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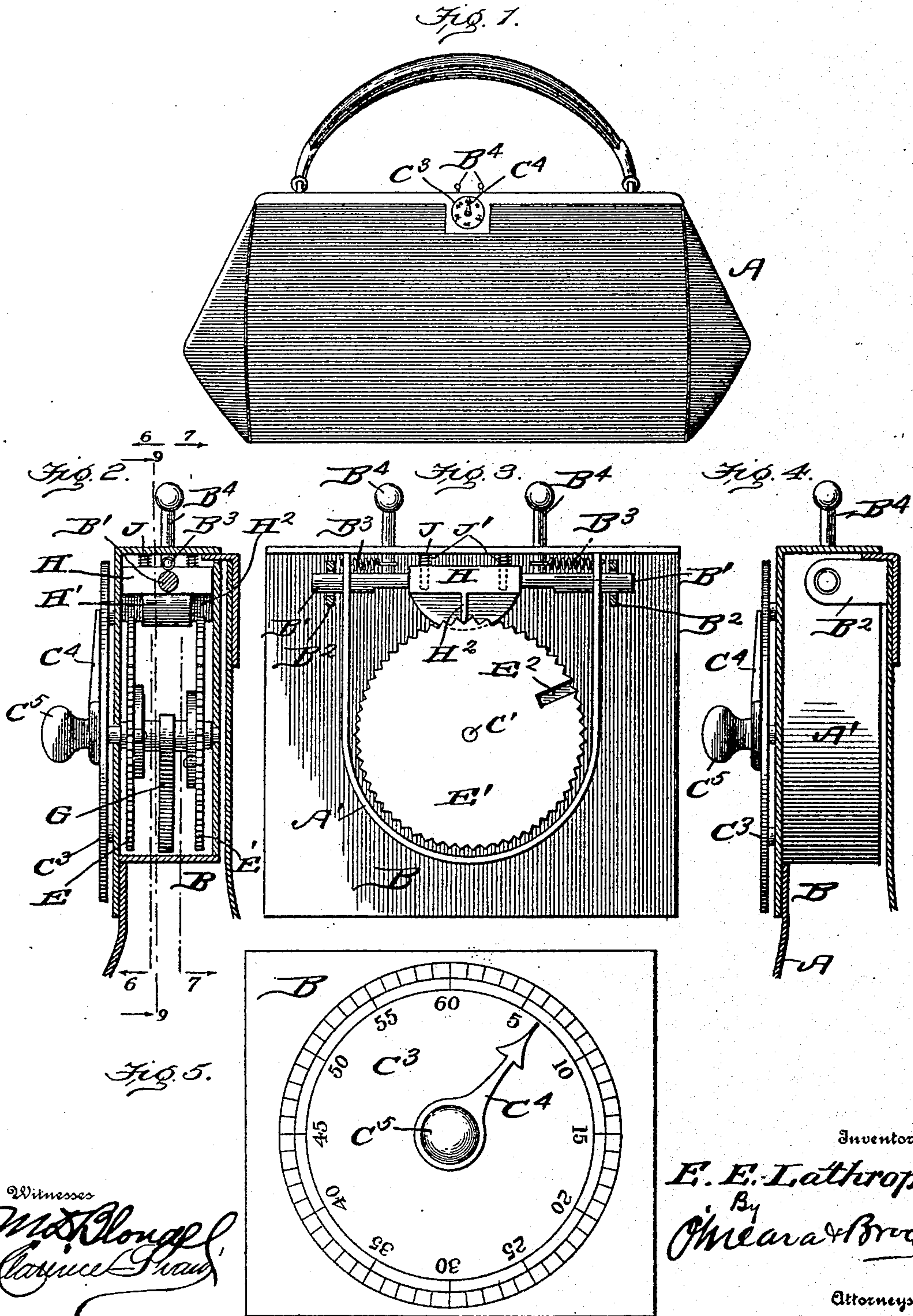
No. 805,803.

PATENTED NOV. 28, 1905.

E. E. LATHROP.
COMBINATION LOCK.

APPLICATION FILED FEB. 25, 1904.

2 SHEETS—SHEET 1.



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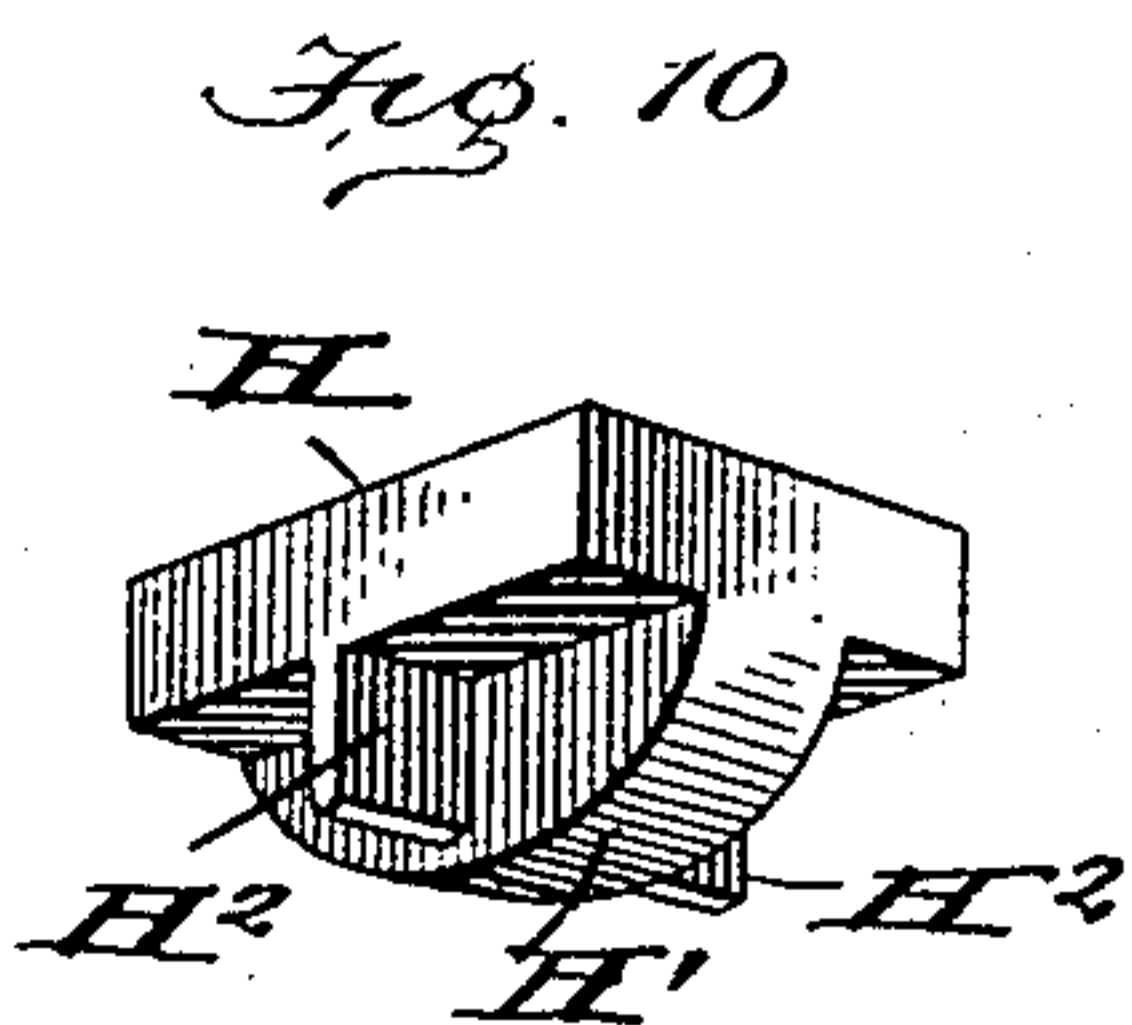
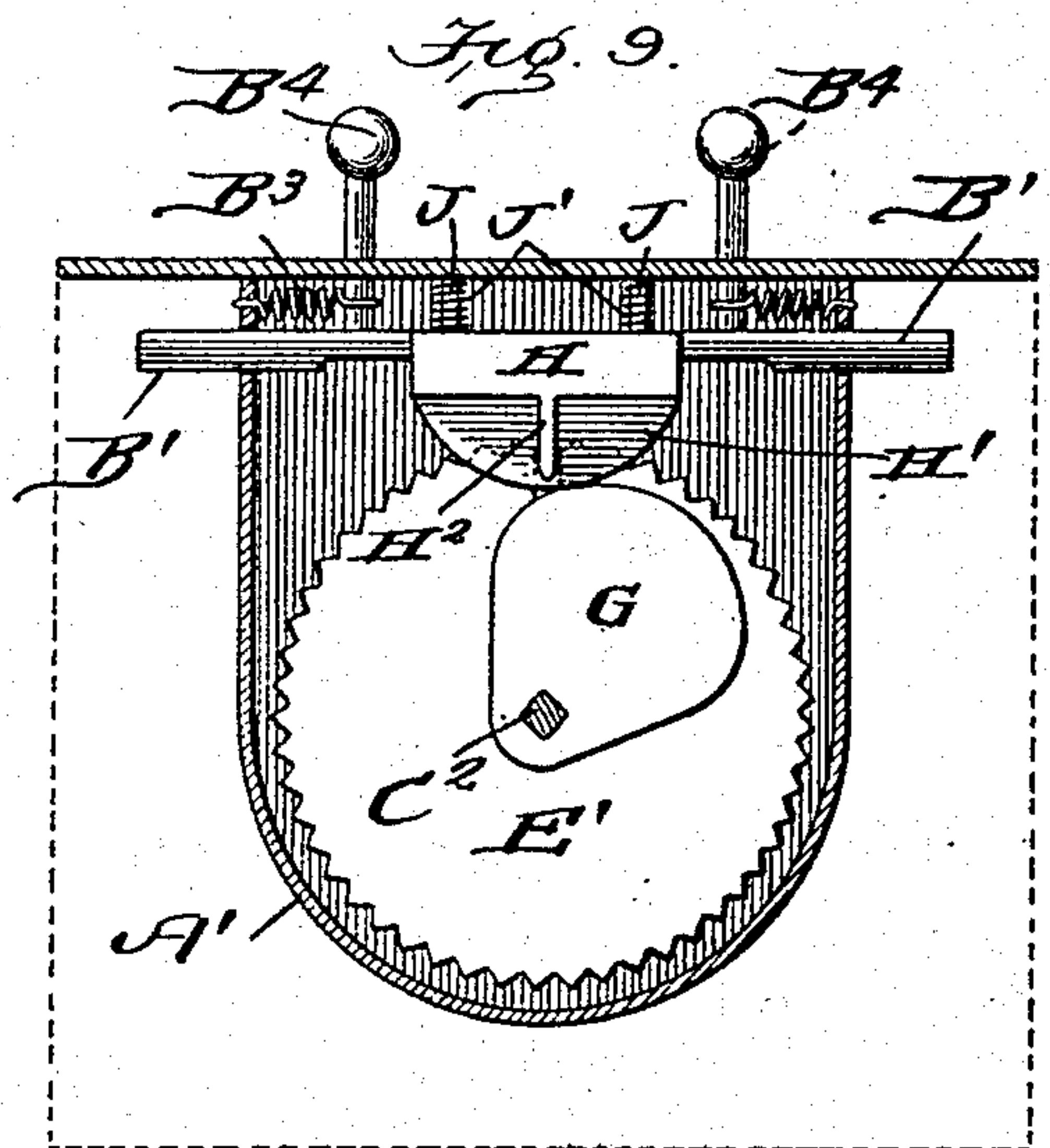
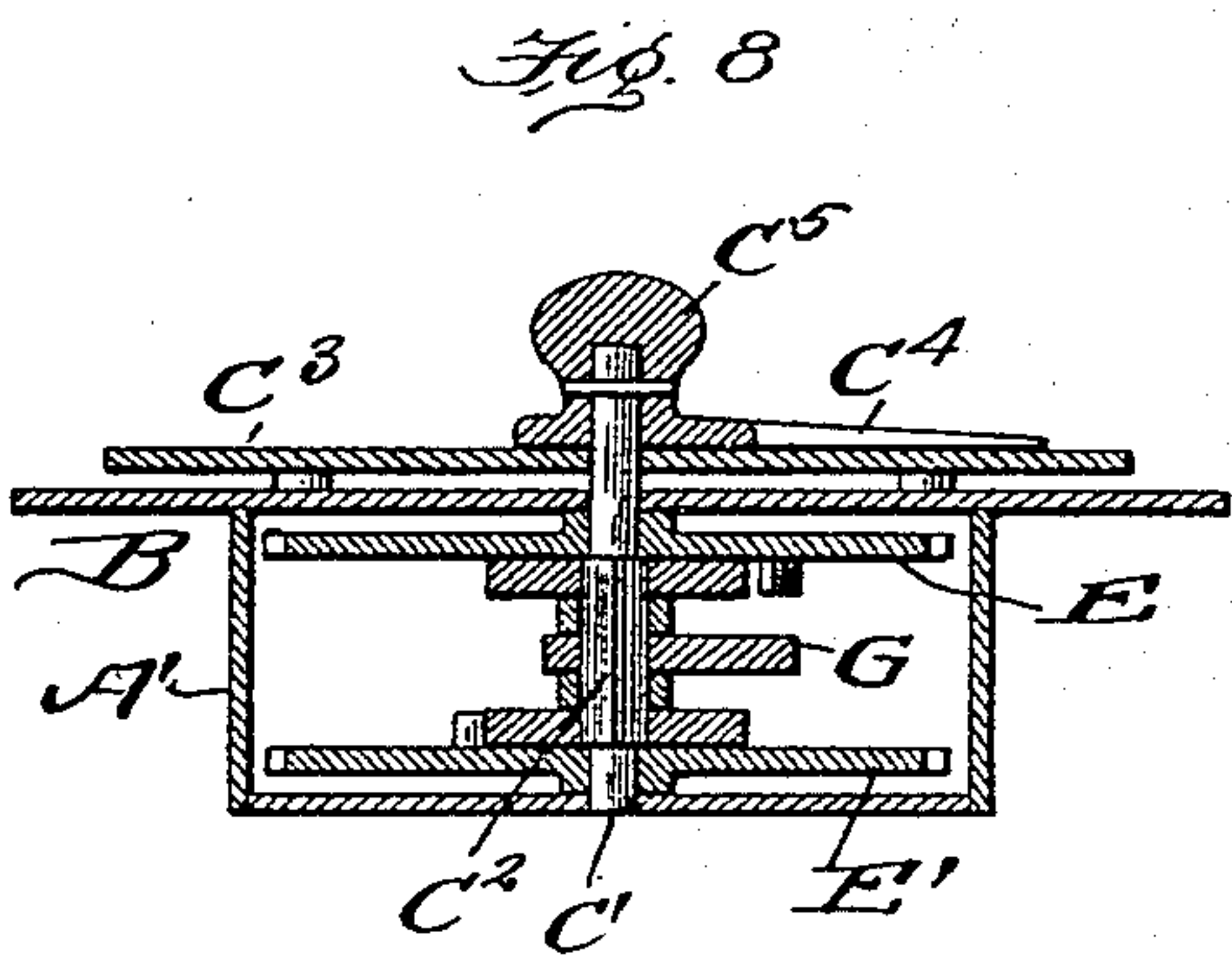
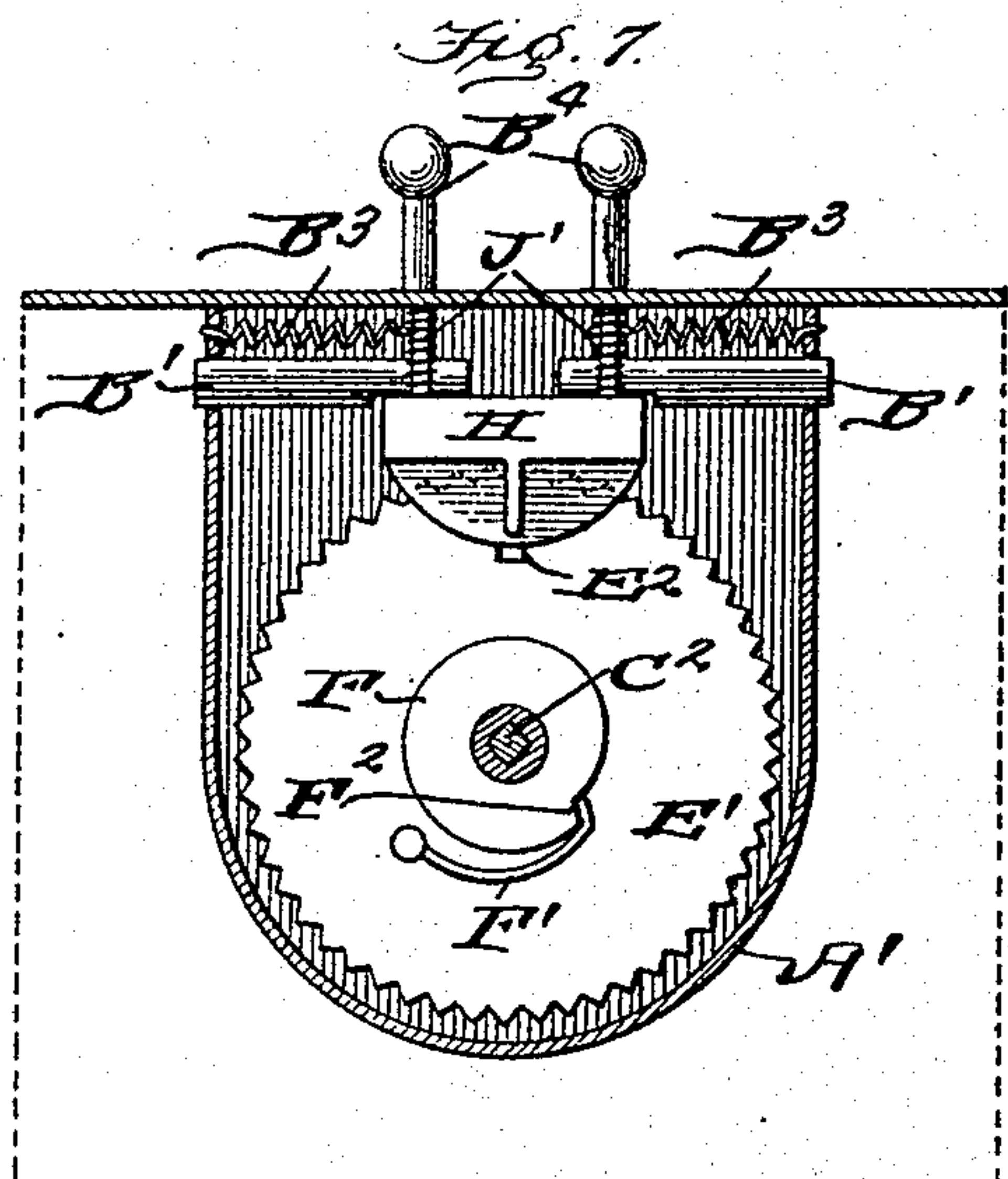
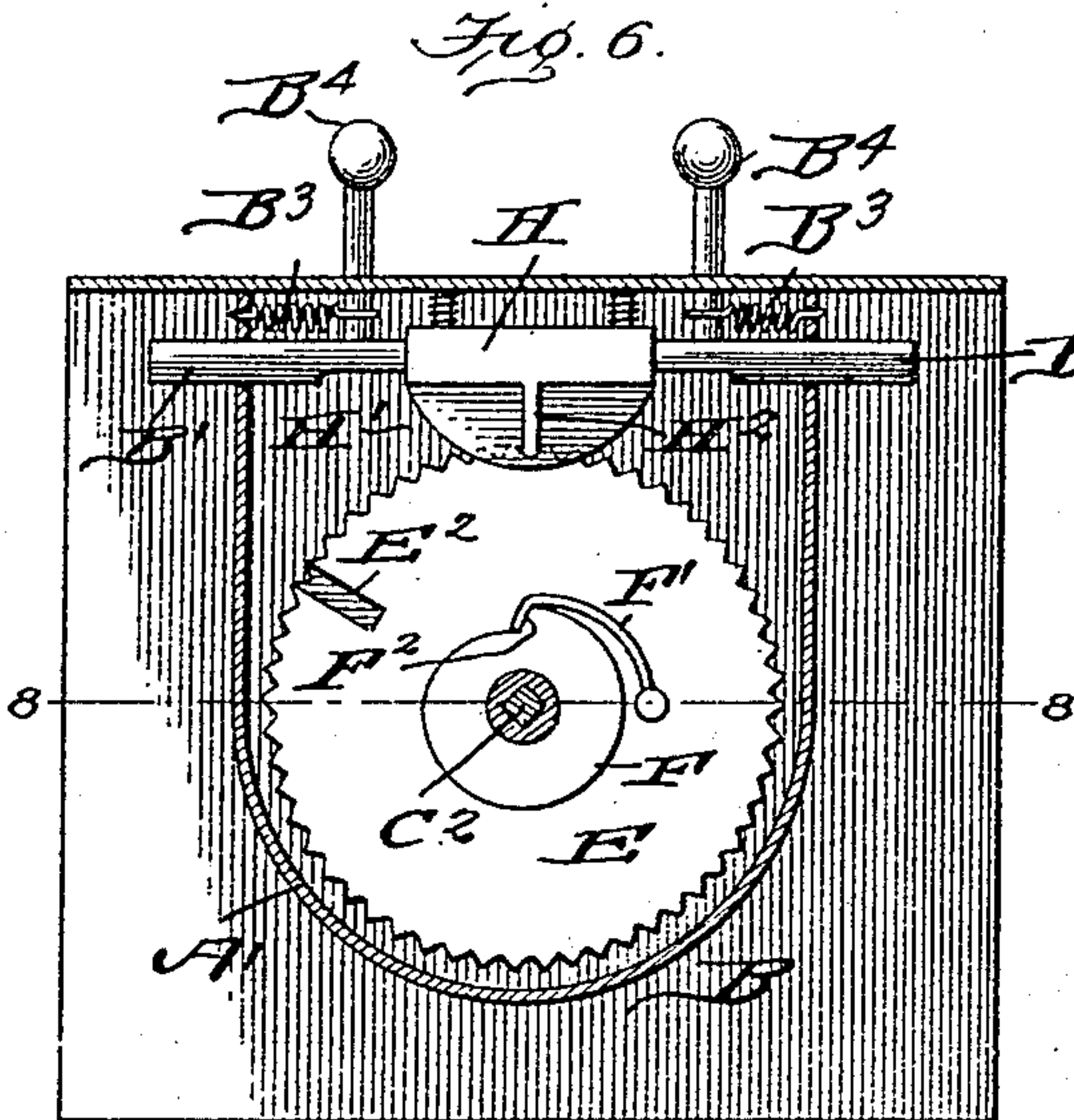
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E. E. LATHROP.
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ELISHA E. LATHROP, OF HARTFORD, CONNECTICUT.

COMBINATION-LOCK.

No. 805,803.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed February 25, 1904. Serial No. 195,237.

To all whom it may concern:

Be it known that I, ELISHA E. LATHROP, a citizen of the United States, residing at Hartford, in the county of Hartford and the State of Connecticut, have invented a new and useful Combination-Lock, of which the following is a specification.

This invention relates especially to a combination-lock designed for use with hand-bags, suit-cases, trunks, and other similar receptacles, and I have shown same applied to a hand-bag or grip of the usual construction.

The object of this invention is to produce a keyless lock manipulated by reverse movements of a pointer over a dial, thereby avoiding the necessity of carrying a key to open the hand-bag or grip with; and it will be understood that while the combination for any particular lock is fixed it may vary over a wide range for different locks of the same construction, and the combination adapted to open the lock secured on any particular hand-bag would be known to the maker and purchaser, but unknown to any one having but temporary possession of it.

The invention consists of the novel features of construction and combination of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view showing the practical application of my invention. Fig. 2 is a vertical transverse section through the lock-casing. Fig. 3 is a vertical elevation of the inner side of the front plate of the casing, the attached parts being shown in elevation. Fig. 4 is a vertical transverse section through the lock-casing adjacent an end of the casing. Fig. 5 is a face view of the casing, showing the dial in elevation. Fig. 6 is a section on the line 6 6 of Fig. 2. Fig. 7 is a section on the line 7 7 of Fig. 2. Fig. 8 is a section on the line 8 8 of Fig. 6, and Fig. 9 is a vertical section on the line 9 9 of Fig. 2. Fig. 10 is a perspective view of the locking-block.

In the drawings, A represents a valise, grip, or hand-bag adapted to open longitudinally along the top, the meeting edges overlapping in the usual manner. The casing B, containing the locking mechanism, is carried by one side of the hand-bag and contains the sliding bolts B', which are adapted to engage the keepers B², carried by the opposite side of the bag and adapted to penetrate the inner side of the case and project into the paths of

the bolts and at right angles to the bolts, the keepers being apertured, and suitable coil-springs B³ are adapted to draw the bolts B' into engagement with the apertures of the keeper, and it will be obvious that as long as the bolts B' are in such engagement the two sides of the bag are securely locked together. The bolts B' carry vertical studs B⁴, which project upwardly and outwardly through the top of the casing and are adapted to slide in slots (not shown) in the ordinary manner, and by forcing the studs along the slots in opposite directions the bolts B' will be disengaged from the keepers and the bag may then be opened. As the movement of the studs B⁴ toward each other will result in releasing the keepers and unlocking the bag, the following described device is intended to prevent such movement by unauthorized persons by interposing a locking-block between the bolts, preventing what will be termed their "inward movement," and to provide means whereby the owner of the bag may cause the locking-block to fall below the plane of the bolts when it is desired to unlock the bag and to force the block back to locking position after the bag has been relocked, it being understood that when the bag is closed the springs B³ will automatically throw the bolts into engagement with the keepers and lock the bag and that the locking-block is to prevent unlocking of the bag by forcing the studs B⁴ together.

Between the side plates of the casing B, I arrange a U-shaped plate A', which forms the bottom and ends of the casing and incloses on three sides the working mechanism, the bolts B' working horizontally through apertures in the member A' and adjacent the top of the casing B. In the casing B and extending transversely through the same is journaled a shaft C', having within the casing an intermediate squared portion C². Upon the outer face of the casing B, I arrange a dial C³, having a circular scale laid off on its face. The outer end portion of the shaft C' passes loosely through the center of the dial, and rigidly secured to the shaft is a pointer C⁴ adapted to travel over the scale when the shaft is rotated, and a knob C⁵ is formed on the outer end of the shaft C', by means of which the shaft may be rotated in either direction. Within the casing I arrange loosely

portion of the shaft. Each of these disks is formed with a peripheral slot E^2 . On the squared portion C^2 of the shaft C' are fixed two cams F , one adjacent each disk E E' , and on the disks are oppositely-arranged spring-pawls F' , adapted to engage the respective cams, and when the finger of the pawl is in engagement with the shoulder of the cam rotation of the cam will rotate the disk, and the pawls being oppositely-arranged it will be obvious that when the shaft C' is rotated to the right one of the disks only will be rotated. As shown in the drawings, the disk E will be rotated by rotation of the shaft C' to the right and disk E' by rotation of the shaft C' to the left. I also provide a pear-shaped cam G , secured adjacent its apex upon the squared portion C^2 of the shaft C' between the two cams F .

The locking-block H has squared ends and is adapted to fit snugly between the inner ends of the bolts B' when they are in proper engagement with the keepers B^2 . The block H has a downward extension H' arranged on the under side of the block and along its longitudinal axis, and this extension is adapted to rest between the disks E and E' and serves to guide the block in its vertical movement. On each side of this extension H' are transversely-arranged webs H^2 at right angles to the block and adapted to engage the slots of the disks. The extension H' is curved on its underface and midway the ends of the block projects below the lower edge of the webs H^2 . This extension is in the path of the pear-shaped cam G when the webs H^2 are in engagement with the slots E^2 ; but when the block H is raised by the cam G into locking position and the cam G further rotated and the disks E and E' are also rotated, so that the slots E^2 do not aline with the webs H^2 , the said webs will rest in the notches between the teeth formed on the peripheries of the disk, but will not lock the disks from rotation, the teeth being beveled. To further guide and direct the movements of the block H and to prevent lateral movement of the block, pins J are secured to the top of the casing A and project downwardly into sockets formed in the top of the block H , the block sliding vertically on the pins, and springs J' encircle the pins and bear downwardly upon the block H , aiding in holding it firmly in its proper position and in seating the webs in the slots E^2 . It will also be noted that the block cannot fall into its lower position below the plane of the bolts B' until the two slots are registered and brought simultaneously into alinement with the webs, as the throwing of but one slot E^2 into alinement with one web would leave the remaining web seated on the periphery of the disk whose slot had not been in alinement with its coacting web. It is to be noted that the pointer C^4 , fixed on

the shaft C' , rotation of the said shaft will not change the relative arrangement of the parts just named.

The operation of the device is as follows, assuming the parts to be in the position shown in Fig. 6, the bag being locked: The pointer C^4 is fixed on the shaft, so that when the shaft C' is rotated to the right, which will rotate the disk E , the slot E^2 , formed in the disk E , will be brought immediately below the alining web H^2 of the block H when the pointer C^4 has reached a certain number on the dial—as, for example, “10.” When the pointer reaches “10,” movement to the right is stopped. During this rotation the pawl F' of the disk E' has been slipping upon its cam F and the disk E' has not rotated. The pointer C^4 is also fixed with reference to the cam actuating the disk E' , and when the disk E has been brought into the position above described by movement of the pointer to the right as far as the numeral “10” on the dial movement is reversed and the shaft rotated to the left, for example, until the pointer reaches the numeral “50,” this rotation to the left rotating the disk E' , but not the disk E . As soon as the pointer C^4 , traveling to the left, reaches the numeral “50” the slot E^2 of the disk E' will be brought into register with the slot E^2 of the disk E and also in alinement with its web H^2 , and the slots being below and alining with their respective webs the block H , acting under gravity and the tension of the springs J' , will fall from between the bolts B' , the webs seating themselves in the slots E^2 . The bag can then be unlocked in the usual manner by pressing the studs B^4 toward each other. When the bag has been closed and relocked and it is desired to lock the bolts B' against withdrawal from the keepers B^2 , the shaft C' is rotated in either direction, and the pear-shaped cam G will strike the curved under surface of the block H and lift same upward into position between the bolts, and as soon as the webs have cleared the slots E^2 one of the disks—which, depending on the direction of rotation of the shaft C' —will also rotate, taking its slot E^2 from alinement with the web, and by a reverse rotation the other disk is rotated so that the slot formed in it will be out of alinement with the web adapted to engage it.

It will be obvious that in order to permit of the rotation of the shaft C' when the webs are in engagement with the slots E^2 , as no matter which direction was chosen for the rotation of the shaft one of the pawls F would be in engagement with its cam, and to permit the pawl to loosen its grip under a comparatively strong pull the cam shoulders or points engaged by the fingers of the pawls F' are slightly beveled, as shown at F^2 , and if the disk is held the finger of the pawl F' will ride over the point F^2 , but will again engage it when the parts resume their normal position.

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

1. The combination with bolts adapted to slide to and away from each other, said bolts being in horizontal alinement, a block adapted to move vertically and rest between the inner ends of the bolts, a cam adapted to lift the block, a cam-shaft, a pointer on the cam-shaft, a dial, and means for holding the block between the bolts until the pointer has been moved to predetermined positions on the dial.

2. A device of the kind described comprising alining, slidable bolts, a block having a depending extension with a curved under surface, said block being movable vertically, a cam-shaft, a cam fixed on the shaft and adapted to engage the curved surface of the block extension and project the block between the inner end of the bolts, a pointer fixed on the shaft, a dial, disks adapted to hold the block in position between the bolts, and means for rotating the disks and permitting the block to fall when the pointer is moved to predetermined positions on the dial.

3. The combination with a casing, keepers adapted to extend into the casing, and bolts adapted to engage the keepers, of a block arranged in the casing and adapted to be moved between the ends of the bolts and lock them in engagement with the keepers, a shaft journaled in the casing and having an intermediate squared portion, disks loosely mounted on the shaft adjacent the squared portion, said disks having radial slots extending from their peripheral portions, the said

block having webs adapted to rest on the peripheries of the disks and to fit in the slots, a cam fixed on the squared portion of the shaft adapted to move the block between the bolts, means carried by the shaft adapted to rotate the disks in opposite directions, a dial, a pointer fixed on the shaft, and a winding-knob carried by the outer end of the shaft.

4. The combination with a casing, bolts adapted to slide toward each other in the casing, a shaft transverse to the bolts and adapted to be rotated in either direction from without the casing, slotted disks loosely mounted on the shaft within the casing and spaced apart, a block adapted to move vertically between the disks and to rest between the inner ends of the bolts, a cam on the shaft adapted to move the block into position between the bolts, webs on the blocks adapted to rest on the peripheries of the disks and to fall into the slots, a dial on the outer face of the casing, a pointer fixed on the shaft adjacent the dial, and means carried by the shaft and disks, respectively, adapted to rotate one disk when the shaft is rotated in one direction and to bring the slot of the said disk below its coacting web when the pointer reaches a predetermined point on the dial, and to rotate the other disk when the shaft is rotated in the reverse direction and to bring the slot in the last-mentioned disk below the other web when the pointer reaches a second predetermined point on the dial, as and for the purpose set forth.

ELISHA E. LATHROP.

Witnesses:

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