubular wall of the receptacle-case. Said end plate 7 is also provided with a central stud 15, which serves as a supporting-journal for the inner end of the receptacle, and at a point removed from the center there is a stud 16, which is slotted, as at 17 and 18, to afford lugs or projections 19 and 20, which cooperate with the tumblers or locking-rings, to be hereinafter referred to, for locking the receptacle in the receptacle-case.

The receptacle-case 1 is preferably in the form of a tube which is closed at one end and having a diameter slightly larger than the diameter of the receptacle end plate 7. Around the open end of said tube or case there is an interior annular shoulder, forming a seat or bearing for the edge of the receptacle end plate 6. The rear end of the receptacle-case is closed by a plate 21, which is provided with a central socket 22 for receiving the stud or journal 15 on the rear end of the receptacle, the latter being thus held centrally within the case, so that it may be freely revolved therein.

At the rear end of the receptacle-case there are two circular tumblers or rings 23 and 24, which, with the stud 16 on the receptacle, con-

stitute the locking mechanism. These rings or tumblers, of which there may be any number, are mounted to turn or revolve in grooves 25, which may be formed in the wall of the case itself or in a housing 26, secured in the case, as shown in Fig. 1. For the sake of economy and to facilitate assembling the parts the housing 26 is built up of rings 27, 28, and 29, two of which are countersunk on one side around the central opening to form the grooves 25, in which the tumblers or rings are mounted. After these parts are properly assembled they are secured together by rivets 30, which pass through the three housing-rings 27, 28, and 29 and the end plate 21, as clearly shown in Figs. 1 and 5. These several parts are then secured to the tubular wall of the receptacle-case by rivets or pins 31.

As illustrated in Figs. 6 and 7, the inner edge of the ring or tumbler 23 is cut out, as at 32, to form a passage-way for the slotted stud 16, and a similar passage-way 33 is formed in the ring 24. These passage-ways are moved into and out of alinement with each other by rotating the rings for the purpose of unlocking and locking the receptacle, as will be presently explained.

In the bottom of the receptacle is a series of screw-threaded holes 34, 35, 36, and 37, into one of which is inserted a screw or pin 38. When the receptacle is rotated, this pin travels in a circular path directly above the ring or tumbler 23, and on the latter there is a pin or projection 39 in the path of the pin 38. On the under side of ring 23 there is a pin or projection 40, which when said ring is revolved will strike against a similar projection 41 on the ring 24. By means of these pins both of the locking-rings may be revolved in their bearings by rotating the receptacle, as will be readily understood.

The feather-guide 14, which has been before referred to, projects from the interior wall of the receptacle-case and prevents the receptacle from being pushed to its seat in the case or withdrawn therefrom except when the slot 13 in the receptacle end plate 7 is in line with said guide.

It is now to be understood that when the receptacle is to be inserted in the receptacle-case the locking tumblers or rings 23 and 24 are so adjusted that when the slot 13 is in line with the feather-guide 14 the passage-ways through the rings for the stud 16 will be in line with each other, as well as in line with said stud. The feather-guide prevents the stud 16 from disturbing the adjusted position of the rings. After the receptacle is properly seated in the case it is revolved therein for moving the slotted stud 16 around the inner edges of the locking-rings, the latter then occupying the slots 17 and 18 in the stud and preventing a withdrawal of the receptacle. As the receptacle is revolved pin 38 comes in contact with the projection 39 on the ring 23 and moves the latter with the receptacle, and when the projection 40 on the under side of

said ring strikes the projection 41 on ring 24 both rings are moved together.

To remove the receptacle from its case, the locking-rings must be adjusted to the positions they occupied when the receptacle was inserted therein, this being accomplished by predetermined movements which are indicated by a series of numbers and guided by the dial on the face of the receptacle after the manner of an ordinary combination-lock.

The series of holes 34, 35, 36, and 37 in the bottom of the receptacle are provided for changing the combination at pleasure. These holes are drilled at random; but all of them must be the same distance from the central stud 15. The projections 39 and 40 on the ring 23 and 41 on ring 24 are also located at random, so that no two safes will have the same opening-combinations except by accident.

The opening-combinations are initially determined in any suitable manner, and for the sake of convenience said combinations are stamped on the bottom of the receptacle in a manner to indicate what the combination will be when the pin 38 is in any particular hole. For instance, the numbers "32-19" are stamped adjacent to the hole 34, which indicates the first two numbers of the combination of the safe when pin 38 is in that particular hole. The last number in the combination depends on the location of the slot 13 in the end plate 7, and this last number is the same in all of the several combinations of the particular safe. The pin is shown in hole 36 and the numbers adjacent to said hole are "27-14." These, therefore, are the first two numbers of the combination to which the lock is adjusted.

To unlock the safe, the receptacle is first given three or more complete turns, so that the tumbler or ring 24 may be carried to its proper position, the movement of the receptacle being stopped for this purpose when the graduation-mark "27" on the dial is opposite the index 10 on the receptacle-case, said number being the first number of the combination to which the safe is adjusted. The receptacle is then turned a complete revolution in the opposite direction and the movement continued until "14" is opposite the index, said number being the second number of the combination. The ring 23 will thus be moved to its proper position of adjustment. The movement is again reversed until the slot 13 is opposite the feather-guide 14. The receptacle may then be withdrawn from its case, as will be readily understood.

In Fig. 8 I show a receptacle-case 42, which is provided with a revolving bearing, which is desirable when the receptacle is of comparatively large dimensions or designed to contain articles of considerable weight. Said bearing consists of a ring 43, having a slightly-tapered inner bearing-surface 44, against which the end plate 45 of the receptacle rests. The bearing-ring is supported on antifriction-balls 46, which are themselves supported on a shoulder 47, formed around the interior of the re-

ceptacle-case. The ring 43, which revolves with the receptacle, is held in place by a retaining-ring 48, as clearly shown.

I have now described my invention in what I deem to be its best form; but it is to be understood that variations in the details of construction or in the general form of the receptacle or case will involve no departure from the main features of the invention, and certain features of my invention may be embodied in a structure in which the receptacle is held in its case against rotation—as, for instance, as illustrated in Figs. 9 and 10. As shown in said figures, the receptacle 49 is rectangular in cross-section and fits into a similar-shaped case 50. The face of the receptacle is provided with a revolving dial 51, which is secured to a spindle 52, extending to the rear of the receptacle and having on its inner end a disk 53. On the inside of the receptacle said spindle is provided with a collar 54 for preventing the receptacle from being withdrawn from the receptacle-case in case the dial 51 should be removed from the spindle. The disk 53 is provided with a slotted stud 55 and a pin or projection 56, which cooperate with the tumblers or rings 57 and 58, as heretofore described. The operations of locking and unlocking the receptacle are also as heretofore described, except that instead of revolving the receptacle itself the disk 53, which corresponds to the bottom of the receptacle before described, is revolved by revolving the dial 51, as will be readily understood.

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

1. The combination with a storage-receptacle provided with locking lugs or projections, of an inclosing case, and means for locking said receptacle in said case consisting of two or more tumblers rotatively mounted in said case and adapted by rotation to engage and disengage the locking-lugs on the receptacle, and means whereby said tumblers may be rotated into and out of alinement with each other, substantially as described.

2. The combination with a storage-receptacle, of a receptacle-case in which said receptacle may be inserted and revolved, locking mechanism in said case for securing said receptacle therein, which will permit the receptacle to be freely rotated in either direction, said mechanism being adapted to be operated for locking and unlocking the receptacle by rotative movements of the latter, substantially as described.

3. The combination with a tubular-shaped storage-receptacle having a lateral opening, a receptacle-case in which said receptacle may be inserted and revolved, locking mechanism in said case for securing said receptacle therein, said mechanism permitting the receptacle to be freely revolved in either direction and being adapted to be operated for locking and unlocking the receptacle by rotative movements of the latter, substantially as described.

4. The combination of a storage-receptacle provided with locking-lugs, of a case in which said receptacle may be inserted and revolved, two or more locking-tumblers mounted in said case adapted to engage and disengage the locking-lugs on said receptacle, and means whereby said tumblers may be separately adjusted by rotative movements of said receptacle, substantially as described.

5. The combination with a storage-receptacle provided with locking-lugs, of a case in which said receptacle may be inserted and revolved, two or more circular tumblers rotatively mounted in said case and adapted by rotation to engage and disengage the locking-lugs on said receptacle, and means whereby said tumblers may be moved into and out of alinement with each other by rotative movements of said receptacle, substantially as described.

6. The combination with a storage-receptacle, of a case in which said receptacle may be inserted and revolved, two or more tumblers rotatively mounted in said case, a pin or projection on said receptacle adapted to engage and move one of said tumblers and a similar pin or projection on said tumblers adapted to engage and move the next adjacent tumbler, and locking-lugs on said receptacle with which said tumblers engage, substantially as described.

7. The combination with a storage-receptacle, of a case in which said receptacle may be inserted and revolved, a slotted stud at the rear of the receptacle, two or more tumblers rotatively mounted in said case and adapted to occupy the slots in said stud, and means whereby said tumblers may be separately adjusted for removing the receptacle from the case, substantially as described.

8. The combination with a storage-receptacle provided with locking-lugs, of an inclosing case, two or more locking-tumblers mounted in said case adapted to cooperate with the lugs on said receptacle for locking the latter in the case, and means carried by the receptacle for separately adjusting said tumblers, substantially as described.

9. The combination with a storage-receptacle provided with locking lugs or projections, of an inclosing case for said receptacle, and means for locking said receptacle in said case consisting of two or more circular tumblers rotatively supported at their outer edges within said case, said tumblers each having a circular inner edge which is adapted to cooperate with the lugs on said receptacle, said inner edge being cut away at one point to afford a passage-way for said lugs, and means whereby the passage-ways in said rings may be placed in or out of alinement with each other, substantially as described.

10. The combination with a storage-receptacle provided with locking-lugs, of a case into which said receptacle may be inserted and revolved, two or more locking-tumblers in said case adapted to cooperate with the lugs on said

receptacle for locking the latter in said case,  
means whereby said tumblers may be separately  
adjusted by rotative movements of the  
receptacle, and separate means for preventing  
the insertion and withdrawal of the receptacle  
until the latter is turned to a fixed point  
of adjustment, substantially as described.

In testimony whereof I have hereunto set  
my hand in presence of two subscribing witnesses.

HARVEY C. LOWRIE.

Witnesses:

E. BARNETT,

W. J. WOODMAN.