

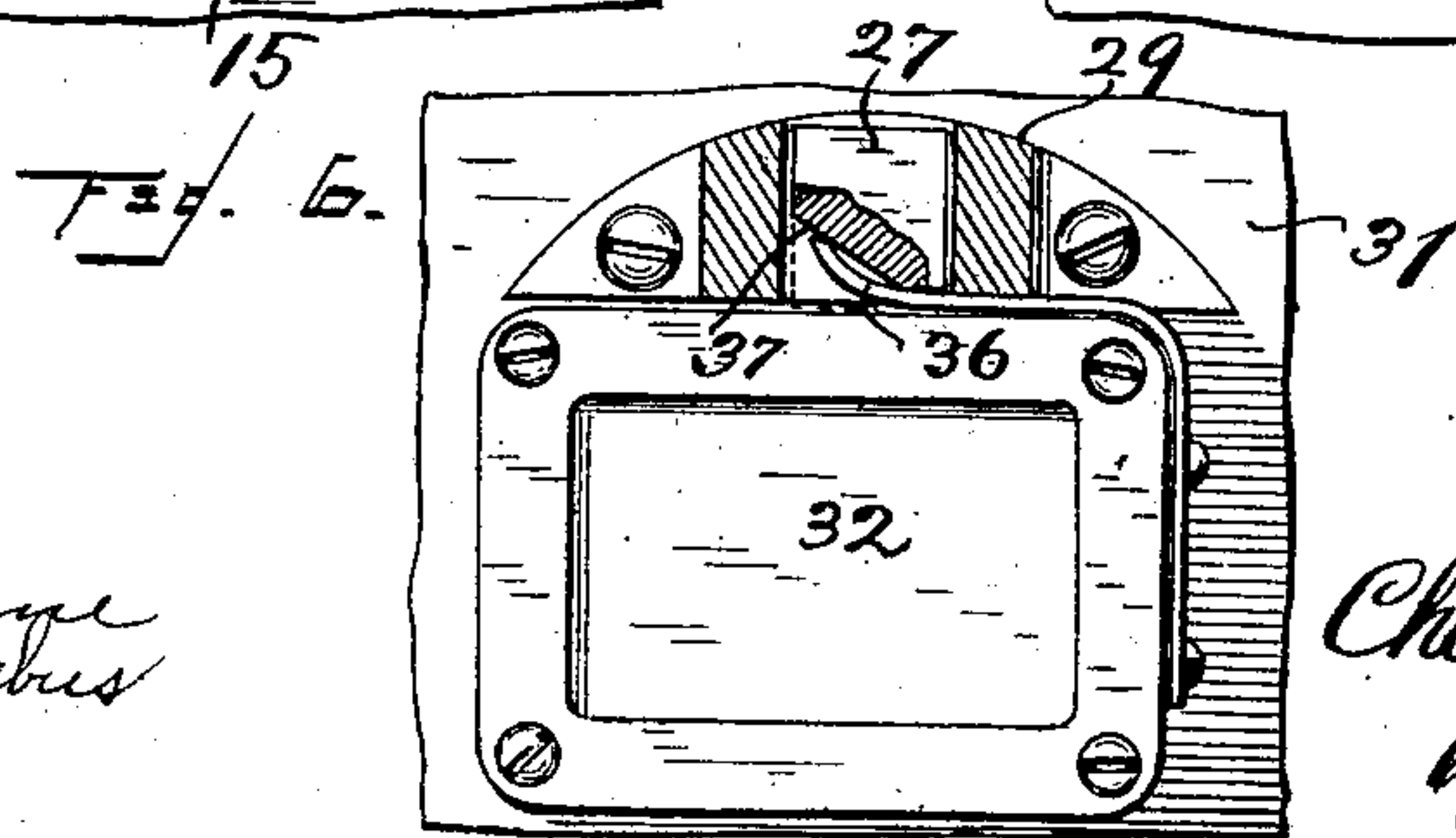
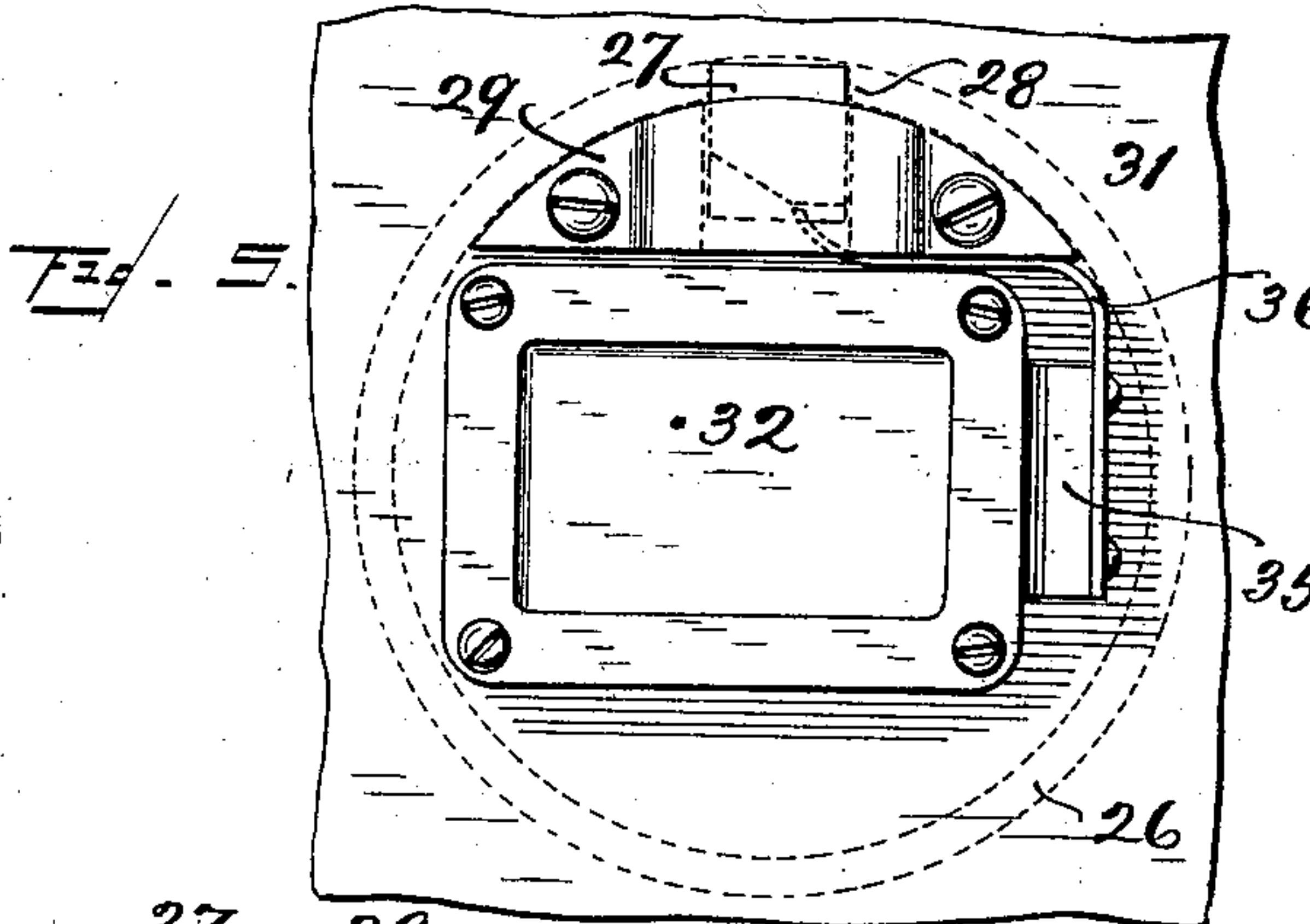
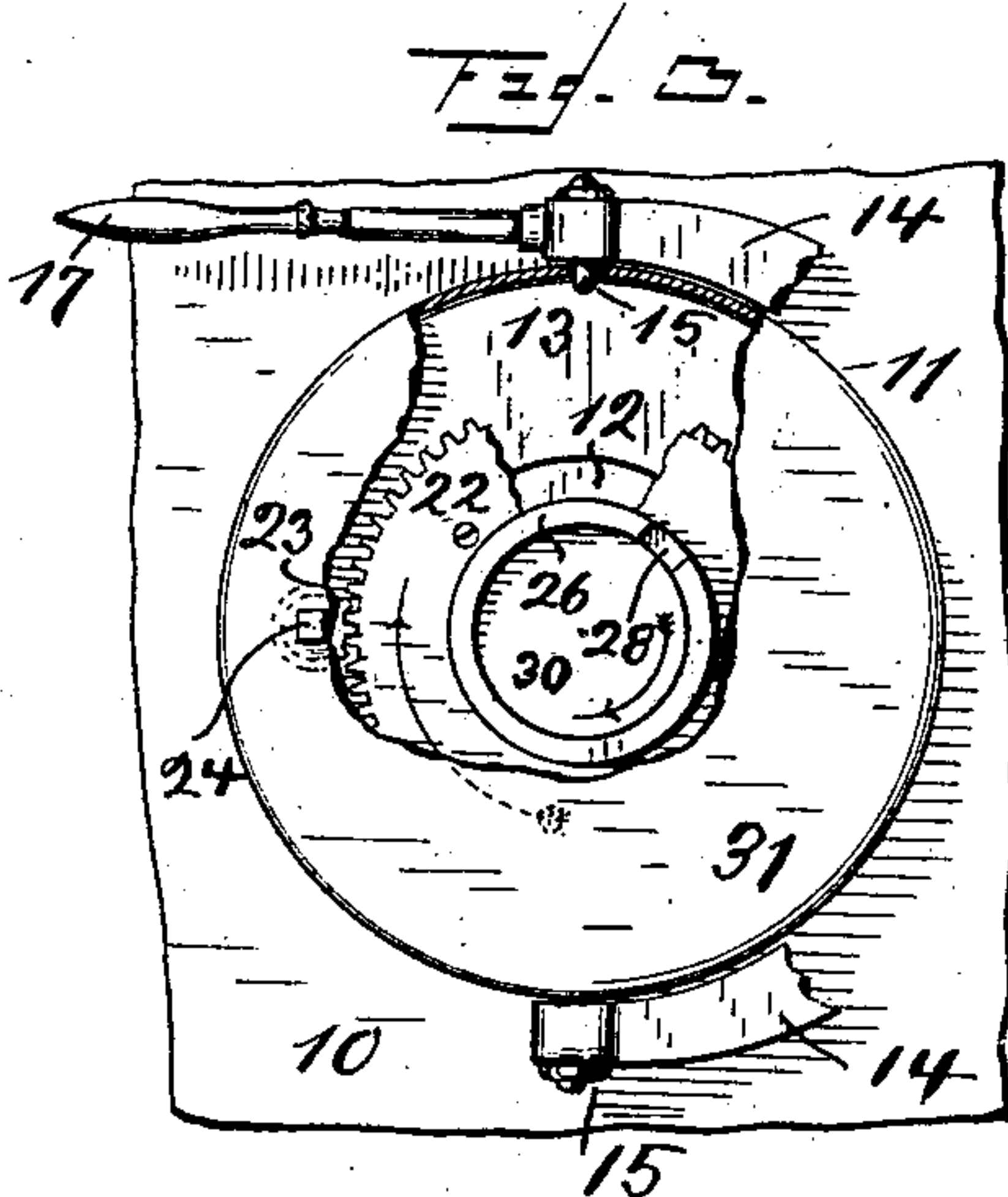
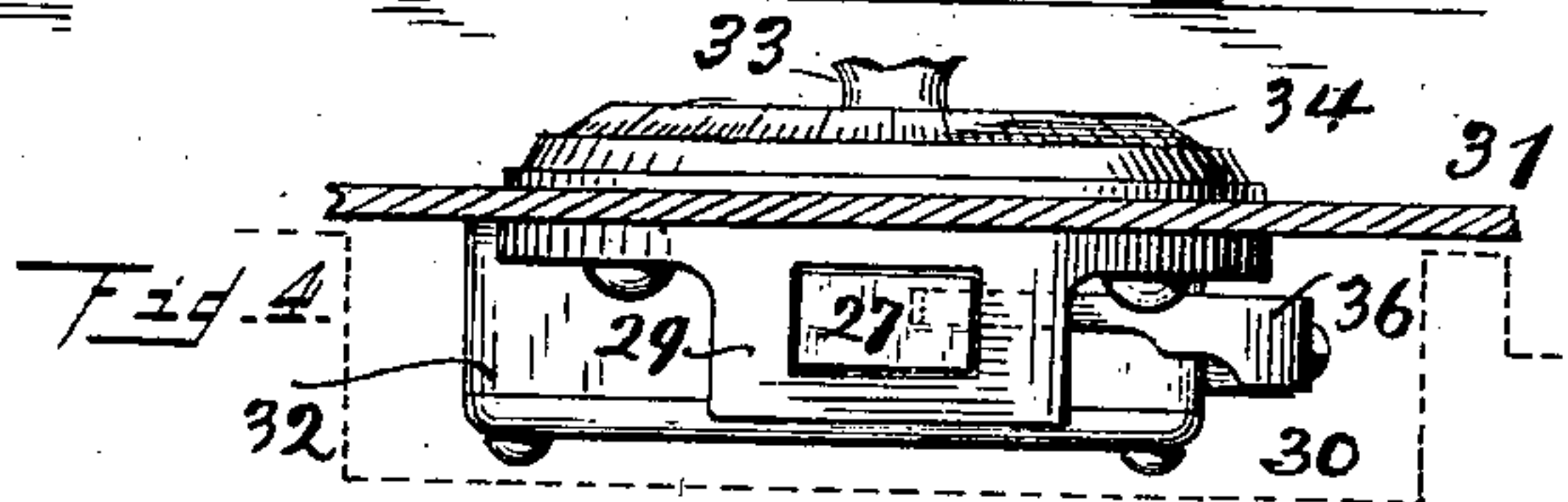
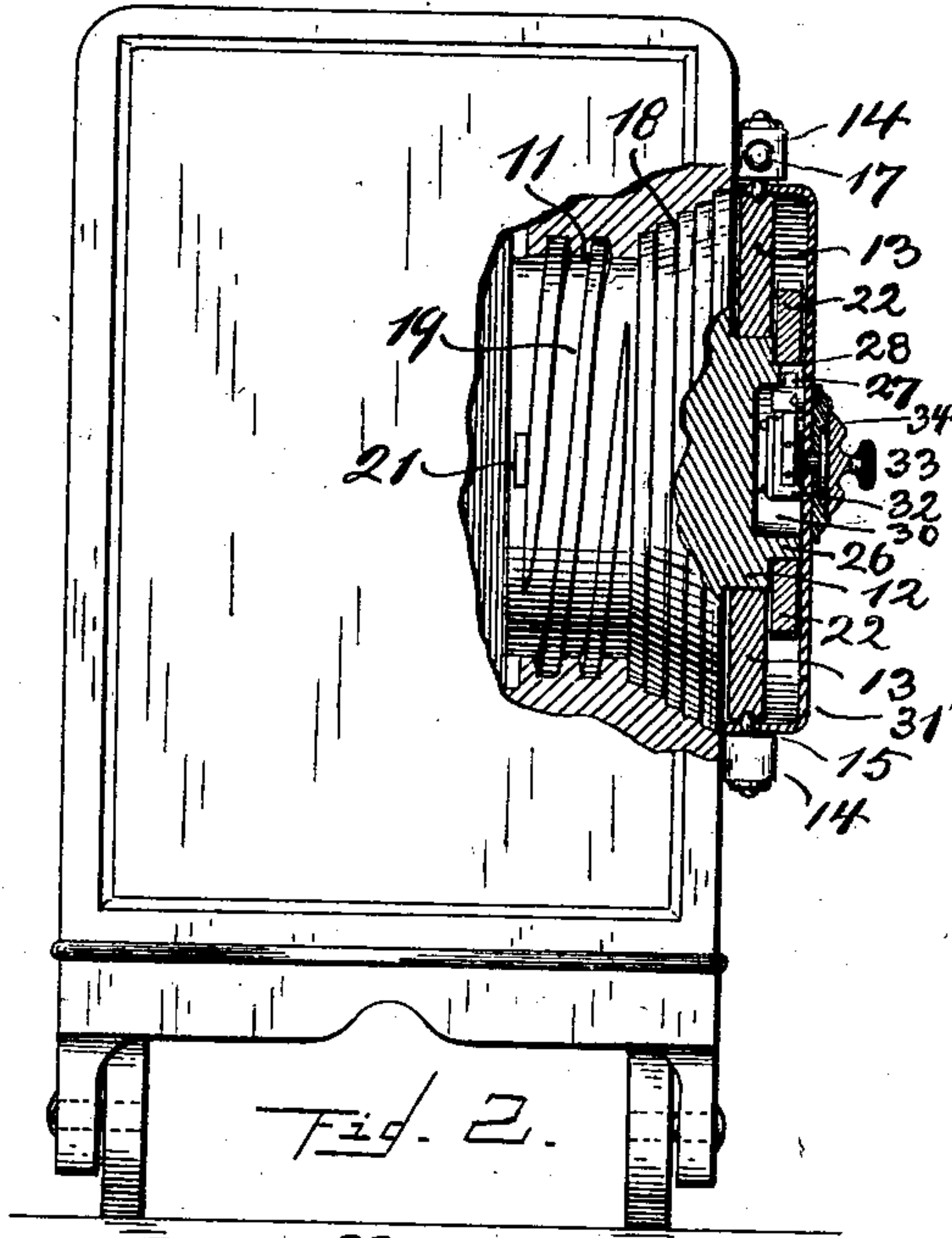
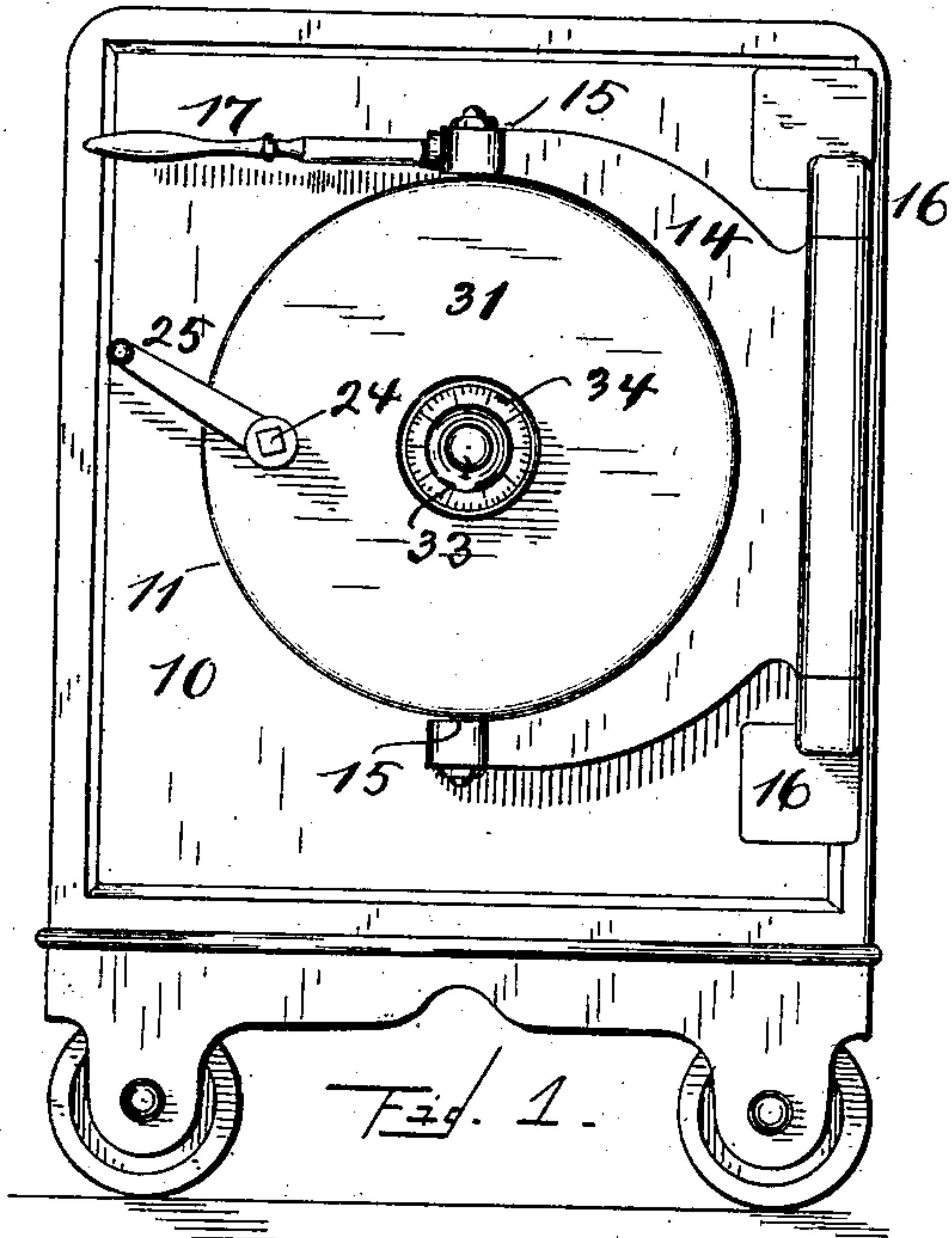
No. 742,569.

PATENTED OCT. 27, 1903.

C. E. BLECHSCHMIDT.
DAY LOCK FOR SCREW DOOR SAFES.

APPLICATION FILED JUNE 15, 1903.

NO MODEL.



Witnesses
Arthur Kluge
Albert Moebius

Inventor
Charles E. Blechschmidt
by C. Spengel atty.

UNITED STATES PATENT OFFICE.

CHARLES E. BLECHSCHMIDT, OF BELLEVUE, KENTUCKY, ASSIGNOR TO THE VICTOR SAFE & LOCK CO., OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

DAY-LOCK FOR SCREW-DOOR SAFES.

SPECIFICATION forming part of Letters Patent No. 742,569, dated October 27, 1903.

Application filed June 15, 1903. Serial No. 161,495. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BLECHSCHMIDT, a citizen of the United States, residing at Bellevue, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Day-Locks for Screw-Door Safes; and I do declare the following to be a clear, full, and exact description of the invention, attention being called to the accompanying drawings, with the reference characters marked thereon, which form also a part of this specification.

This invention relates to improvements in so-called "day-locks" for screw-door safes and where such safes, as is usual, are provided with a time-lock which controls the operation of the bolts for unlocking. The withdrawal of these latter for such purpose, usually automatic, is thus entirely dependent on the time-lock and on the interval of time for which it has been set and during which time the safe remains entirely inaccessible. This interval of time comprises, usually, the hours between close of business of one day and of opening on the next, while during such business hours the safe remains, usually, open, or at least unlocked. It becomes often desirable, however, to be able to temporarily lock a safe during business hours of the day for shorter or longer periods without having to resort to the manipulation, winding, and setting of the time-lock mechanism in each case and without having to wait for possibility of access on the particular time once set in case such access is desired before. For such purpose so-called "day-locks" are used, which are usually combination-locks of the tumbler type and by means of which the safe-door may be quickly and conveniently locked for a shorter or longer time and thereafter opened again whenever required without having to wait on the set operation of a time-lock mechanism. At close of business hours this latter is of course resorted to again to lock the safe during the night-time. A day-lock of this kind is illustrated in our Patent No. 710,417, issued to us on October 7, 1902.

This present invention relates to a device for a similar purpose, the object being to improve part by certain changes in the construction

improvements in the utility and increased efficiency of the operation.

In the following specification, and particularly pointed out in the claims following, is found a full description of the invention, together with its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows in front elevation a safe provided with a screw-door for closing and fitted out with the new day-lock which is the subject of this invention. Fig. 2 is a side view of this safe with parts of its body and door broken away and shown in section. Fig. 3 shows part of the front with portions broken away. Fig. 4 is a top view of the day-lock with that part of the door to which it is attached shown in section. Fig. 5 is a front view of the preceding figure, the lock being shown in its operative or locking condition. Fig. 6 is a similar view with parts broken away, showing the lock in its inoperative condition. These last three figures are shown at increased scale.

In its general construction this safe and its door are built on customary lines prevailing in screw-door safes, a gear-train being generally used for rotating the door. 10 is the front of such a safe, provided with a round opening to receive the circular door 11. This door on its front side is provided with an outwardly-projecting journal 12, fitted to occupy a bearing in a ring 13 and within which said door is capable of rotation. Both are carried on a crane-frame 14, to which they are pivotally held by vertically-disposed trunnions 15, which engage ring 13. Crane 14 is hinged at 16 to front 10 of the safe and provided with a handle 17, whereby the door may be swung to or from its opening. The circular side or edge of the door is in part tapering or conical and in part straight or cylindrical. This tapering part of the periphery is stepped off, as shown at 18, while the straight part is provided with a screw-thread 19, fitted to a similar thread within the door-opening. The parts are so arranged that rotation of the door when nearly closed causes the screw-threads to engage, and when such engagement has reached its limit the

stepped part 18 has also reached its proper position and is in close fit and contact with the similar stepped part of the door-opening, thus closing this latter tightly. At that time bolts 5 21, carried by the door, have also arrived opposite sockets within the door-opening of the safe-front, so that at the moment rotation of the door ceases this latter is in position to be locked, and these bolts may be advanced into 10 and occupy such sockets. This prevents rotation of the door in reverse direction, and thereby locks the same against opening and access. The rotation of the door is by means of a gear-train consisting of a cog-wheel 22 15 and a pinion 23, which latter is seated on ring 13 and carries an outwardly-projecting key 24, fitted to the socket of a suitable crank-handle 25, used for manipulation while rotating the door. Cog-wheel 22 is rigidly at- 20 tached to the door by being connected to the face of journal 12, projecting therefrom, thereby transmitting the rotation received from pinion 23 to it, and by projecting over the non-rotary ring 13 it serves as a collar to 25 hold journal 12 of the door in place in its bearing within said ring. The attachment of said cog-wheel is by means of a screw connection, and for centering it it has a bore which receives a circular flange or boss 26, 30 being an outwardly-projecting continuation of journal 12. The means operating automatically and whereby the bolts are caused to so advance at the time when the door has been screwed home and rotation ceases are 35 not new, and therefore not shown, nor are the means which operate to retract these bolts to permit rotation in reverse direction for unlocking and opening of the door. These latter means consist of a time-lock which 40 must be manipulated, wound, and set every time the safe is to be locked, after which the action of this time-lock must be awaited before access to the safe can be had. This renders the use of the time-lock inconvenient 45 when the safe is to be locked only temporarily and for indeterminate limited lengths of time during the day, and for such purpose and to enable such locking these so-called "day-locks" are used, whereby the safe-door 50 may be locked in its closed position and unlocked at any time thereafter entirely independent of the time-lock. The means and mechanism involved in either of these two locks are entirely independent from each 55 other, so that the independent use of one does in no way involve the other.

The difference in the two methods of locking may be defined like this: that while when 60 locking or unlocking in connection with the use of the time-lock the door is locked to the safe-body by means of bolts 21, while the use of the day-lock does not involve the bolts at all and locking by it is obtained merely by preventing operation of the mechanism neces- 65 sary to rotate the door for the purpose of unscrewing it. This is done by locking the ro-

tary part of the door to the non-rotary part of it and of the two complementary parts of the lock engaging each other during such locking. One is therefore secured to one of 70 these parts and the other is found on the other part of the door. These two parts of the lock are a bolt 27, attached to the non-rotary part of the door, and a keeper or keyway for it, preferably in shape of a notch 28, provided 75 in the rotary part of the door. This particular location selected for this latter part is in journal 12 or in the outward continuation 26 thereof. Bolt 27 is slidably contained in a socket-casing 29 and secured, by means of it, 80 to a non-rotary part of the door, which in this case is a shell or cover 31, provided to inclose the gear-train and covering the outer part of the door, so as to improve also the appearance of the safe. The shell, together with the non- 85 rotary ring 13, is held in place by the trunnions 15 mentioned and carried on crane-frame 14. Bolt 27 and its casing are secured to the inside of this shell, and to condense all parts as much as possible it is so located 90 as to reach into a recess 30, provided in the front of boss 12. This permits shell 31 to be placed against the door as close as possible and avoids any waste space between the two.

The locking action consists of moving bolt 95 27 partly out of its casing and into notch 28, so that it partly occupies both, whereby the non-rotary part of the door is locked to the rotary one and rotation of the door for the purpose of unscrewing it is prevented. It 100 may be remarked yet that notch 28 and bolt 27 are so located with reference to each other that they are in juxtaposition—that is, opposite each other for engagement—when the door is closed and completely screwed home. 105 The arrangement is furthermore such that bolt 27 is moved in a vertical direction, so that gravitation may be made use of for moving it in one direction, while mechanical means are used to move it positively in the 110 other direction. These mechanical means are a lock mechanism, preferably a so-called "permutable" combination or tumbler lock, the mechanism of which is inclosed in a housing 32 and which housing is also secured to 115 shell 31. The tumbler-spindle is carried through this shell, so as to be accessible from the outside, where a knob 33 is provided. The graduated dial 34, which controls the manipulation of the knob, is also attached outside 120 of shell 31.

Housing 32 is so attached to shell 31 that it also may occupy recess 30 in the front of the door, so that its presence does not require 125 any extra space. It is furthermore so positioned that its bolt 35 may be used for the actuation of sliding bolt 27, a finger 36 being interposed, as shown, the bent end of which operates in conjunction with an inclined surface 37 on the under side of bolt 27. By 130 moving both outwardly it will raise bolt 27, as shown in Fig. 5, and cause it to move into

notch 28. By moving bolt 25 inwardly, as shown in Fig. 6, bolt 27 will drop in its unlocking position.

As will be seen, the movement of bolt 27 in one direction, it being its return movement, is by use of gravitation merely.

Attention is called to the fact that the penetration of the lock-spindle through shell 31 does in no way impair the security of the safe, since the door proper is in no way affected and remains entirely intact. The position of this lock is never reversed and changed by the rotation of the door, since it does not take part in the same, being entirely stationary, so that it is not subject to any undue wear. Neither will it be affected by any jars due to attempts to open the locked door by efforts on handle 25 to rotate it. This is because bolt 27, which receives these jars, is not connected to this lock in a manner conducive to transmit such jars and wear to it. It will now be seen that by means of such a lock the door may be conveniently locked for short periods during the business hours of the day without requiring the more cumbersome manipulation of the time-lock and avoiding the delay caused by awaiting its opening operation should access to the safe be desired before the time originally expected.

Knowledge of the combination will not aid access to the safe in case the same is locked by the time-lock mechanism.

The arrangement shown permits the use of any of the usual combination-locks which

may be had ready in the market and does not require any special construction of the safe-door or any changes in the same to permit insertion and attachment of this combination-lock.

Having described my invention, I claim as new—

In a safe having a rotary screw-door, the combination of an outwardly-projecting journal 12 on said door a non-rotary ring 13, in which it is supported a recess 30 provided in the front of journal 12, a non-rotary shell 31 covering the outer face of the door and also closing recess 30, a bolt-housing attached to non-rotary shell 31 in a position so as to be within recess 30 a locking-bolt slidably contained therein, a locking-notch provided for it in the outer edge of journal 12, an independent lock mechanism operative from the outside attached to non-rotary shell 31, a bolt forming part of this lock mechanism, a finger 36 secured to and projecting from the outer end of this bolt and an inclined surface provided on the inner end of the sliding bolt first mentioned and adapted to be engaged by the free end of finger 36 so that when the independent lock mechanism is operated the sliding bolt will be caused to move into its locking-notch in journal 12.

In testimony whereof I hereunto set my signature in the presence of two witnesses.

CHARLES E. BLECHSCHMIDT.

Witnesses:

C. SPENGEL,

ALBERT H. MOEBUS.