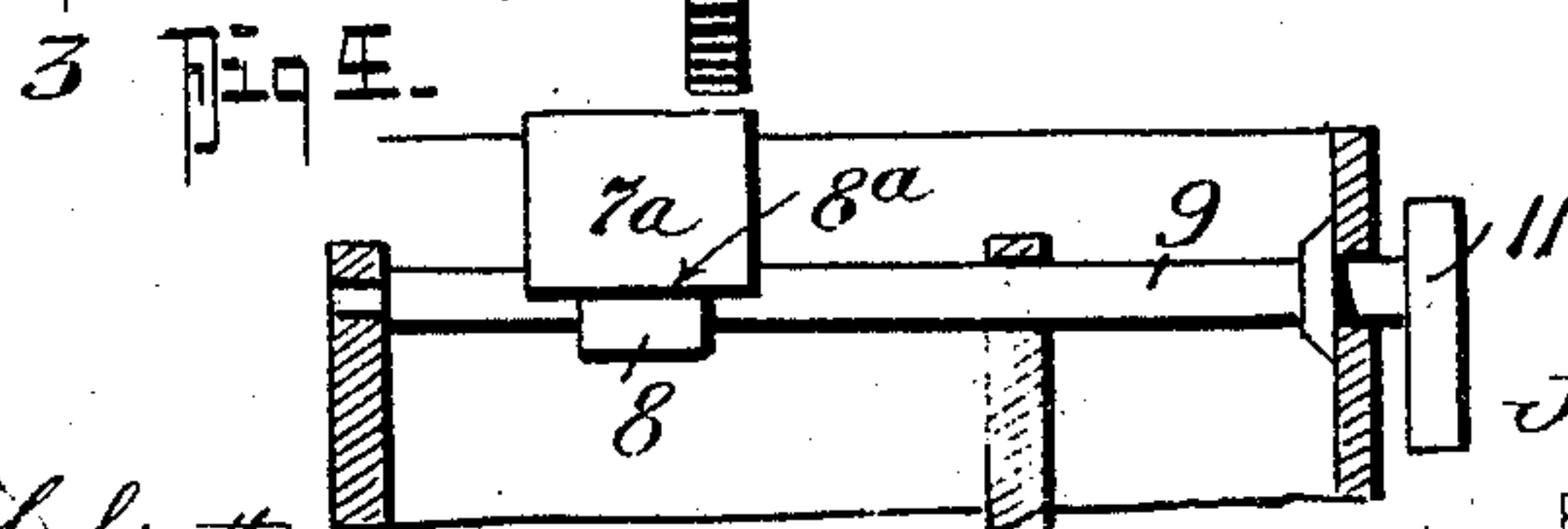
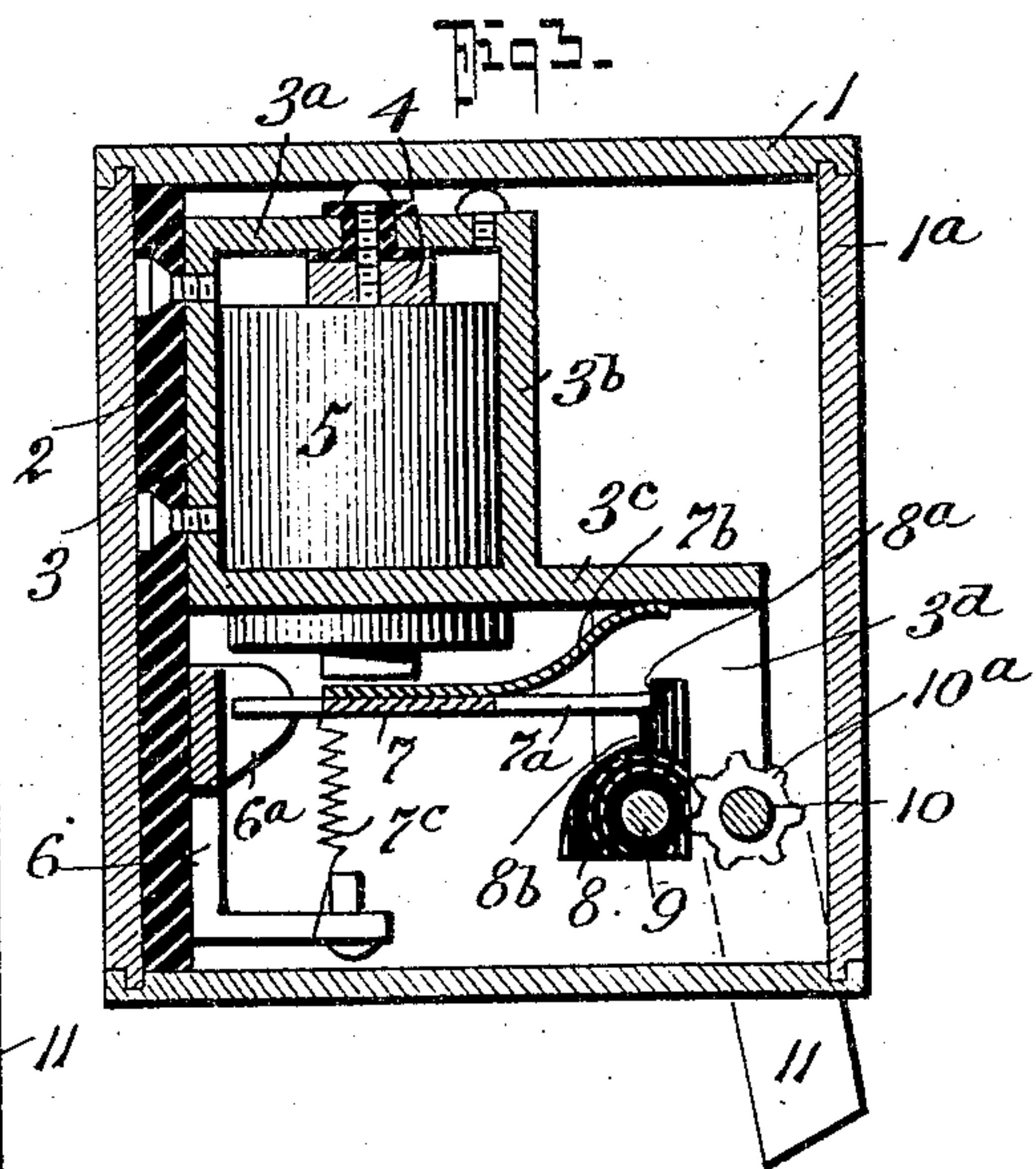
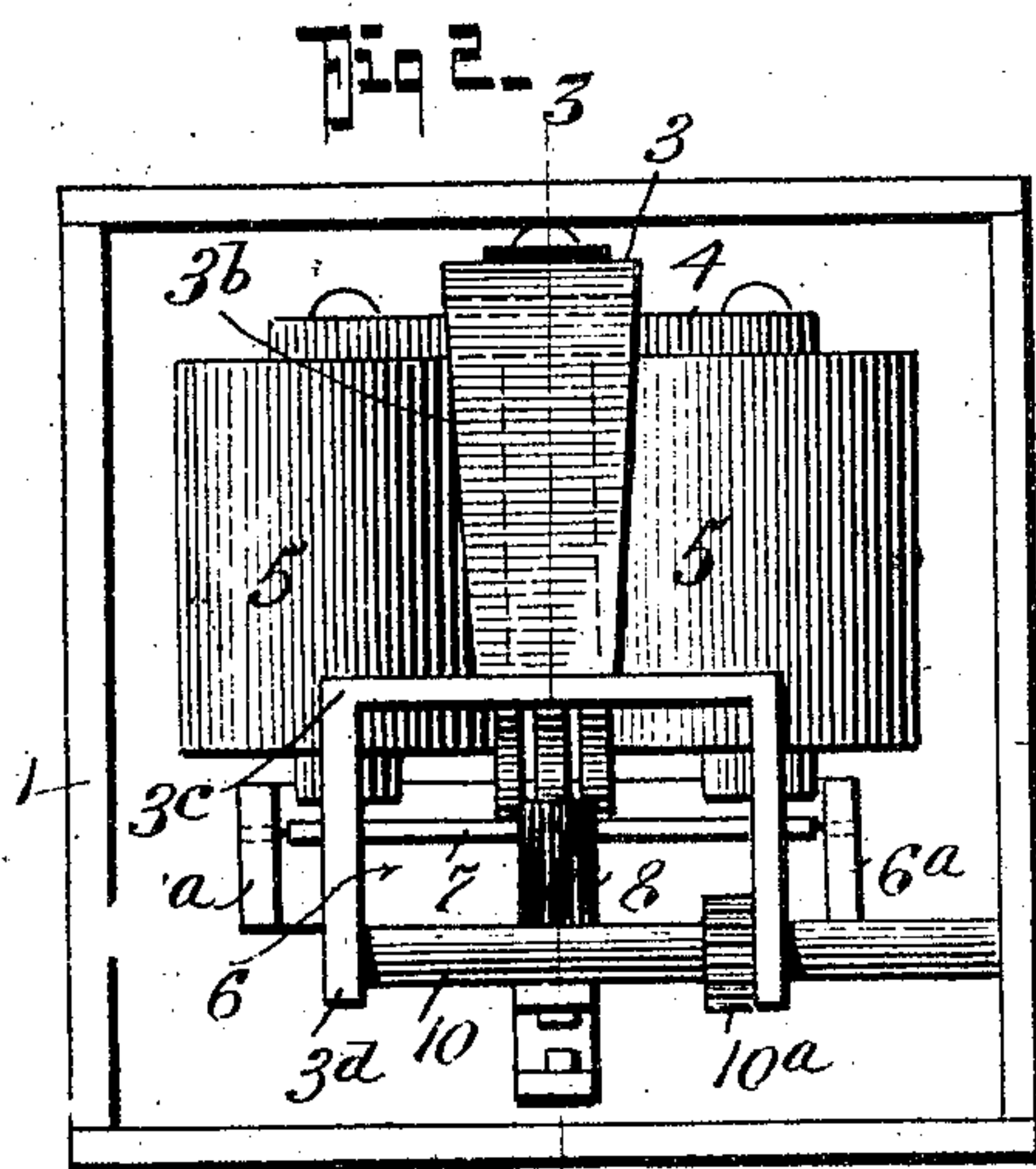
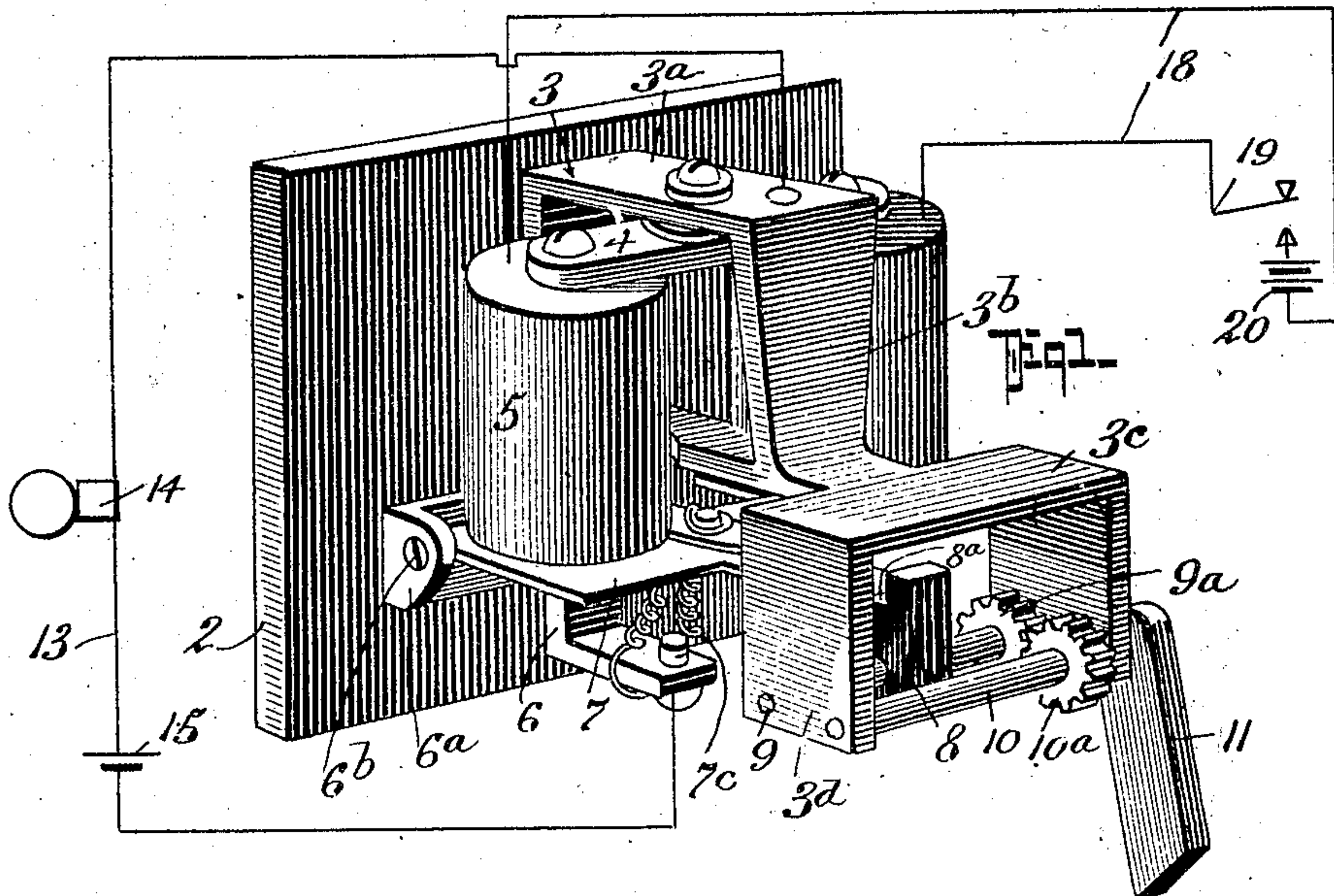


J. F. WEBB, JR.
CIRCUIT CLOSING RELAY.
APPLICATION FILED MAY 12, 1908.

904,661.

Patented Nov. 24, 1908.



WITNESSES:

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CIRCUIT-CLOSING RELAY.

No. 904,661.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed May 12, 1908. Serial No. 432,336.

To all whom it may concern:

Be it known that I, JEAN F. WEBB, JR., residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Circuit-Closing Relays, of which the following is a specification.

My invention relates to certain new and useful improvements in relays for closing local circuits and the like, and in its generic nature the invention embodies a relay having magnets adapted to be connected in the main line circuit that operate an armature having a contact device to close a local circuit, and means for locking the armature in its circuit closing position, together with means whereby the armature may be released from its locking position at times.

In its more subordinate nature the invention embodies those novel details of construction, combination and arrangement of parts, which will be first fully described, and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which:

Figure 1, is a perspective view of my improved form of relay removed from the casing. Fig. 2, is a front elevation thereof, the parts being in the casing. Fig. 3, is a central vertical longitudinal section on line 3—3 of Fig. 2, Fig. 4, is a detail view illustrating a slight modification of my invention.

Referring now to the accompanying drawings, in which like letters and numerals of reference indicate like parts in all of the figures, 1 designates the casing which has a removable door or closure member 1^a, and within the casing 1 the insulating support 2 is mounted in any approved manner. To the support 2 a frame 3 which supports the yoke 4 of the electro-magnet 5 is secured. The yoke 4 is insulated from the frame 3, as indicated in Figs. 1 and 3 of the drawings. The frame 3 comprises the horizontal portion 3^a that supports the yoke 4, the vertical front portion 3^b, and the bottom horizontal portion 3^c that terminates in the front U-shaped member 3^d, that is provided with bearing apertures for the shafts 9 and 10, hereinafter again referred to.

6 designates an armature supporting frame having lugs 6^a to receive the bearing

screws 6^b that support the armature 7, the armature 7 carrying a contact spring 7^b, so as to contact with the frame 3^a when the armature is lifted by the magnets 5 and close the electric circuit between the frames 3 and 6, to which the terminals of the local circuit 13 is connected, the circuit 13 including a source of electric energy 15, and a signal 14, of any approved type.

The armature 7 is provided with a projecting portion 7^a that is adapted to engage the seats 8^a and 8^b of an insulated stepped block 8 that is carried by the shaft 9 to move therewith.

The shaft 9 is geared by means of gears 9^a—10^a with a shaft 10 to which the lever 11 is secured in such a manner that its weight rotates the shafts 10—9 when the armature 7^a comes into alinement with the step 8^a, so that the step 8^a will hold the armature in its circuit closing position. The lever 11 is also adapted to be engaged, and when its movement is in a direction opposite to that just described, it will rotate the shafts 10—9 correspondingly and thereby move the step 8^a out of engagement with the armature portion 7^a and permit the armature to gravitate to its circuit opening position.

In order to complete the electric circuit fully between the armature 7 and the frame 6, an electrical connection 7^c is provided. This insures a good contact between the armature and its supporting frame at all times.

The contact spring 7^b that is carried by the armature 7, to engage the frame 3 when the armature is drawn up by the magnets 5, also aids in forcing the armature away from the frame 3 to open the circuit when the magnets 5 are deenergized and the step 8^a is moved out of engagement.

Instead of mounting the lever 11 on the shaft 10 and turning the block 8 through the gears 9^a and 10^a, I may mount the lever 11 directly on the shaft 9 so that a direct movement of the lever will suffice to move the block 8 to release the armature, (see Fig. 4).

The magnets 5 are adapted to be connected in the main line circuit 18 which includes any approved type of circuit closer 19 and any approved source of electric energy 20.

The uses to which my invention can be applied are numerous, and it is not thought necessary to state them here as they will be readily apparent to those skilled in the art to which the invention appertains.

From the foregoing description taken in connection with the accompanying drawings, it is thought the complete construction, operation and advantages of my invention will be readily understood by those skilled in the art to which the invention appertains, and I desire to say that slight changes in the details of construction may be made without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. A relay comprising a supporting frame, magnets supported thereby, a second supporting frame, an armature pivotally supported in said supporting frame, said supporting frames adapted to be connected to the terminals of a local electric circuit, a contact member carried by the armature and adapted to engage the magnet supporting frame at times to close the electric circuit between the magnet supporting frame and the armature supporting frame, and means mounted independently of the armature for locking the armature in its circuit closing position.

2. A relay comprising a supporting frame, magnets supported thereby, a second supporting frame, an armature pivotally supported in said supporting frame, said supporting frames adapted to be connected to the terminals of a local electric circuit, a contact member carried by the armature and adapted to engage the magnet supporting frame at times to close the electric circuit between the magnet supporting frame and the armature supporting frame, means mounted independently of the armature for locking the armature in its circuit closing position, said last named means comprising a rotatable shaft, a stepped block carried thereby and having stepped portions to engage the armature.

3. A relay comprising a supporting frame, magnets supported thereby, a second supporting frame, an armature pivotally supported in said supporting frame, said supporting frames adapted to be connected to the terminals of a local electric circuit, a contact member carried by the armature and adapted to engage the magnet supporting frame at times to close the electric circuit between the magnet supporting frame and the armature supporting frame, means mounted independently of the armature for locking the armature in its circuit closing position, said last named means comprising a rotatable shaft, a stepped block carried thereby and having stepped portions to engage the armature, and means for turning said shaft to move the stepped portion out

of engagement with the armature to permit the armature to drop to its circuit opening position.

4. A relay comprising a supporting frame, magnets supported thereby, a second supporting frame, an armature pivotally supported in said supporting frame, said supporting frames adapted to be connected to the terminals of a local electric circuit, a contact member carried by the armature and adapted to engage the magnet supporting frame at times to close the electric circuit between the magnet supporting frame and the armature supporting frame, means mounted independently of the armature for locking the armature in its circuit closing position, said last named means comprising a rotatable shaft, a stepped block carried thereby and having stepped portions to engage the armature, means for turning the shaft to move the stepped portion out of engagement with the armature to permit the armature to drop to its circuit opening position, said last named means comprising a lever device coöperatively connected with the shaft.

5. A relay comprising a magnet supporting frame and electro-magnets supported thereby, an armature supporting frame, an armature supported by said armature supporting frame, said magnet frame and said armature frame adapted to be connected to an electric circuit, said armature adapted to make electrical contact with said magnet frame at times, said magnet frame having a bearing portion, a rotatable shaft mounted in said bearing portion, an insulating block carried by said rotatable shaft having a portion to engage the armature to lock it in its circuit closing position.

6. A relay comprising a magnet supporting frame and electro-magnets supported thereby, an armature supporting frame, an armature supported by said armature supporting frame, said magnet frame and said armature frame adapted to be connected to an electric circuit, said armature adapted to make electrical contact with said magnet frame at times, said magnet frame having a bearing portion, a rotatable shaft mounted in said bearing portion, an insulating block carried by said rotatable shaft having a portion to engage the armature to lock it in its circuit closing position, and means to rotate said shaft to release said armature.

7. A relay comprising a magnet supporting frame and electro-magnets supported thereby, an armature supporting frame, an armature supported by said armature supporting frame, said magnet frame and said armature frame adapted to be connected to an electric circuit, said armature adapted to make electrical contact with said magnet frame at times, said magnet frame having a bearing portion, a rotatable shaft mounted

in said bearing portion, an insulating block carried by said rotatable shaft having a portion to engage the armature to lock it in its circuit closing position, means to rotate said shaft to release said armature, said last named means comprising a second rotatable shaft geared with said first shaft, and means for operating said second shaft to rotate the first shaft.

10 8. A relay comprising a magnet supporting frame, electro-magnets pendently supported therein and insulated therefrom, said magnet supporting frame having a front U-shaped portion, an armature supporting

15 frame, an armature pivotally mounted in said supporting frame having a projecting portion, a rotatable shaft mounted in said U-shaped portion of the magnet frame, a block carried by said rotatable shaft and

20 insulated therefrom and adapted to engage the projecting portion of the armature to

lock the armature in its circuit closing position, said armature having means for contacting with the magnet frame when in its circuit closing position to electrically connect the magnet and armature frames, said magnet and armature frames adapted to be connected to the terminals of an electric circuit, said rotatable shaft having a gear, a second rotatable shaft mounted in said U-shaped portion of the magnet frame, and having a gear to mesh with the first mentioned shaft gear, and means for rotating said second shaft to rotate the first shaft and move the block out of engagement with the armature to permit it to move to its circuit opening position.

JEAN F. WEBB, Jr.

Witnesses:

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