

No. 636,325.

Patented Nov. 7, 1899.

C. EYSTER.
SAFE LOCK.

(Application filed Mar. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

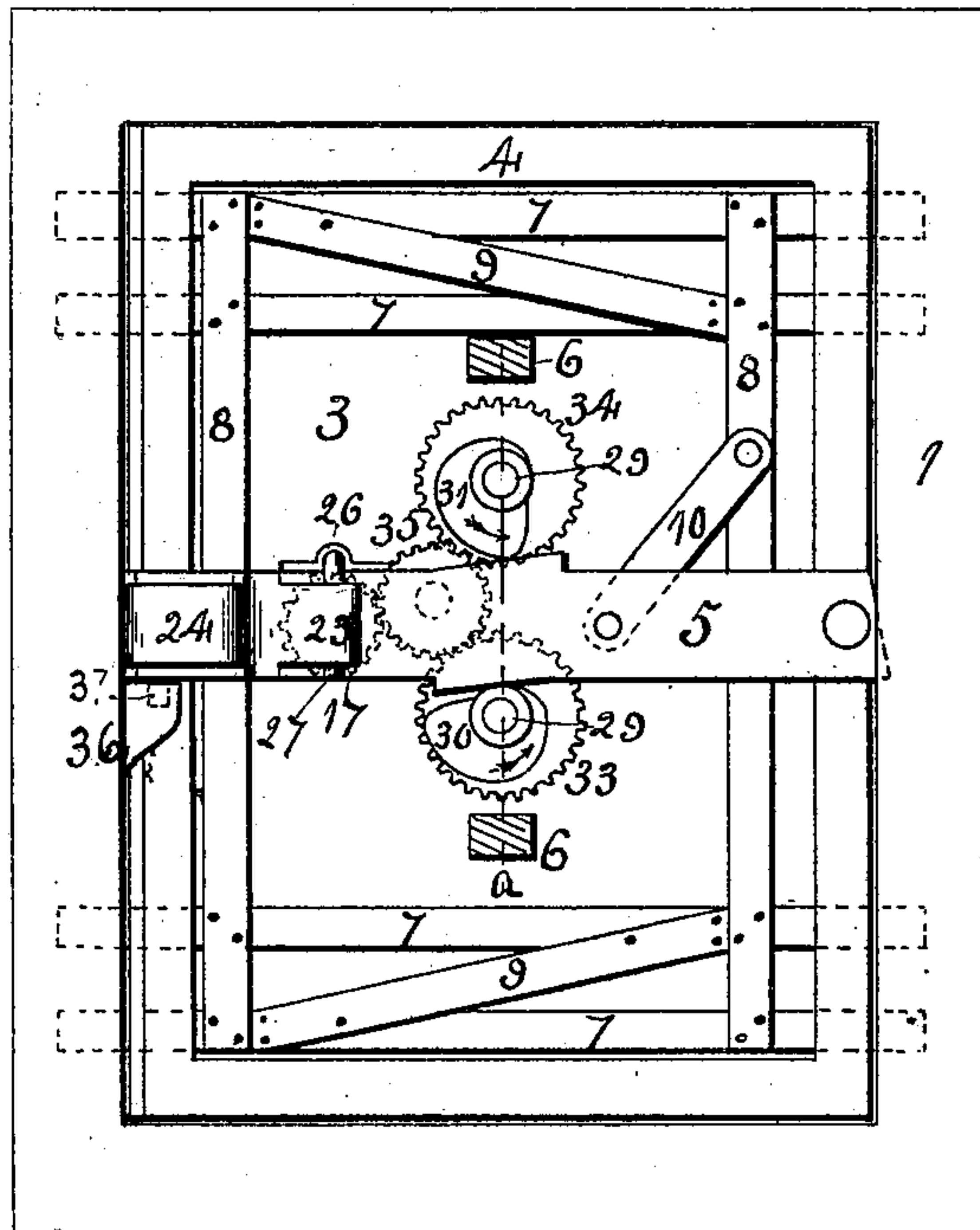
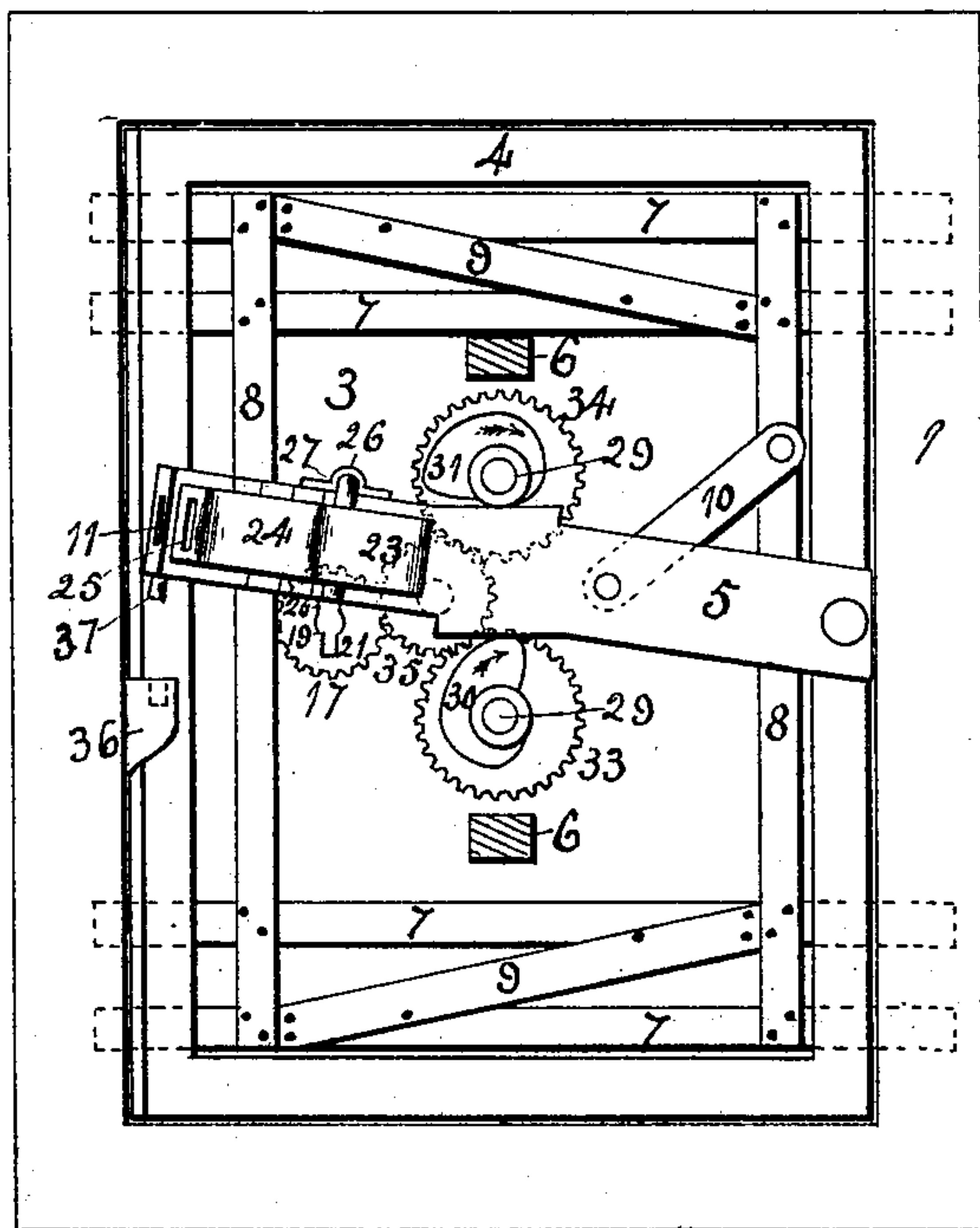


Fig. 2.



Witnesses:
E. Behel.
J. P. Taylor

Inventor:
Charles Eyster
By A. O. Behel
Atty.

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Fig. 3.

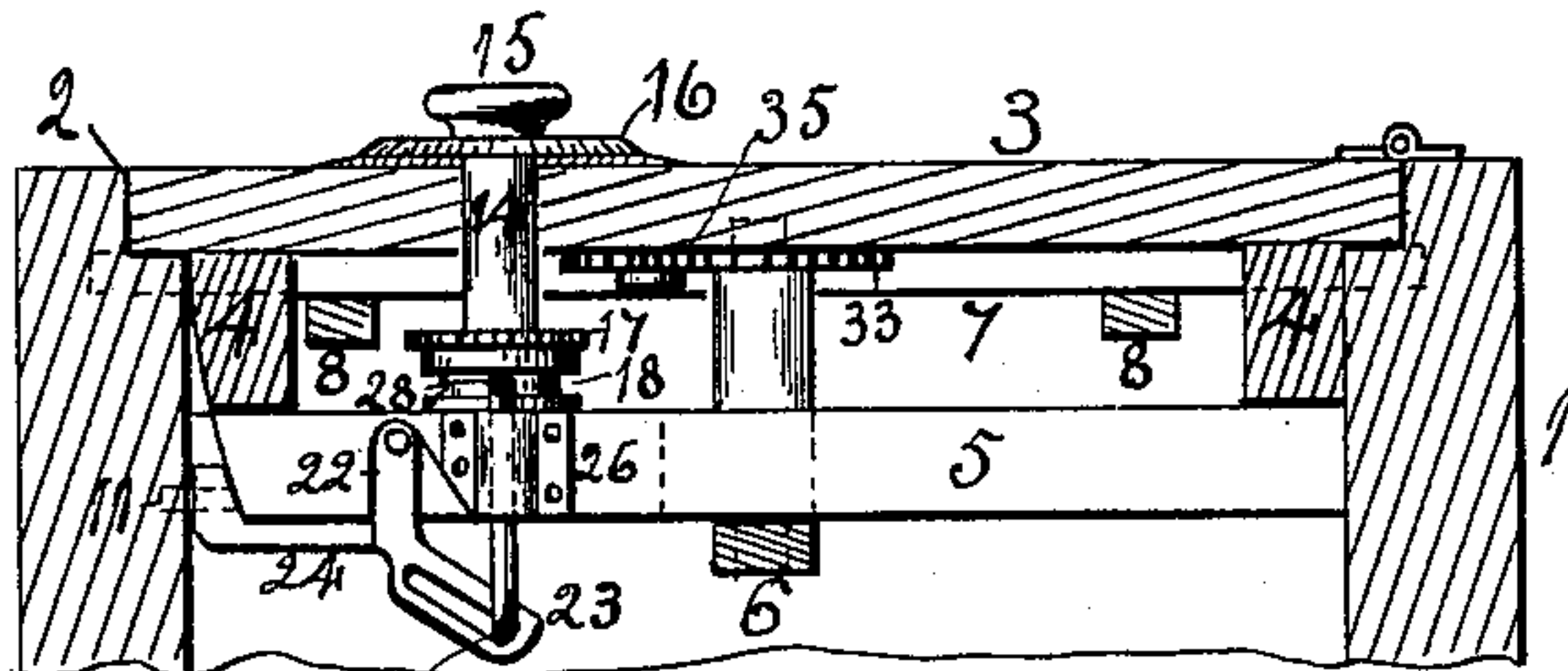


Fig. 4.

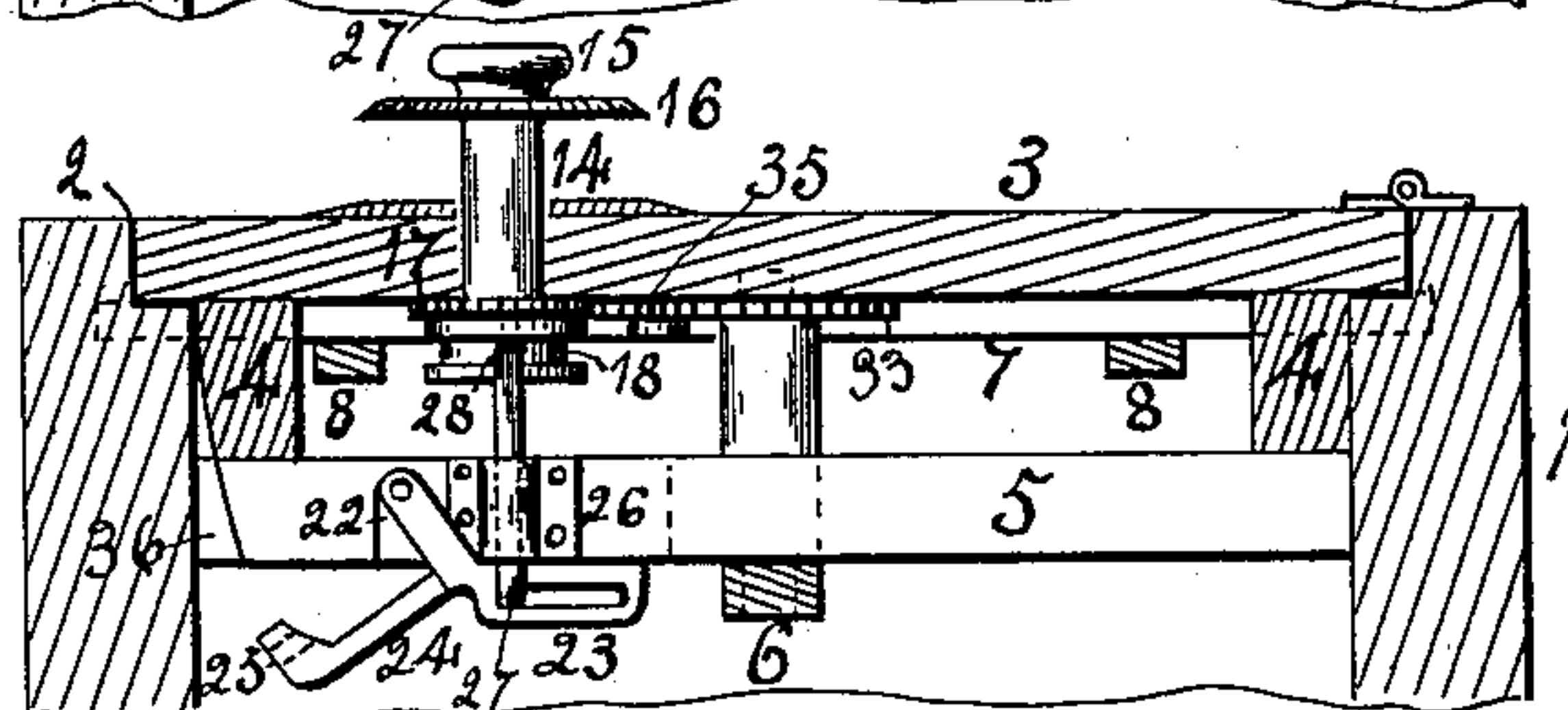


Fig. 5.

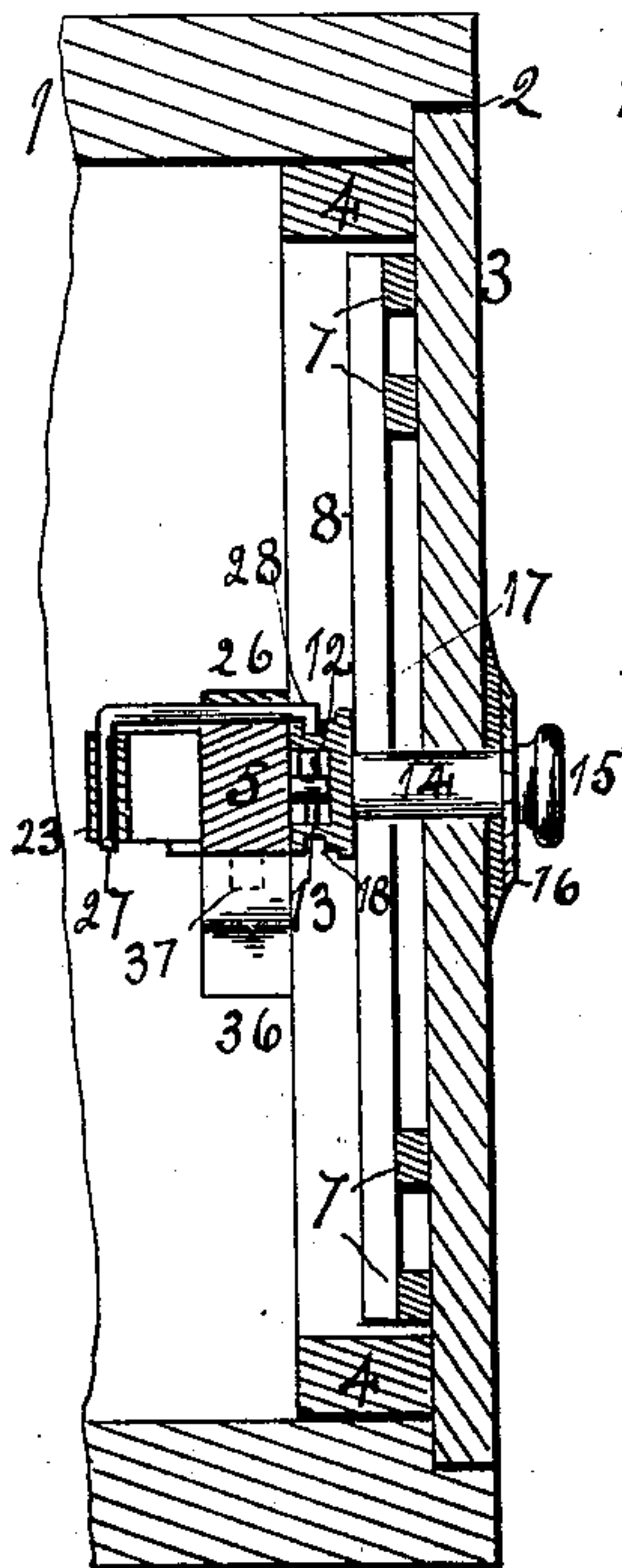


Fig. 6.

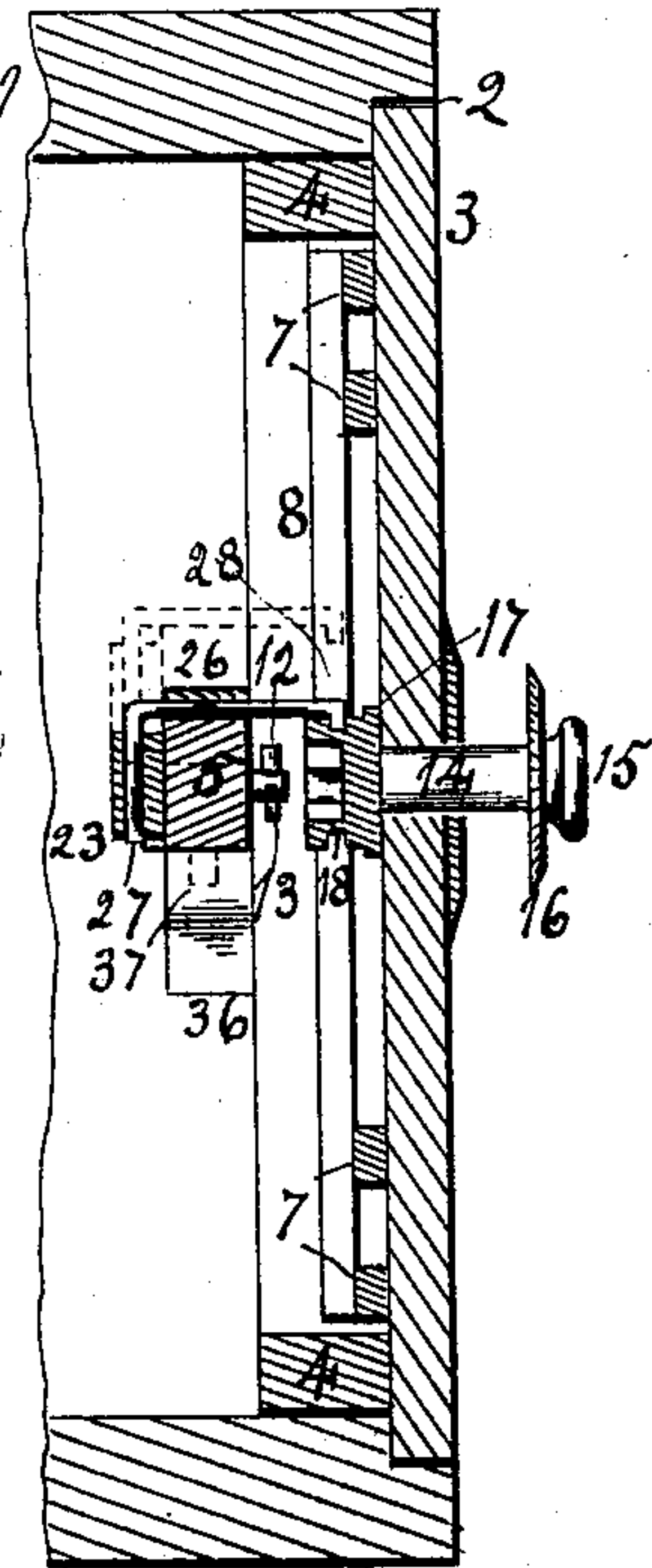


Fig. 7.

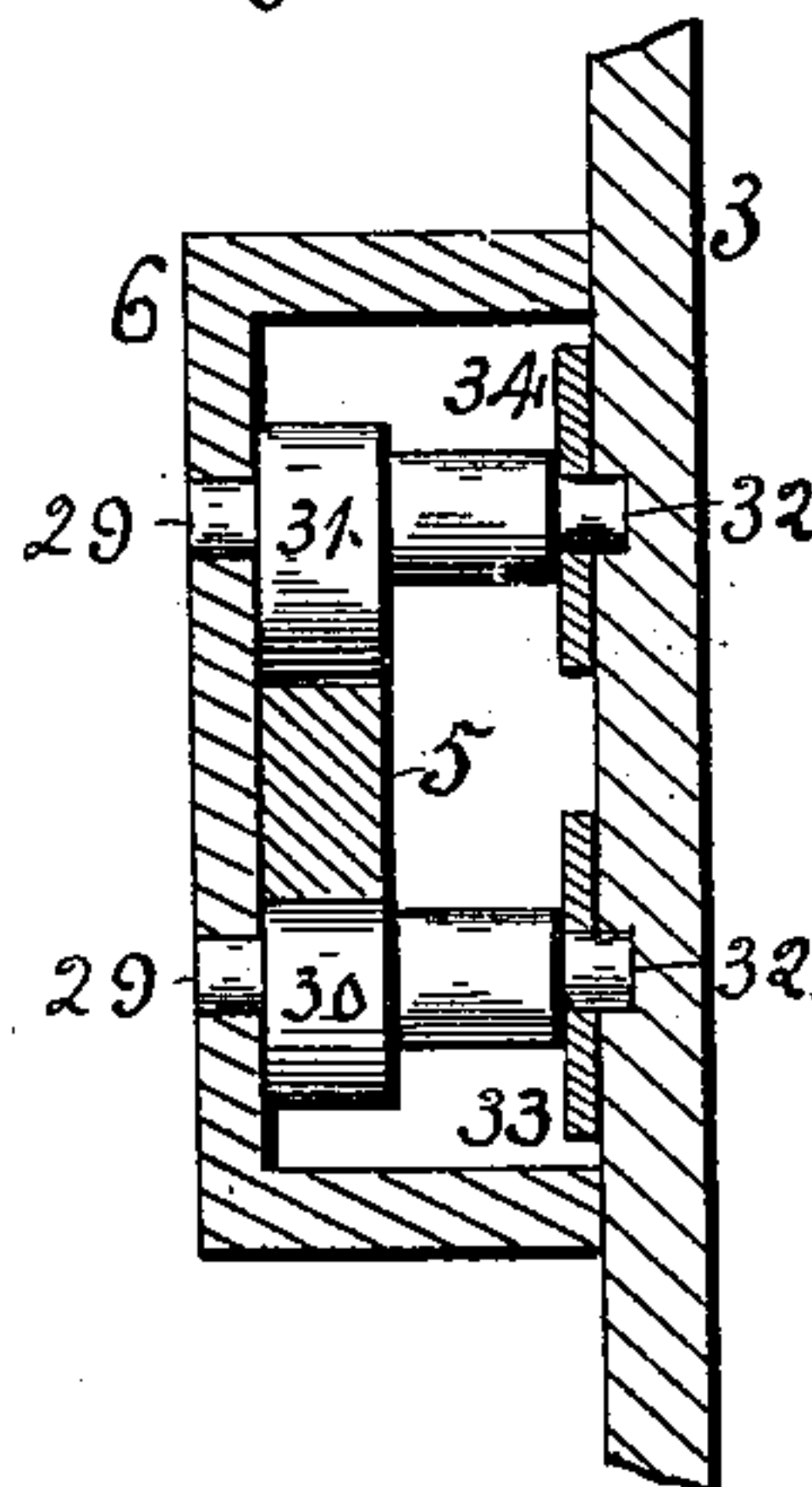
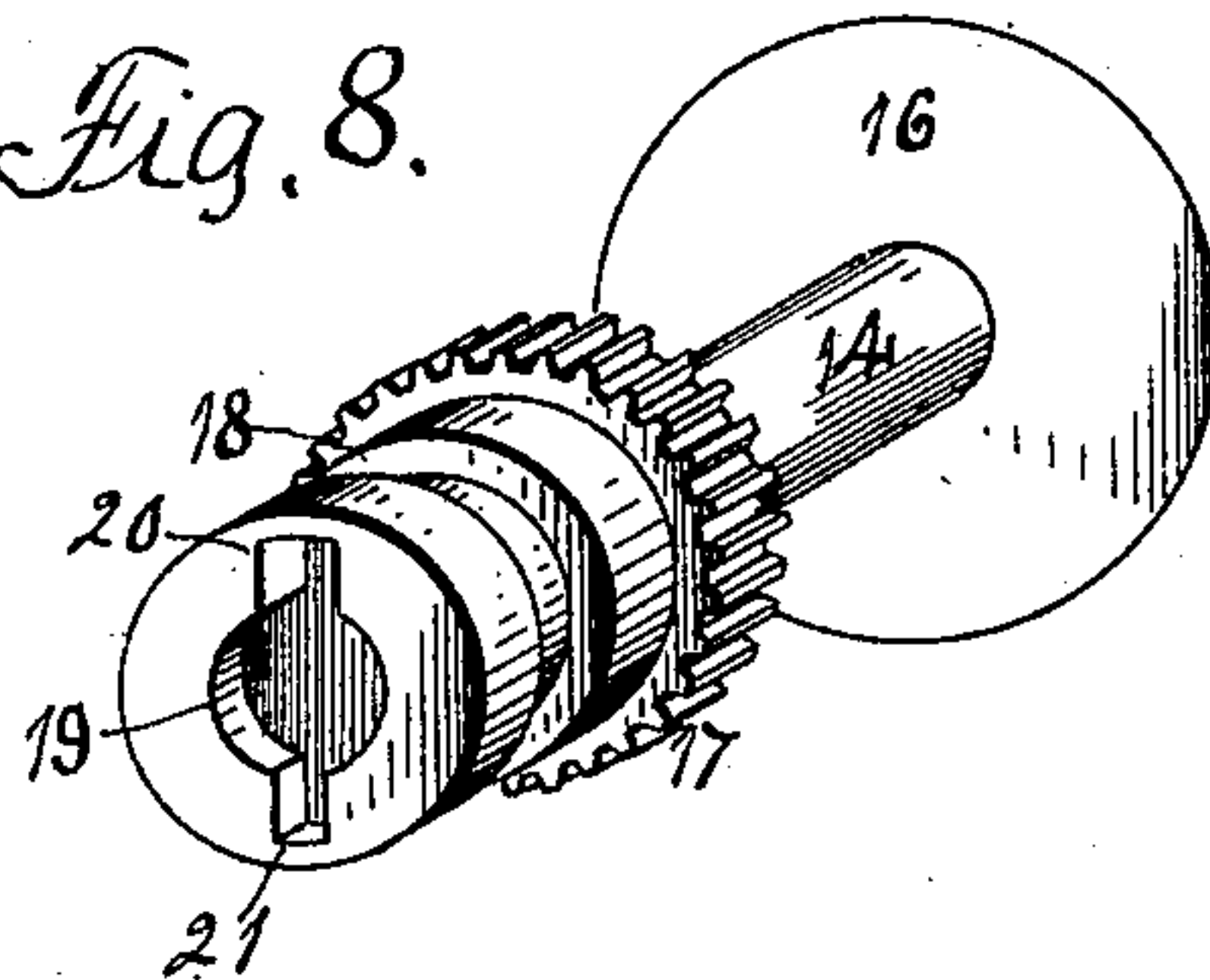


Fig. 8.



Witnesses:
C. Behel.
J. Taylor

Inventor:
Charles Eyster
By A. C. Behel
Atty.

UNITED STATES PATENT OFFICE.

CHARLES EYSTER, OF HOLCOMB, ILLINOIS.

SAFE-LOCK.

SPECIFICATION forming part of Letters Patent No. 636,325, dated November 7, 1899.

Application filed March 10, 1899. Serial No. 708,591. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EYSTER, a citizen of the United States, residing at Holcomb, in the county of Ogle and State of Illinois, have invented certain new and useful Improvements in Locking Devices for Safe-Doors, of which the following is a specification.

The object of this invention is to construct a locking device for the door of a safe or vault in which the locking-bolts are controlled and operated by the combination knob or lever.

In the accompanying drawings, Figure 1 is an inner face view with the bolts in their locked position. Fig. 2 is a similar view in which the bolts are in their unlocked position. Fig. 3 is a horizontal section through the combination-dial and the bolts in their locked position. Fig. 4 is a similar view in which the bolts are in their unlocked position. Fig. 5 is a vertical section through the combination-dial and the bolts in their locked position. Fig. 6 is a similar view in which the bolts are in their unlocked position. Fig. 7 is a vertical section through the cams on dotted line *a*, Fig. 1. Fig. 8 is an isometrical representation of the spindle for operating the combination and boltwork.

The casing 1 of a safe or vault has an open end 2, to which is fitted a door 3, having a hinged connection with the casing. To the inner face of the door is secured a frame or rim 4. A beam 5 has a pivotal connection at one end with the rim and guided by the loop 6. The sliding bolts 7 are supported by the rim and project into openings in the casing. Vertical bars 8 and diagonal bars 9 connect the bolts. A link 10 has one end pivotally connected with the beam 5 and its other end pivotally connected with one of the vertical bars 8. As the beam 5 is moved on its pivotal support the link will impart a reciprocating movement to the bolts 7. The free end of the beam 5 supports a combination mechanism for controlling the moving and sliding bolt 11, which is operated by the lever having projections 12 and 13 of different diameters.

Through the door is formed an opening within which is located a spindle 14, having a knob 15 and a graduated dial 16 secured to one end. To its other end are secured a toothed

wheel 17 and a collar having a circumferential groove 18. The end of the collar has a recess 19 and two radial openings 20 and 21 to receive the projections of the combination-lever.

To the free end of the pivoted beam 5 is fitted a bell-crank lever composed of the arms 22, pivoted to the beam, a slotted arm 23, and an arm 24, having an opening 25. A bail-shaped link has a connection with the upper surface of the free end of the beam by the clamp 26. The end 27 of the link is located in the slotted arm 23, and the downturned end 28 is located in the circumferential groove 18 of the collar secured to the spindle 14.

To the inner face of the door is secured the loop 6, surrounding the beam 5, and has two openings within which are located the journals 29 of the cams 30 and 31. The other ends 32 of the journals are supported in the door, and the journal supporting the cam 30 has a toothed wheel 33 secured thereto, and the journal supporting the cam 31 has a toothed wheel 34 secured thereto. An intermediate toothed wheel 35 is supported by the door and meshes with the toothed wheels 33 and 34. The cam 31 is located above the cam 30 beneath the pivoted beam 5.

The operation of my improvements is as follows: With the parts in the position shown at Figs. 4, 6, and 7, the spindle is pushed in until its recessed end engages the lever of the combination-lock, and at the same time the bell-crank lever will be moved on its pivotal connection with the beam and its end 24 located between the free end of the beam and the side wall of the casing. By turning the knob 15 the combination-lock contained in the beam will be manipulated and the latch 11 will be forced out through the opening 25 in the bell-crank lever into an opening in the side wall of the casing, when the pivoted beam will be locked in connection with the casing of the safe or vault, and as the sliding bolts 7 are controlled by the movement of the pivoted beam they will be held in their locked position, and as the link is held by the bell-crank against lengthwise movement the spindle and graduated dial will also be held against lengthwise movement and the parts will appear as shown at Figs. 1, 3, and 5. In unlocking the door the

combination-lock supported by the pivoted beam is set up by manipulating the knob 15 and graduated dial 16 until the latch 11 is withdrawn. Then by drawing out on the
 5 spindle the toothed wheel 17, carried thereby, will mesh with the intermediate toothed wheel 35, and by turning the knob 15 the toothed wheels 33 and 34 and cams carried thereby will be turned so that the cam 31 will
 10 permit the cam 30 to raise the beam on its pivotal connection with the inner frame until the beam appears as shown at Fig. 2, and the link will become disengaged from the circumferential groove 18, formed in the col-
 15 lar supported by the spindle. The raising of this beam will through the link 10 withdraw the sliding bolts from their engagement with the casing of the safe or vault, when the door can be opened. After closing the door
 20 by turning the toothed wheels in the reversed direction the lower cam 30 will permit the beam to drop, and should it stick the upper cam 31 will force it down into place and move the bolts into place and cause the link to en-
 25 gage the circumferential groove 18, and by pushing in on the spindle its recessed end will receive the lever of the combination-lock supported by the beam and will at the same time move the bell-crank lever so that the
 30 opening 25 will be in line with the latch 11, and by throwing off the combination-lock the latch will protrude through the bell-crank lever into the opening in the casing and hold the door locked.

35 The openings in the end of the collar supported by the spindle 14 are of different dimensions corresponding to the projections extending from the combination-lever supported by the pivoted beam 5 in order that the
 40 spindle may engage the combination-lever in the same relative position which it occupied before it was separated therefrom.

The end of the beam 5 near its pivot projects into the casing when the beam is in its
 45 locked position, which serves to prevent the

opening of the door, and its free end rests upon a support 36, and a pin 37, projecting from the under face of the beam, enters a hole in the support, which prevents lateral move-
 50 ment of the beam and holds its free end in proper position so that the latch may enter the opening in the casing.

The combination mechanism for operating the latch 11 is not shown, as such construction is old and well known.

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I claim as my invention—

1. In locking mechanism for safe-doors, a set of boltwork, a combination-lock, means for operating the boltwork and combination-
 lock, and capable of disengagement with both
 60 and move into engagement with either.

2. In locking mechanisms for safe-doors, a set of boltwork, a movable bar operating the boltwork, a combination-lock carried by the bar, and means for operating the combination-
 65 lock and moving the bar.

3. In locking mechanism for safe-doors, a set of boltwork, a movable bar operating the boltwork, two cams for raising and lowering the bar, and means for moving the cams.

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4. In locking mechanism for safe-doors, a set of boltwork, a movable bar operating the boltwork, two cams for raising and lowering the bar, a spindle extending through the door and connected with the cams.

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5. In a locking mechanism for safe-doors, a set of boltwork, a movable bar operating the boltwork, a combination-lock carried by the bar, the bar capable of being locked against movement.

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6. In a locking mechanism for safe-doors, a set of boltwork, a combination-lock, a spindle having a sliding engagement with the door and adapted to be moved into or out of engagement with the boltwork or combination-
 85 lock.

CHARLES EYSTER.

Witnesses:

BLANCHE EYSTER,

A. O. BEHEL.