

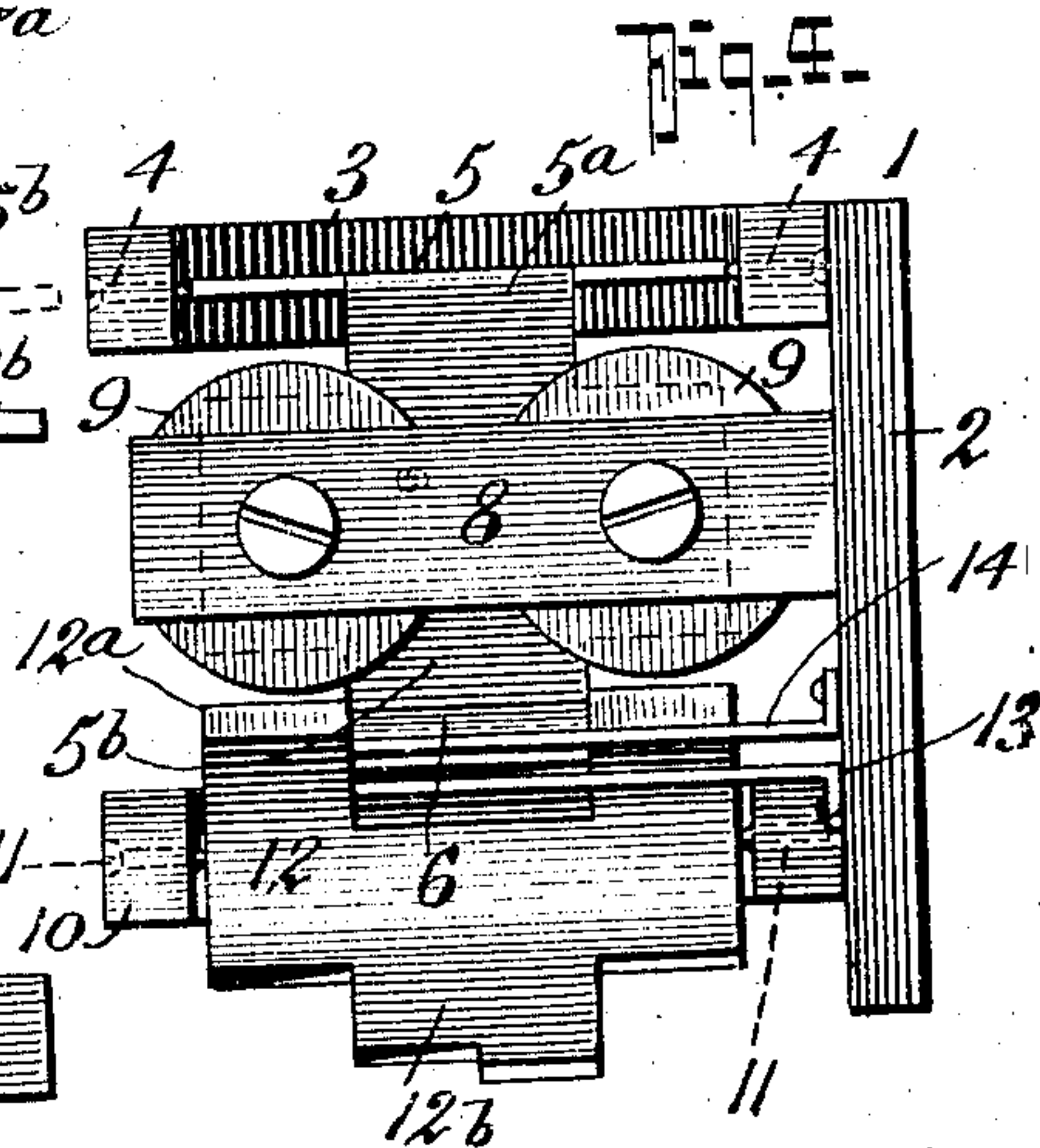
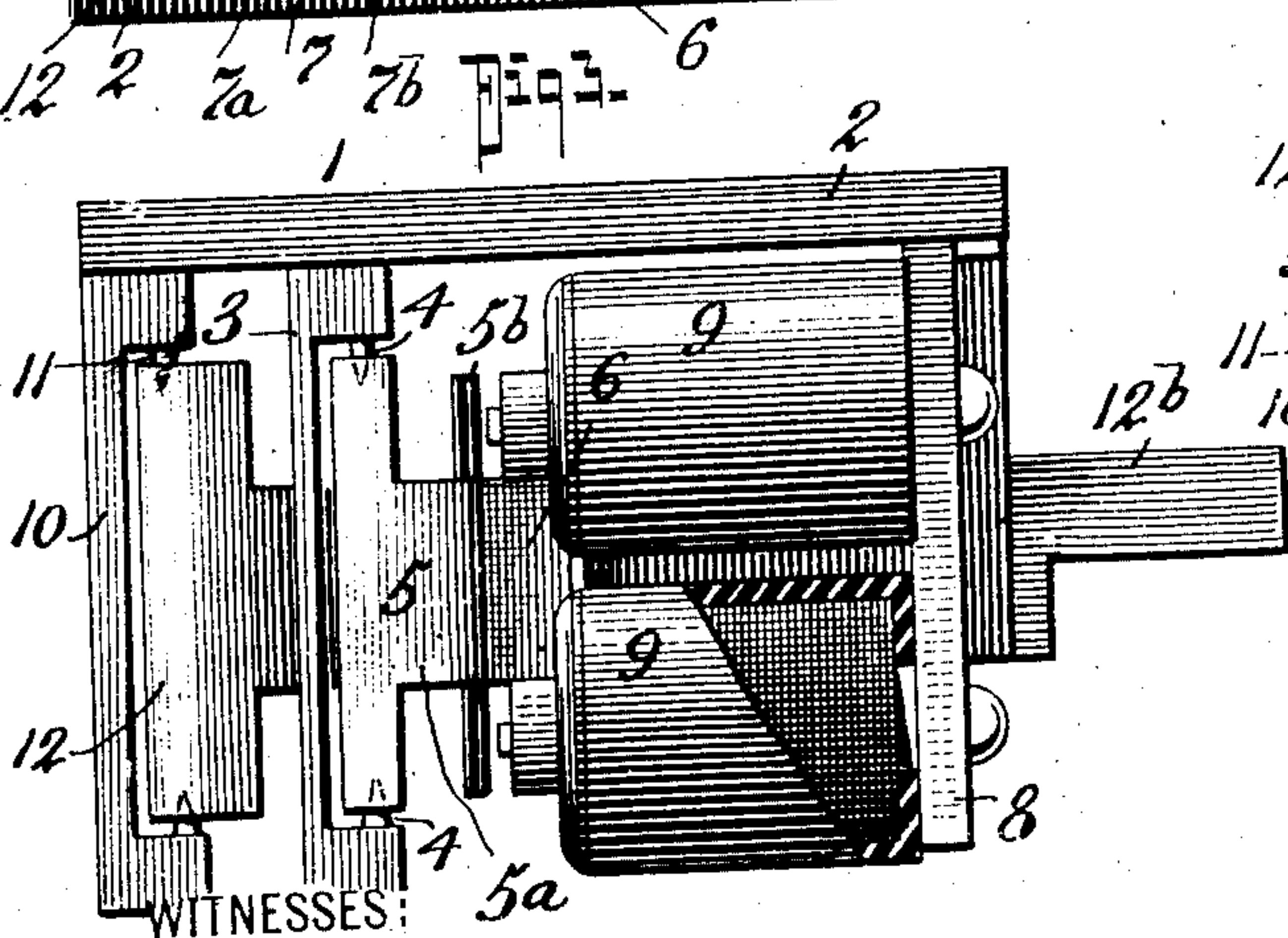
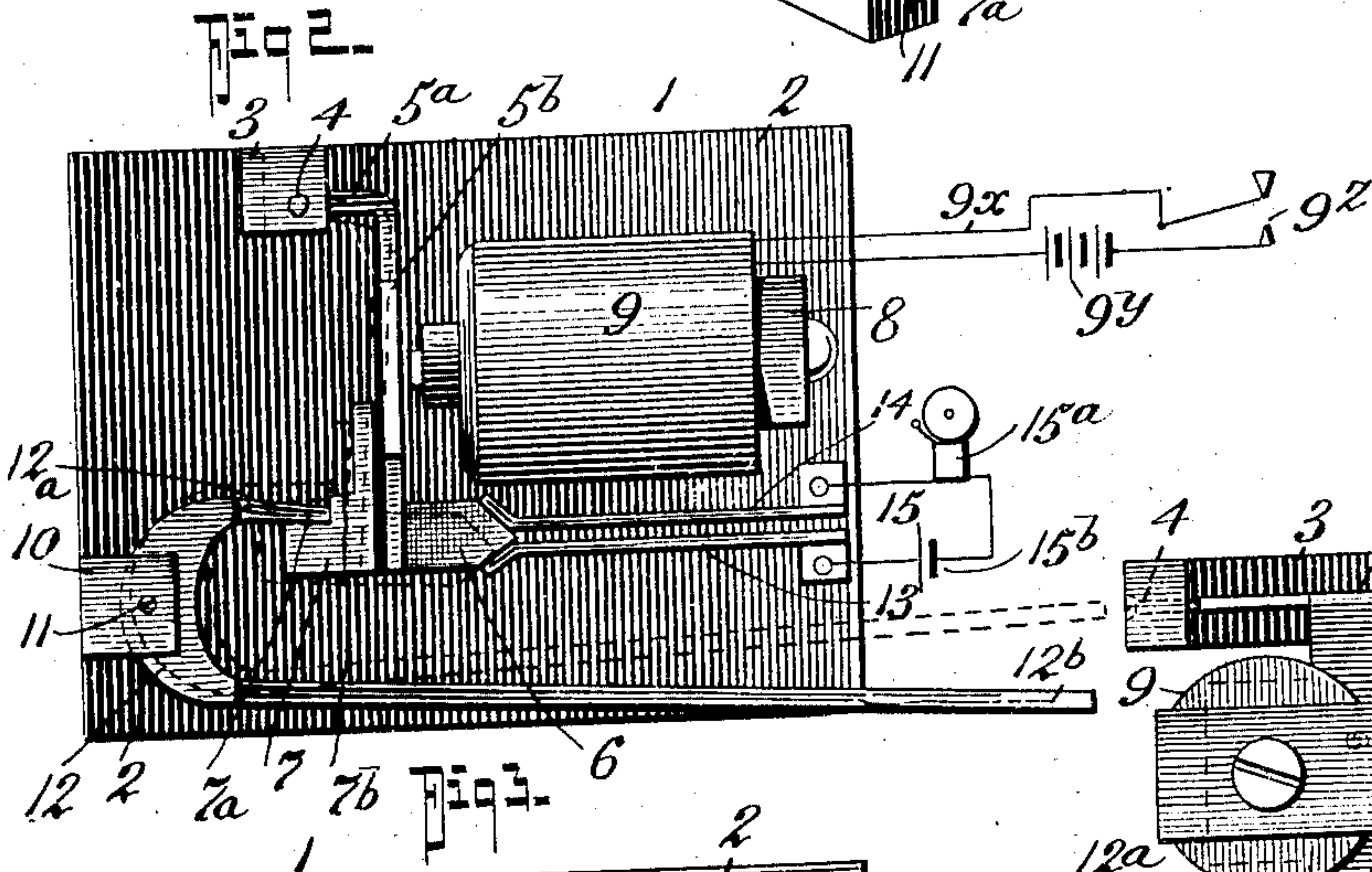
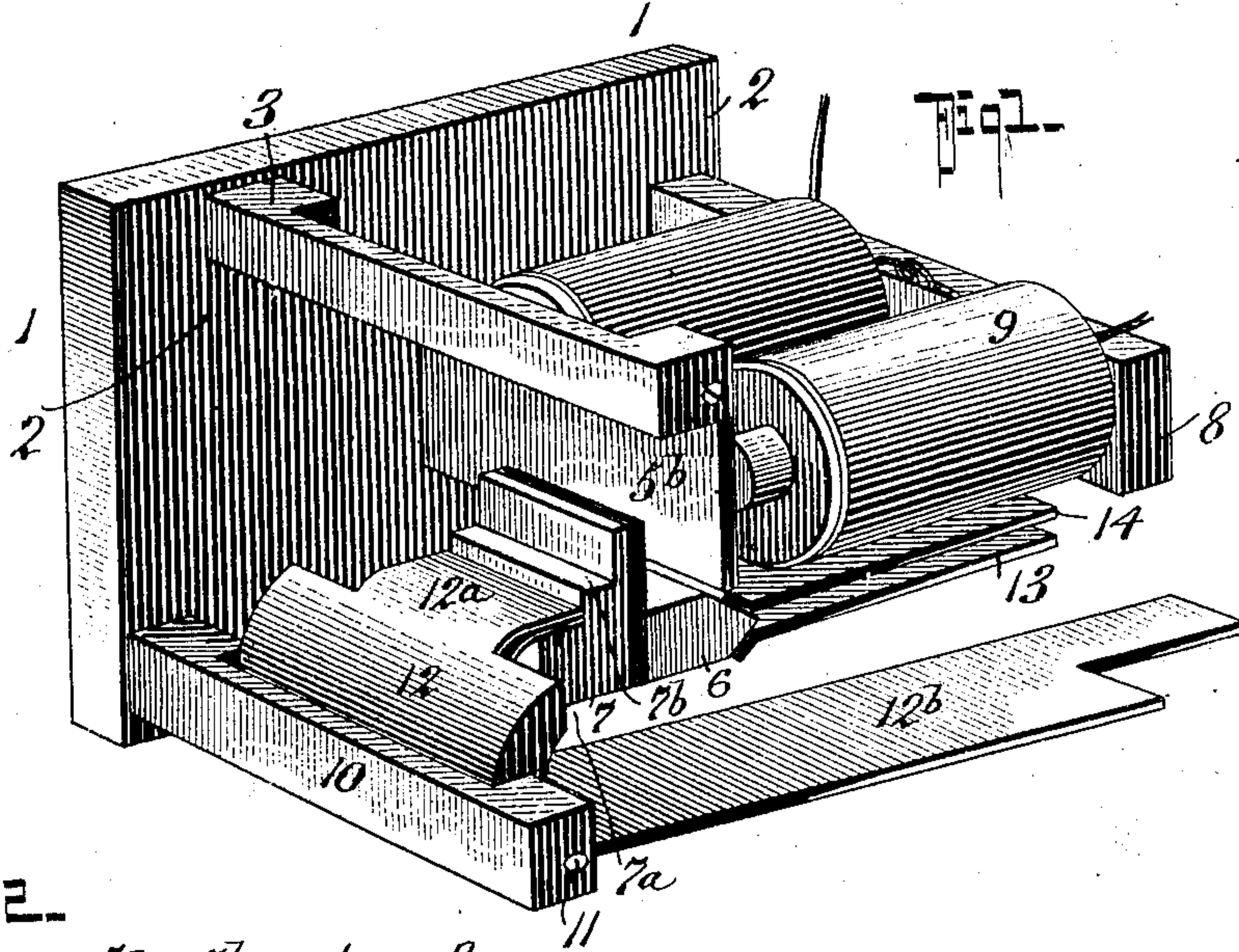
J. F. WEBB, JR.
RELAY.

APPLICATION FILED MAY 12, 1908.

Patented July 27, 1909.

2 SHEETS—SHEET 1

929,525.



WITNESSES:

John T. Schrott
Chas. H. Wagner

INVENTOR

Jean F. Webb, Jr.

BY

Fred G. Dietrichson
ATTORNEYS

J. F. WEBB, JR.

RELAY.

APPLICATION FILED MAY 12, 1908.

Patented July 27, 1909.

2 SHEETS—SHEET 2.

929,525.

Fig. 5.

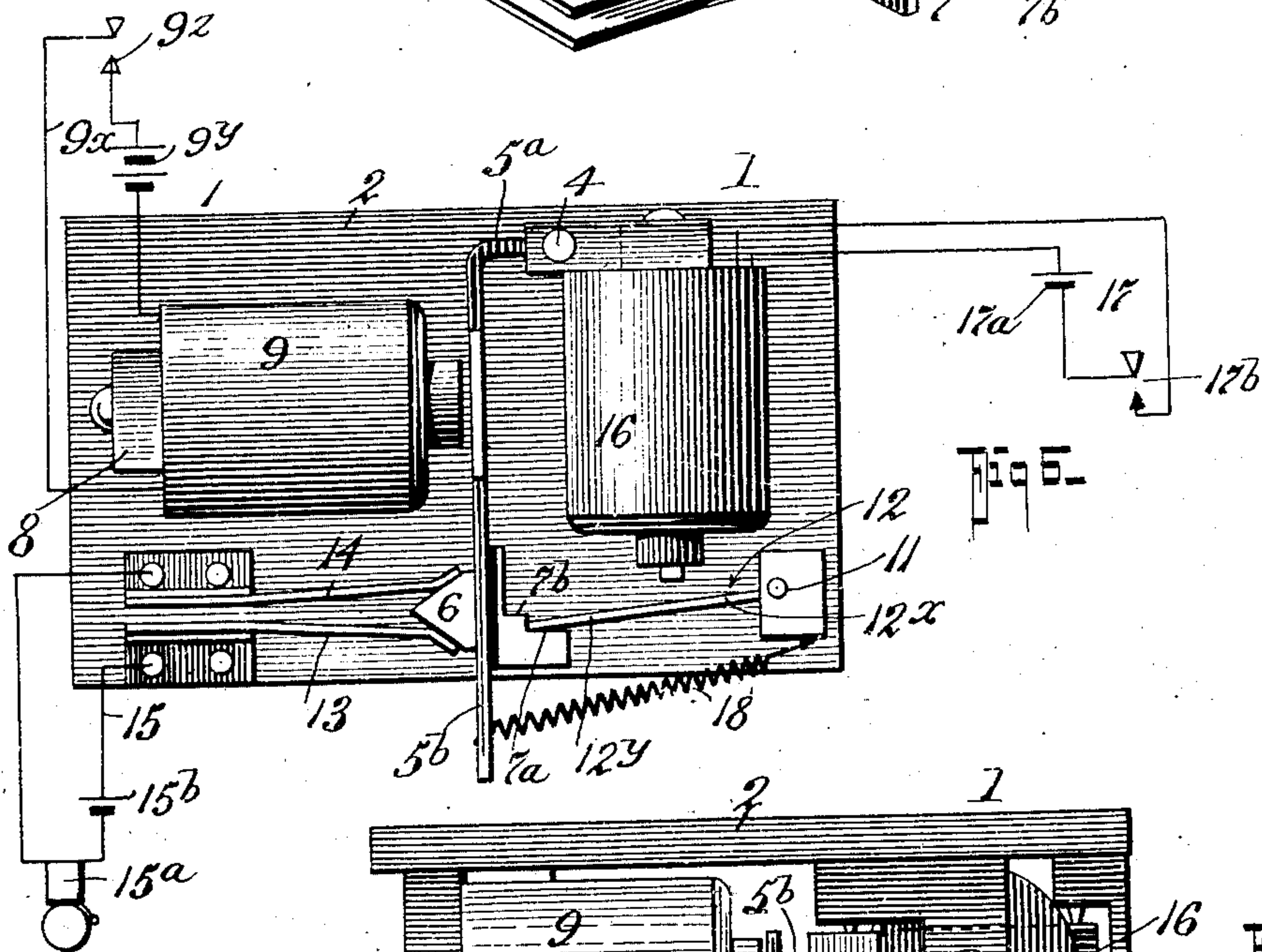
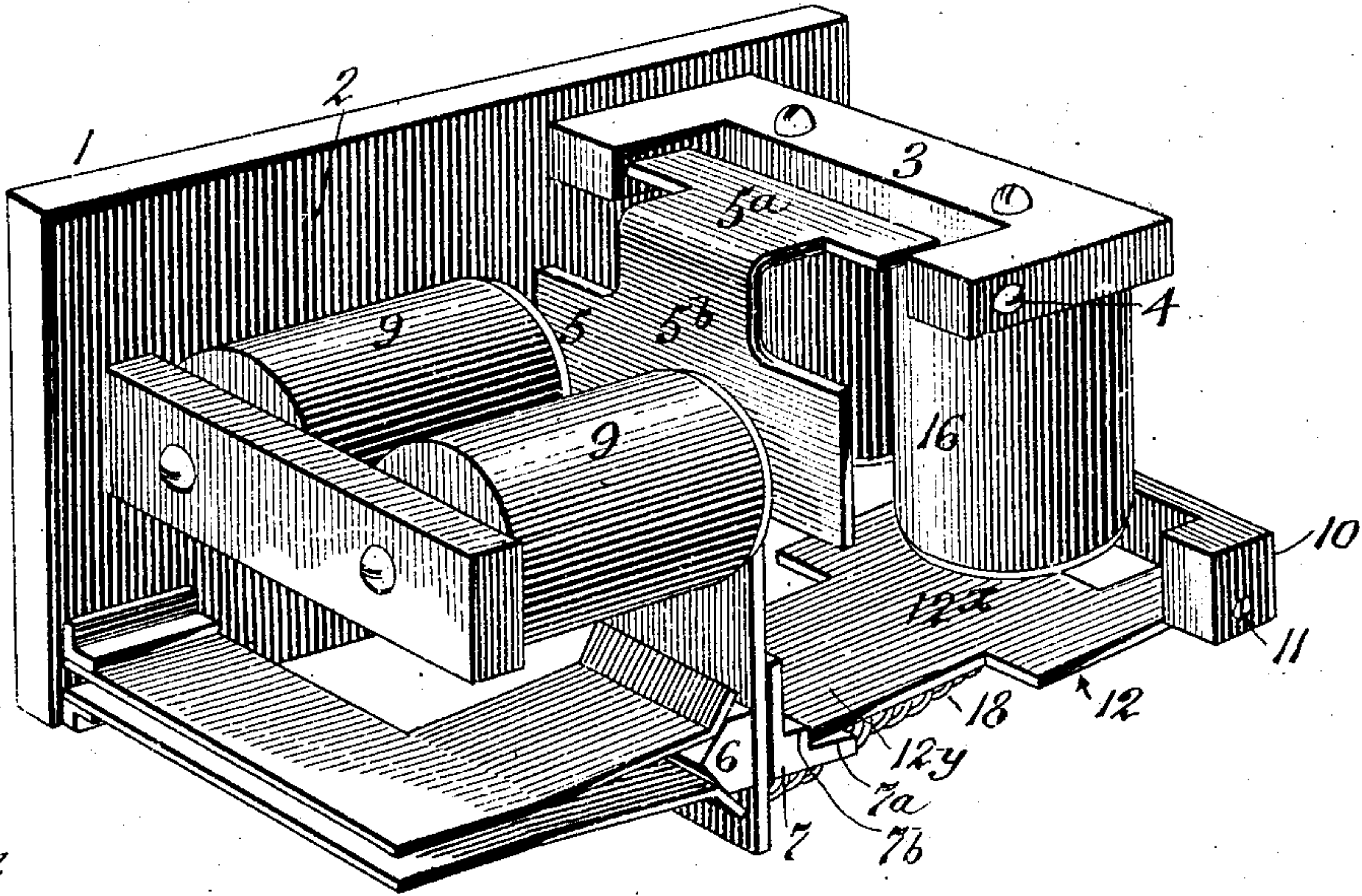


Fig. 6.

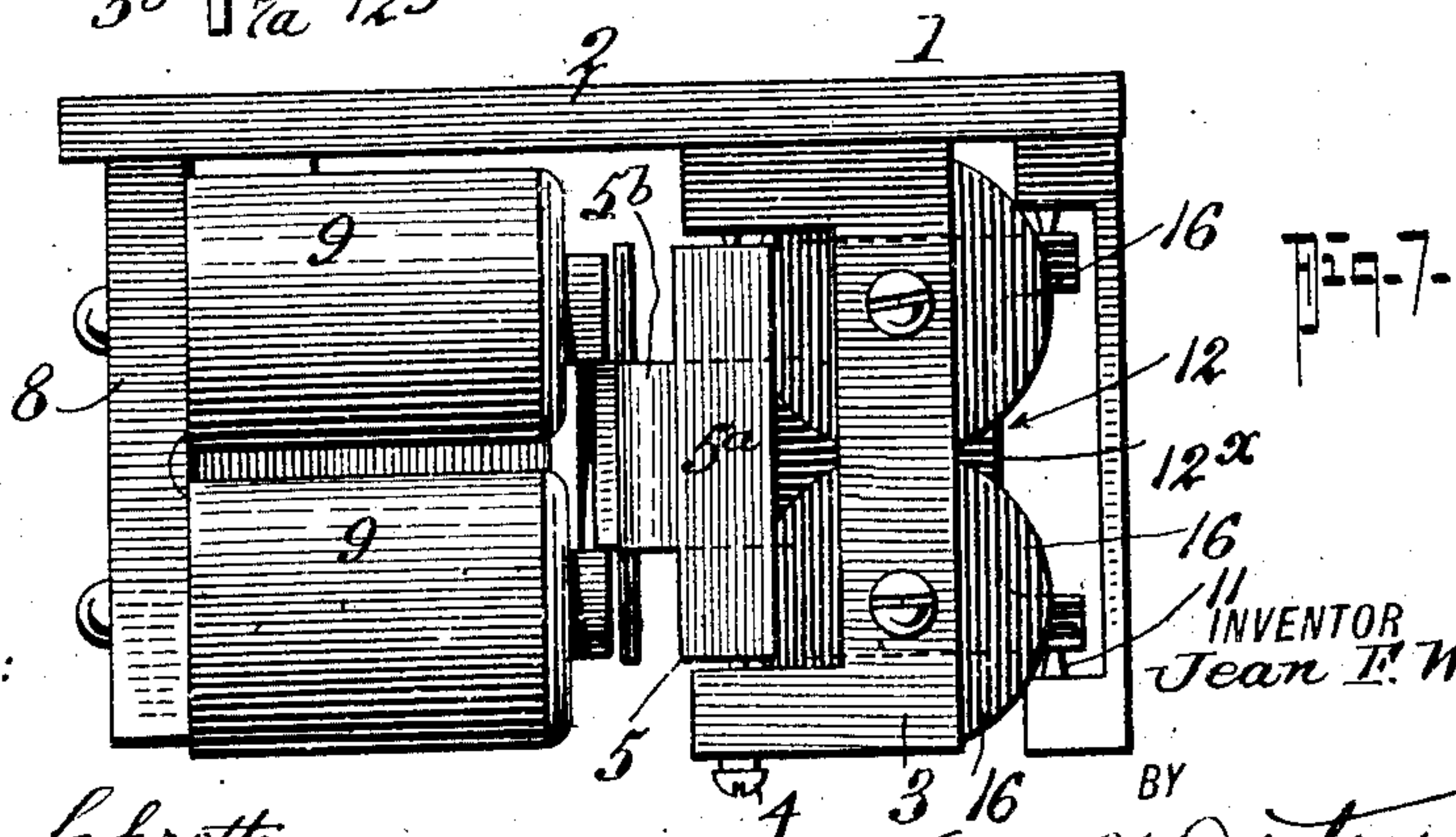


Fig. 7.

WITNESSES:

John J. Schrott
Chas. H. Wagner

INVENTOR
Jean F. Webb, Jr.

BY

Fred Y. Dietrich
ATTORNEYS

UNITED STATES PATENT OFFICE.

JEAN F. WEBB, JR., OF DENVER, COLORADO, ASSIGNOR TO THE ELECTRIC SIGNAGRAPH
AND SEMAPHORE COMPANY, INCORPORATED, OF NEW YORK, N. Y.

RELAY.

No. 929,525.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed May 12, 1908. Serial No. 432,335.

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 Relays, of which the following is a specification.

My invention relates to certain new and useful improvements in electro-magnetic relays for use in connection with signaling circuits, semaphore operating circuits, telegraph circuits and the like, wherein it is desired to close a local circuit or circuits through the operation and control of a main line circuit.

In its generic nature my invention comprises a pivoted armature arranged to hang vertically, a magnet connected in the main line for operating the armature, the armature having a contact block for closing a local circuit between a pair of fixed contacts, and means for locking the armature in its circuit closing and circuit opening positions.

My invention also includes means for releasing the locking means (the locking means being hereinafter termed the keeper for the armature).

More subordinately my invention embodies those novel details of construction, combination and arrangement of parts all of which will be first described in detail, 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 one form of my invention. Fig. 2, is a side elevation thereof. Fig. 3, is a top plan view thereof. Fig. 4, is an end elevation thereof. Fig. 5, is a perspective view of a slightly modified form of my invention. Fig. 6, is a side elevation thereof. Fig. 7, is a top plan view thereof.

Referring now to the accompanying drawings in which like letters and numerals of reference indicate like parts in all of the figures, 1 represents my improved relay which comprises a base 2, preferably constructed of insulating material to which the armature bearing support 3 is secured in any approved manner, the bearing support 3 having bearing or fulcrum screws 4 on which the armature 5 is mounted. The armature 5 consists of a substantially vertically disposed body 5^b and a shorter arm 5^a arranged at right angles to the body 5^b with which the fulcrum or pivot screws 4 contact

At the bottom of the armature 5 is a contact block 6 which serves to short-circuit the fixed contacts 13—14 of a local circuit 15 which includes a signal 15^a and a source of electric energy 15^b, as shown in Fig. 2 of the drawings. The armature 5 also carries a stepped block 7 having the steps 7^a—7^b, and the block 7 is insulated from the armature 5, as indicated in the drawings.

The keeper or locking member 12 is pivoted on screws or pivot members 11 in a support 10 that is secured to the base 2, and the keeper 12 consists of a short heel portion 12^a adapted to cooperate with the stepped block 7 and a longer lever portion 12^b which is adapted to be moved to release the armature 5 from its circuit closing position.

Any suitable means may be used to move the lever 12, such as a reciprocating part of some mechanical device that is operated by the local circuit 15 or the lever 12^b may be moved by hand.

The armature 5 is moved to its circuit closing position by the main operating magnets 9 which are mounted on a support 8 that is secured to the base 2 and which are electrically connected in the local circuit 9^x which includes the source of electric energy 9^y and the circuit closer 9^z.

When the armature 5 is moved to its circuit closing position by the main magnets 9, the heel 12^a of the keeper 12 drops, by reason of the gravity of the keeper 12, onto step 7^a and holds the armature 5 in its circuit closing position. When the keeper 12 is moved to bring the heel 12^a off of the step 7^a into alignment with the step 7^b, the armature 5 because of its pivotal mounting (as indicated in the drawings) swings back into its circuit opening position by the action of gravity and is held in that position by reason of its gravity and the weight of the whole of keeper 12 when the heel 12^a rests on the step 7^b.

In Figs. 5 to 7 inclusive, I have shown a slightly modified form of my invention in which the keeper 12 is in the nature of a plane plate 12^x whose heel portion 12^y is adapted to cooperate with the stepped block 7 and the plate 12^x is pivoted on the pins 11 in the frame 10, as was the keeper 12 of the form shown in Fig. 1, of the drawings.

In the forms shown in Figs. 5 to 7 inclusive, I have shown electro-magnetic means for

operating the keeper 12^x which acts as the armature for the magnets 16 that are mounted on the support 3 and electrically connected in a releasing circuit 17 which includes a source of electric energy 17^a and a circuit closer 17^b of any approved type, so that by closing the circuit closer 17^b the magnets 16 will be energized to lift the keeper 12^x (their armature) out of the step 7^a and permit the armature 5 to swing to its circuit opening position by gravity at which time the keeper 12^x will rest on the step 7^b and when the circuit 17 is opened by opening the circuit closer 17^b and deenergizing the magnets 16, the keeper 12^x will drop upon the step 7^b.

In order to aid the action of gravity a coil spring 18 may be provided, if found desirable or necessary.

From the foregoing description taken in connection with the accompanying drawings, it is thought the complete construction, operation and many advantages of my invention will be readily understood by those skilled in the art to which the invention appertains.

What I claim is:—

1. A relay comprising an armature and an operating magnet therefor, a stepped block secured to said armature and a keeper cooperating with said stepped block to lock the armature in its various positions, a pair of fixed contacts cooperating with said armature whereby when the armature is in one position the fixed contacts will be electrically connected.

2. A relay comprising an armature and an operating magnet therefor, a stepped block secured to said armature and a keeper cooperating with said stepped block to lock the armature to its various positions, a pair of fixed contacts cooperating with said armature whereby when the armature is in one position the fixed contacts will be electrically connected, and means for operating said keeper to release the armature.

3. A relay comprising an armature and an operating magnet therefor, a stepped block secured to said armature and a keeper cooperating with said stepped block to lock the armature to its various positions, a pair of fixed contacts cooperating with said armature whereby when the armature is in one position the fixed contacts will be electrically connected, means for operating said keeper to release the armature, said last named means comprising an electro-magnet cooperating with said keeper to operate the keeper when the magnet is energized.

4. In a relay, a base or support, an armature supporting frame secured thereto, an armature pivoted in said frame, said armature having a contact block, and a stepped bearing block, a pair of fixed contacts to cooperate with said contact block, and a keeper cooperating with said stepped block to lock

the armature in its various positions, and an electro-magnet for moving said armature in one direction.

5. In a relay, a base or support, an armature supporting frame secured thereto, an armature pivoted in said frame, said armature having a contact block, and a stepped bearing block a pair of fixed contacts to cooperate with said contact block, a keeper cooperating with said stepped block to lock the armature in its various positions, an electro-magnet for moving said armature in one direction, and means for operating said keeper to release said armature.

6. In a relay, a base or support, an armature supporting frame secured thereto, an armature pivoted in said frame, said armature having a contact block and a stepped bearing block, a pair of fixed contacts to cooperate with said contact block, a keeper cooperating with said stepped block to lock the armature in its various positions, an electro-magnet for moving said armature in one direction, means for operating said keeper to release said armature, said last named means comprising an electro-magnet.

7. A relay comprising a base or support, an armature supporting frame mounted thereon, an armature pivotally mounted in said frame and comprising a substantially vertically held portion, and a portion projecting at right angles thereto, a contact block carried by said armature, an electro-magnet for operating said armature to move it in one direction, said armature being gravity movable in an opposite direction, a fixed contact member cooperating with said armature contact block to close an electric circuit, and means for locking said armature in its circuit closing or opening positions.

8. A relay comprising a base or support, an armature supporting frame mounted thereon, an armature pivotally mounted in said frame and comprising a substantially vertically held portion, and a portion projecting at right angles thereto, a contact block carried by said armature, an electro-magnet for operating said armature to move it in one direction, said armature being gravity movable in an opposite direction, a fixed contact member cooperating with said armature contact block to close an electric circuit, means for locking said armature in its circuit closing and opening positions, said last named means comprising a keeper cooperatively engaging said armature to hold it in its various positions.

9. A relay comprising a base or support, an armature supporting frame mounted thereon, an armature pivotally mounted in said frame and comprising a substantially vertically held portion and a portion projecting at right angles thereto, a contact block carried by said armature, an electro-magnet for operating said armature to move

it in one direction, said armature being gravity movable in an opposite direction, a fixed contact member cooperating with said armature contact block to close an electric circuit, means for locking said armature in its circuit closing and opening positions, said last named means comprising a pivotally mounted keeper, and a stepped block carried by the armature to cooperate with said keeper.

10. A relay comprising a base or support, an armature supporting frame mounted thereon; an armature pivotally mounted in said frame and comprising a substantially vertically held portion and a portion projecting at right angles thereto, a contact block carried by said armature, an electro-magnet for operating said armature to move it in one direction, said armature being gravity movable in an opposite direction, a fixed contact member cooperating with said armature contact block to close an electric circuit, means for locking said armature in its circuit closing and opening positions, said last named means comprising a pivotally mounted keeper, a stepped block carried by the armature to cooperate with said keeper, and electro-magnetic devices for moving said keeper to release said armature.

11. In a relay, a pendently mounted armature and an electro-magnet for operating the same, a counter block carried by said armature, and fixed contacts cooperating with said contact block, said armature adapted to swing to its circuit opening position by gravity, and a gravity actuated keeper for locking said armature in its circuit closing position.

12. In a relay, a pendently mounted armature and an electro-magnet for operating the same, a contact block carried by said armature, and fixed contacts cooperating with said contact block, said armature adapted to swing to its circuit opening position by

gravity, a gravity actuated keeper for locking said armature in its circuit closing position, and means for pivotally mounting said keeper.

13. In a relay, an electro-magnet, an armature for the same consisting of a flat plate and a portion projecting at an angle thereto, means for pivoting said armature at the projecting portion, fixed contacts adapted to be engaged by the armature to close an electric circuit, said armature adapted to swing to its circuit opening position by gravity, and a keeper for mechanically locking said armature in its circuit closing position.

14. In a relay, an electro-magnet, an armature for the same consisting of a flat plate and a portion projecting at an angle thereto, means for pivoting said armature at the projecting portion, fixed contacts adapted to be engaged by the armature to close an electric circuit, said armature adapted to swing to its circuit opening position by gravity, and a gravity actuated keeper for locking said armature in its circuit closing position.

15. In a relay, an electro-magnet, an armature therefor consisting of a flat plate having a portion bent at right angles to the remainder, a support, pivot members carried by the support to engage the projecting portion of the armature so that the center of gravity of the armature will lie out of alignment with the pivot when the armature is under the influence of the magnet and so that when the armature is released from the influence of the magnet it will move away from the magnet by gravity, and contacts cooperating with said armature and adapted to be connected in an electric circuit.

JEAN F. WEBB, JR.

Witnesses:

JAMES J. RAGAN,

GEO. C. SCHMITTBERGER.