

No. 708,991.

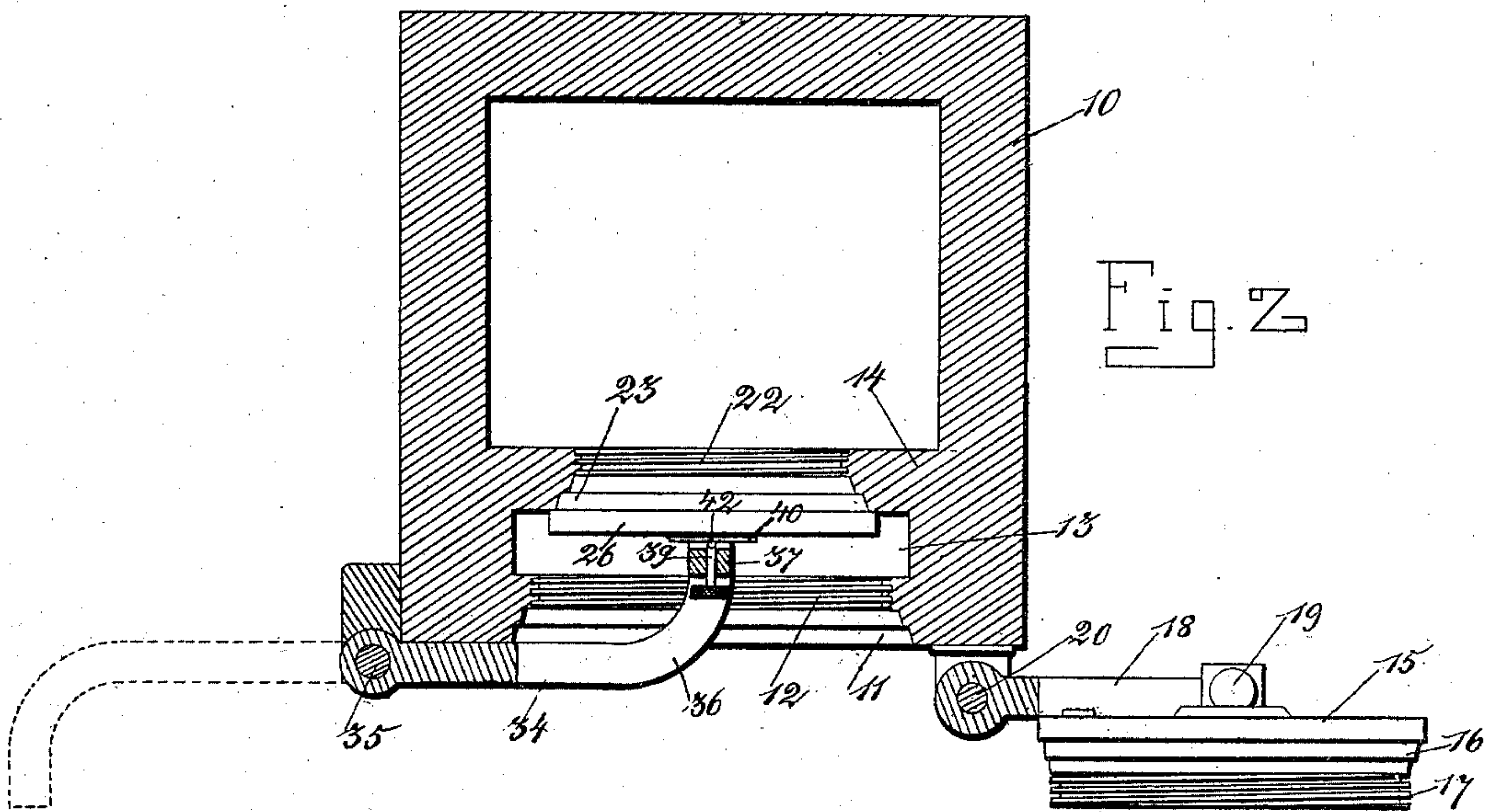
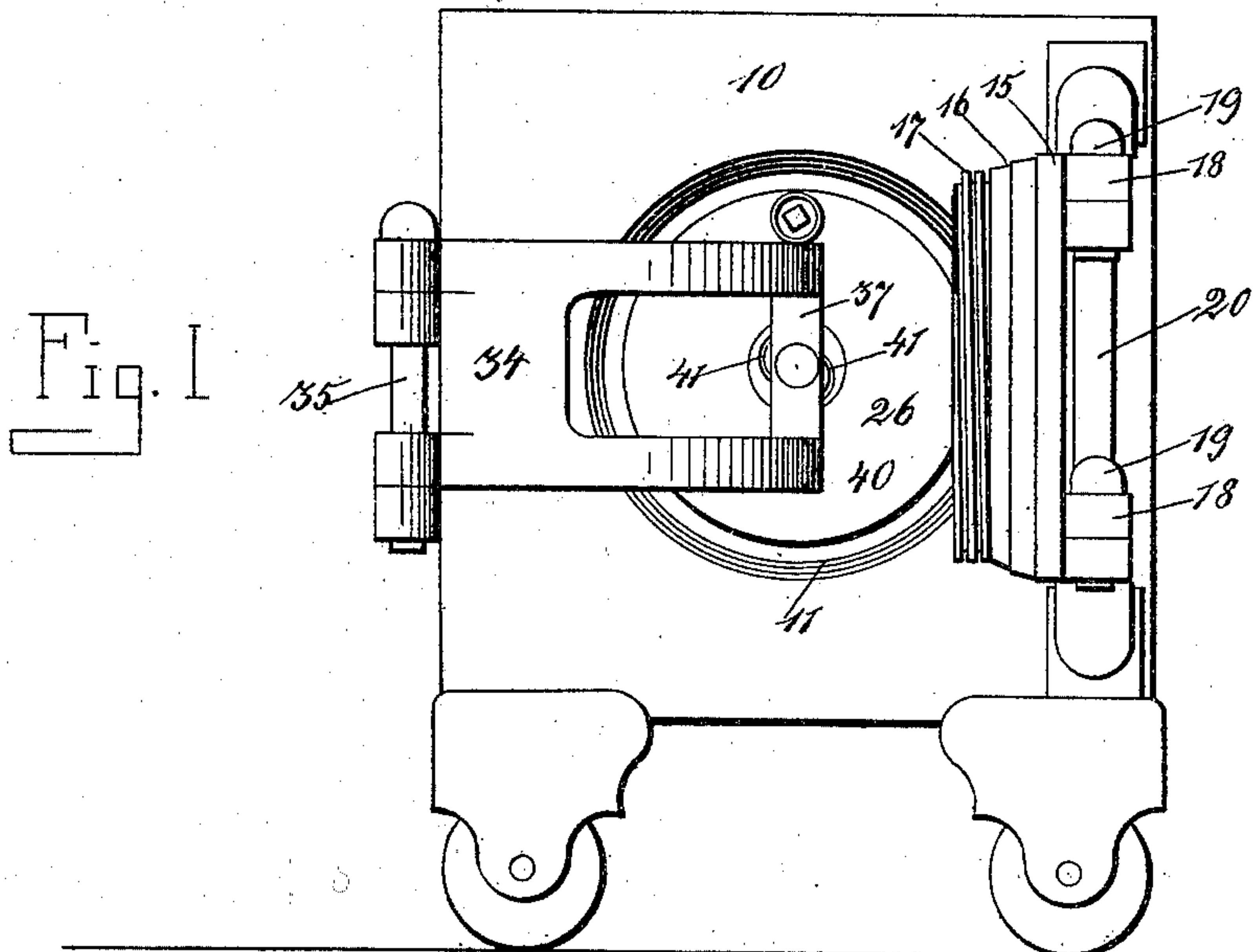
Patented Sept. 16, 1902.

J. B. BOOS.
SCREW DOOR SAFE.

(Application filed Jan. 31, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
C. E. Corbett.
R. B. Orwig.

INVENTOR - JOSEPH B. BOOS
By: Orwig & Lane ATTYS.

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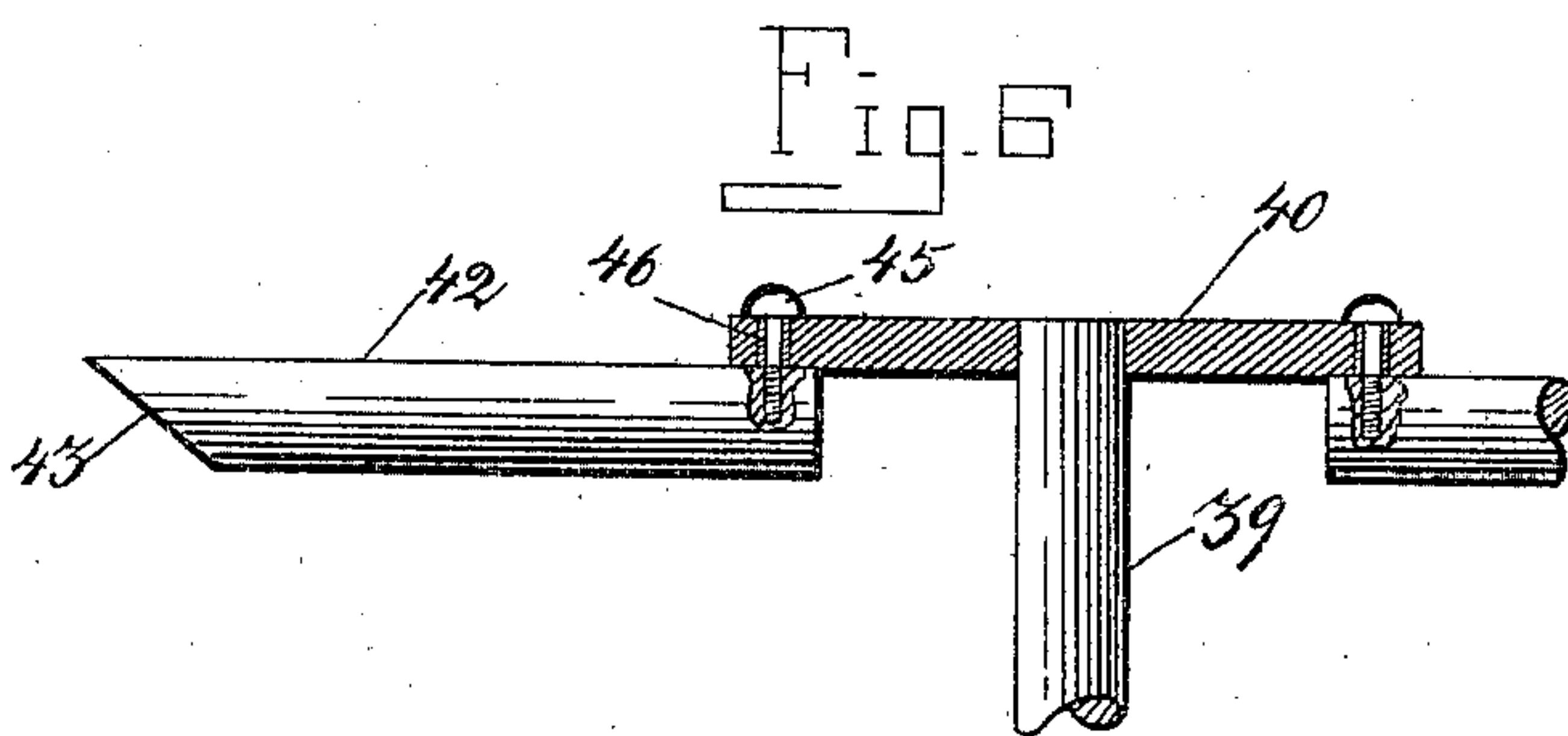
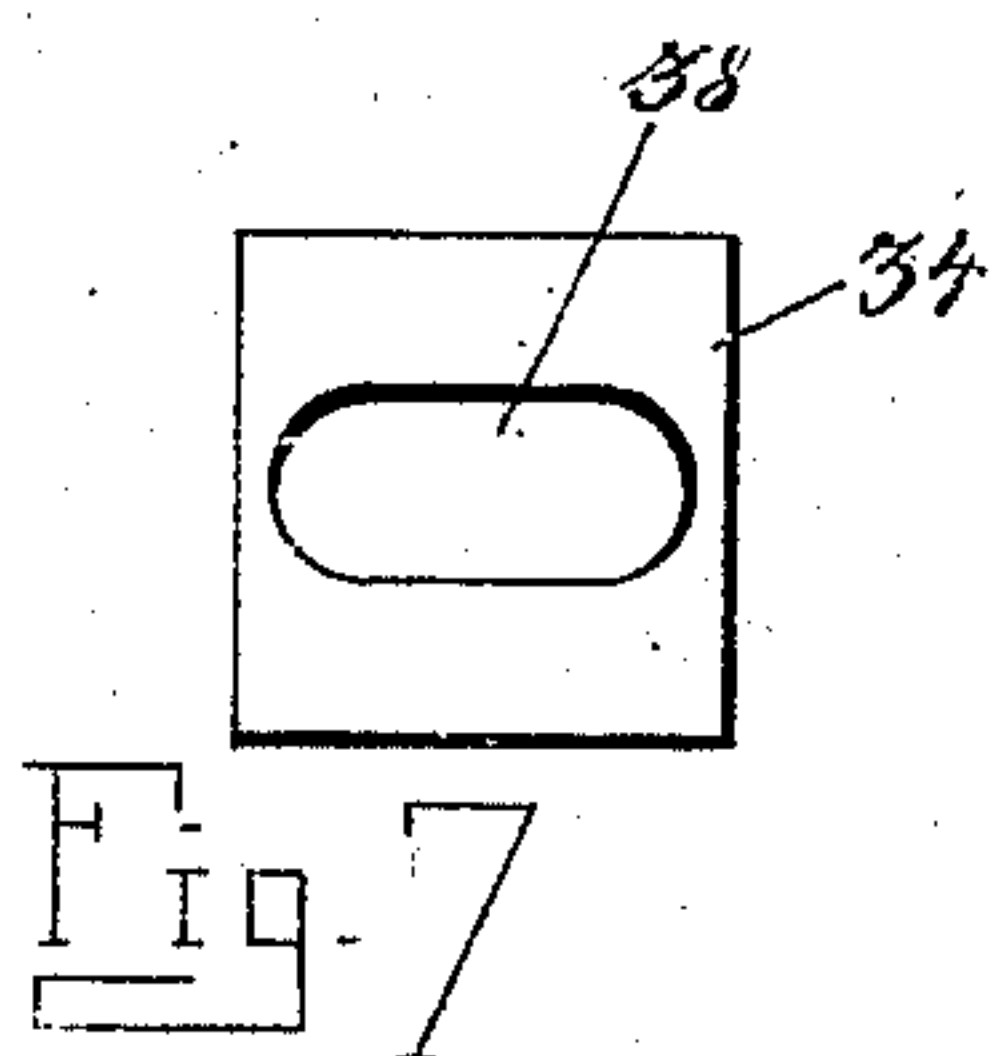
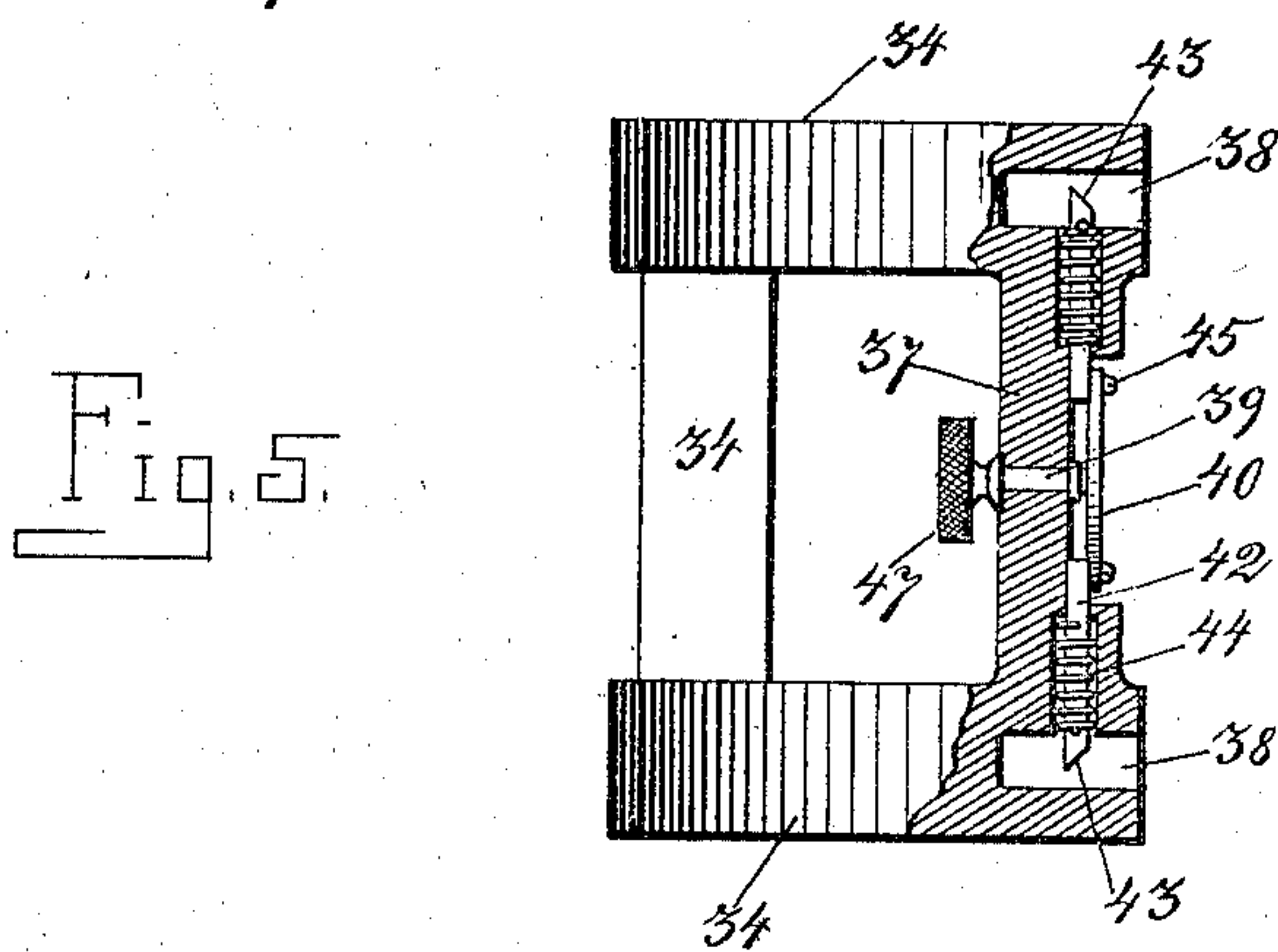
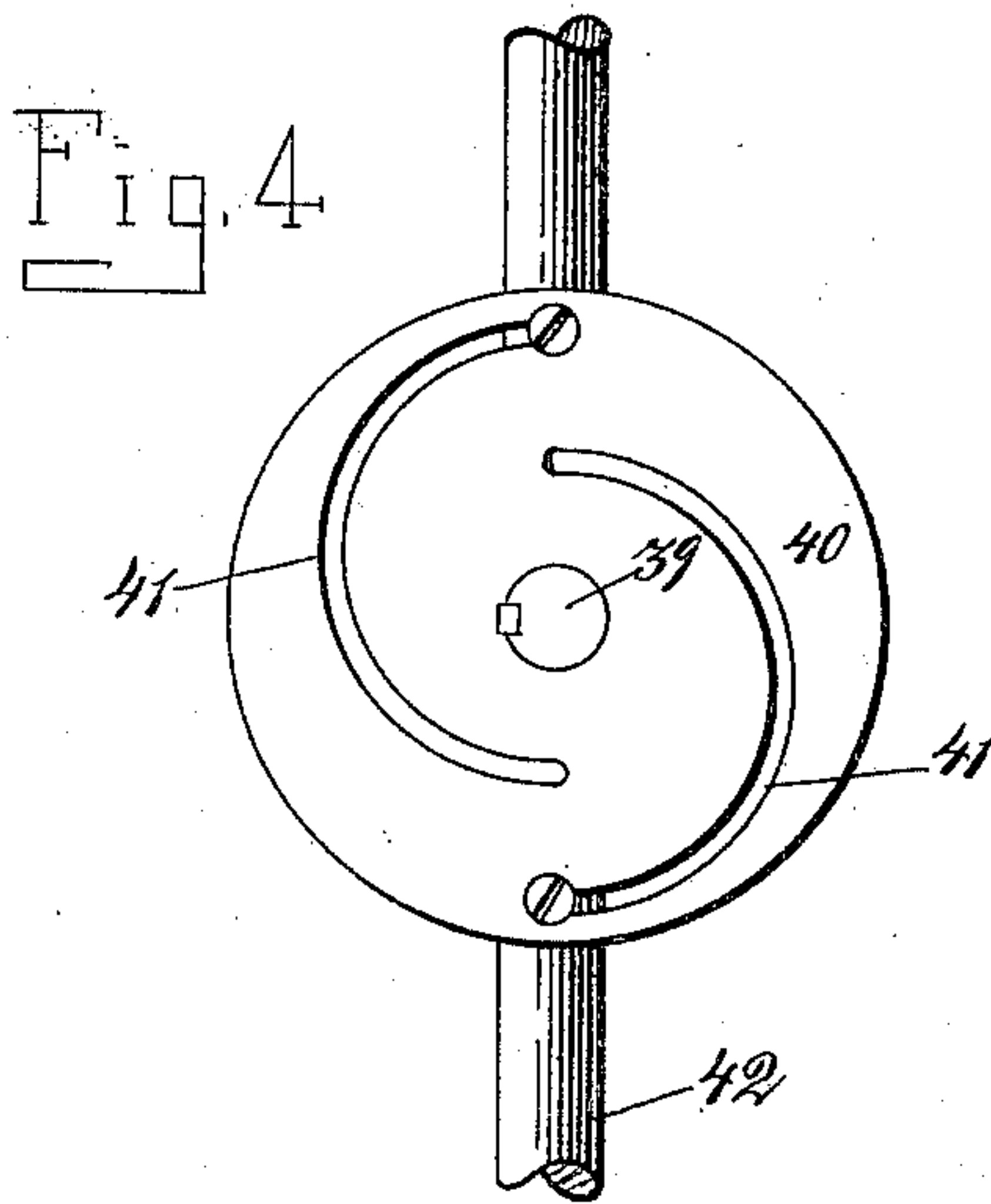
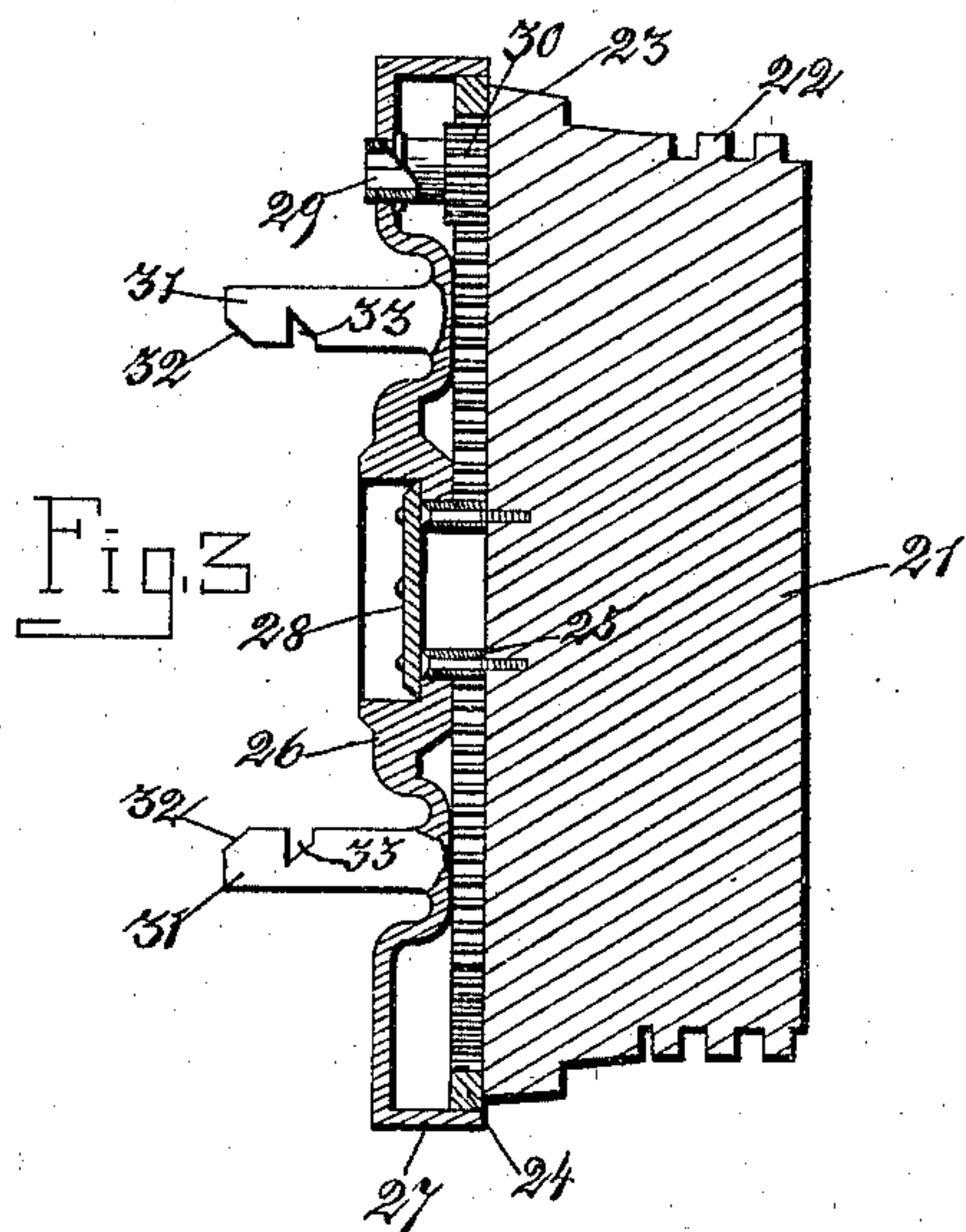
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WITNESSES:
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UNITED STATES PATENT OFFICE.

JOSEPH B. BOOS, OF MUSCATINE, IOWA.

SCREW-DOOR SAFE.

SPECIFICATION forming part of Letters Patent No. 708,991, dated September 16, 1902.

Application filed January 31, 1902. Serial No. 92,019. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. BOOS, a citizen of the United States, residing at Muscatine, in the county of Muscatine and State of Iowa, have invented certain new and useful Improvements in Double-Screw-Door Safes, of which the following is a specification.

My invention relates to that class of safes in which an inner and an outer screw-door are provided, the inner screw-door being so arranged that it may be removed from the safe by passing it through the opening for the outer screw-door.

The object of my invention is, briefly, to provide hinged arms supported on the exterior of the safe and capable of swinging through the opening for the outer screw-door and of being automatically coupled to the inner screw-door, so that the inner screw-door may then be detached from the safe and swung outwardly through the opening for the outer screw-door upon said pivoted arms.

More specifically it is my object to provide simple, durable, and inexpensive means for automatically coupling the pivoted arms to the inner screw-door and for readily, quickly, and easily detaching them therefrom when it is desired to remove the arms from the opening for the outer door.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a front elevation of a double-screw-door safe with the outer door in an open position and the inner door in its closed position and the arms for supporting the inner door in position in engagement therewith. Fig. 2 shows a horizontal sectional view of same and by dotted lines indicating the position of the pivoted arms when swung outwardly from the safe. Fig. 3 shows a vertical central sectional view, on an enlarged scale, of the inner safe-door. Fig. 4 shows an enlarged detail view illustrating the slide-bolts for locking the pivoted arms to the inner safe-door and also showing the disk having cam-grooves therein for actuating the slide-bolts. Fig. 5 shows a front elevation

of the pivoted arms as they would appear when projecting straight forwardly from the safe, parts of the forward end portion of the arms being broken away to show the internal construction. Fig. 6 shows an enlarged detail view of the slide-bolts and the disk, having cam-grooves for actuating the slide-bolts, the disk being shown in section; and Fig. 7 shows an end elevation, on an enlarged scale, of one member of the pivoted arms to illustrate the contour of the opening therein.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the safe-body. At the front of the safe-body is an opening to receive the outer screw-door. The front portion of the opening is provided with stepped beveled surfaces 11, and the inner portion of the opening is provided with screw-threads 12. In the rear of this opening is a chamber 13, and in the rear of the chamber 13 is a partition 14, having an opening therein to receive the inner screw-door, said opening being provided with a stepped beveled surface and a screw-threaded portion, the same as is provided in the opening for the outer screw-door. The opening for the inner door is materially smaller than that for the outer door, so that the inner door may be removed through the opening for the outer door.

The reference-numeral 15 indicates the outer screw-door, having the stepped beveled surfaces 16 and the screw-threaded portion 17 to engage, respectively, the parts 11 and 12 of the outer screw-door opening. This door is supported upon the arms 18, to which they are pivotally attached by means of the pins 19, and the other ends of the arms 18 are pivotally connected with the safe proper by means of the pin 20. By this means the outer screw-door may be fitted in the outer screw-door opening or may be removed therefrom and swung to a position where it will not obscure the opening in the safe.

The inner screw-door comprises a body portion 21, having at the inner portion of its periphery the screw-threads 22 and at the outer portion thereof a stepped beveled surface 23. Attached to the front face of the inner screw-door is a rim 24, having internal cog-teeth, and attached to the central portion of the front face of the inner door is a collar 25.

The numeral 26 indicates a front for the inner door. This front is provided with a flange 27 to overlap the periphery of the rim 24, and it is provided with a central opening to admit the collar 25. A plate 28 engages the outer surface of a flange of the front 26 and also engages the collar 25 and is secured to the inner door by bolts, thus holding the front 26 to the body portion 21, and yet permitting the said front to rotate freely with relation to the body portion.

Pivotaly mounted in the front 26 is a hub 29, having a pinion 30 attached thereto and in mesh with the cog-teeth on the rim 24. The hub 29 is provided with an annular central opening, into which a key may be fitted to turn the pinion. Obviously when this pinion is rotated the front and body portions of the door will move relative to each other. I have formed integral with the front 26 two shanks 31. These shanks have their outer end portions beveled at 32, and the edges of the shanks adjacent to each other are provided with notches 33, for purposes herein-after made clear.

The reference-numeral 34 indicates an arm, pivoted to the exterior of the safe at the side opposite from the pivotal point from the arms 18, by means of a pin 35. The free end portion of the arm 34 is curved at 36 in a horizontal plane, and the outer end portion thereof is straight and at right angles to the body portion, as clearly illustrated in Fig. 1. This arm is of such shape that when swung to its limit of movement inwardly the free end of the arm will engage the inner screw-door when it is in position in the safe. This arm 34 is bifurcated at its free end, and near said end is an integral vertical cross-piece 37. In the free end of each portion of the arm 34 is an opening 38, which opening is of a dimension vertically corresponding to the vertical dimension of the shank 31; but its width at its outer end is materially greater than the width of the shank 31, as clearly shown in Fig. 7. Said openings 38 are spaced apart, so that as the arm 34 is swung to position the shanks 31 will be admitted into the openings 38.

Mounted in the cross-piece 37 is a shaft 39, and on the end of said shaft nearest to the free end of the arm 34 is a disk 40, keyed to the shaft. In the disk 40 are two cam-grooves 41. Slidingly mounted in suitable openings in the cross-piece 37 are two slide-bolts 42, with their outer ends beveled at 43, and said outer ends are admitted into the openings 38. These bolts are normally held to their outer limit of movement by means of the springs 44, and at the inner end of each bolt is a screw 45, having an antifriction-roller 46 thereon, said roller being admitted into one of the cam-grooves 41. These bolts 42 are projected in opposite directions, and the springs therefor tend to force them outwardly. Attached to the other end of the shaft 39 is a knob 47, and obviously by turning the knob the cam-grooves may be made to operate on the roll-

ers in such manner as to move the bolts 42 inwardly against the pressure of the springs 44. These bolts are so arranged and proportioned relative to the notches 33 in the shanks 31 that when the arm 34 is swung inwardly the shanks 31 will enter the openings 38, and the beveled surfaces 32 of the shanks will press the bolts inwardly against the pressure of their springs until the bolts reach the notches 33, whereupon they will spring outwardly and firmly lock the inner door to the arm 34.

In practical use, and assuming that both doors of the safe are closed and locked and assuming, further, that it is desired to open the same, the operator first unscrews the outer door and swings it outwardly in the ordinary manner. After the outer door is removed the operator swings the arm 34 inwardly until the openings 38 on the end of the arm receive the shanks 31. On account of the peculiar shape of the openings 38 the inner door is firmly supported against vertical movements, and yet it may tilt laterally to a limited degree after it is supported upon the arms. When the arm 34 is swung to a position where its free end strikes the front of the inner door, the bolts 42 have been moved by their springs automatically into engagement with the notches in the shanks and the arm 34 has been securely coupled to the inner door. Then the key is inserted in the hub 29, and the body portion of the inner door is made to rotate to unscrew it, and as soon as it is unscrewed it may be swung forwardly on the arm 34 through the opening for the outer screw-door and to a position in front of or at the side of the safe. Then when it is desired to replace the inner door it is only necessary to swing it back into position and screw the body portion of the inner door into its opening, and then the operator may easily grasp the knob 47 and by turning it a part of a revolution may uncouple the bolts 42 from the shanks, and as soon as the bolts have been withdrawn the knob 47 may be drawn outwardly, thus bringing the arm 34 through the opening for the outer door, where it may be swung to a position at the side of the safe.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination with a safe-body, having an inner and an outer door-opening, of a door for the outer door-opening, a door for the inner door-opening, supporting means for the inner door attached to the safe-body, and designed to project through the outer door-opening thereof, and means for automatically coupling the said supporting means to the inner door.

2. The combination with a safe-body, having an outer door-opening and also having an opening for an inner screw-door, of a screw-door for the outer door-opening, a screw-door for the inner opening, supporting means for the inner screw-door attached to the exte-

rior of the safe-body, and designed to project through the outer door-opening thereof, and means for automatically coupling the said supporting means to the inner screw-door.

3. The combination with a safe-body, having an outer door-opening and also having an opening for an inner screw-door, of a screw-door for the inner opening, a door for the outer opening, a supporting-arm pivoted to the exterior of the safe and at one side of the outer opening, said arm being designed to swing in a horizontal plane and to be capable of projecting through the outer door-opening, and of engaging the front face of the inner door, and means for automatically coupling the said arm to the inner screw-door.

4. The combination with a safe-body, having an outer door-opening and also having an opening for the inner screw-door, of an outer door to fit in the outer door-opening, an inner screw-door comprising a body portion designed to enter the said opening for the inner door, a front plate for the inner door so arranged that the body portion of the door may rotate relative to the front plate thereof, a notched shank projecting forwardly from the front plate, an arm pivoted to the exterior of the safe capable of projecting through the opening for the outer door, an opening in its end to receive the said shank, and means for

detaching the arm from the shank, for the purposes stated.

5. The combination with a safe-body, having an outer door-opening and also an opening for an inner screw-door, of an outer door, an inner screw-door comprising a body portion to enter the opening for the inner door, a front plate for the inner door attached to the body portion thereof in such manner as to permit the body portion to rotate relative to the front plate, a notched shank projecting forwardly from said plate, an arm pivoted to the body portion of the safe to swing in a horizontal plane, having its free end curved inwardly and designed to project through the outer opening, and having an opening in its end to receive the shank, spring-actuated bolts mounted in the arm to automatically enter the notch in the shank, a shaft mounted near the free end of the arm, having a knob at one end, a disk on the other end of the shaft having cam-grooves therein, and projections on the bolts admitted into said cam-grooves, whereby upon a manipulation of the knob, the bolts may be withdrawn from the notch in the shank, substantially as and for the purposes stated.

JOSEPH B. BOOS.

Witnesses:

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D. V. JACKSON.