

No. 768,205.

PATENTED AUG. 23, 1904.

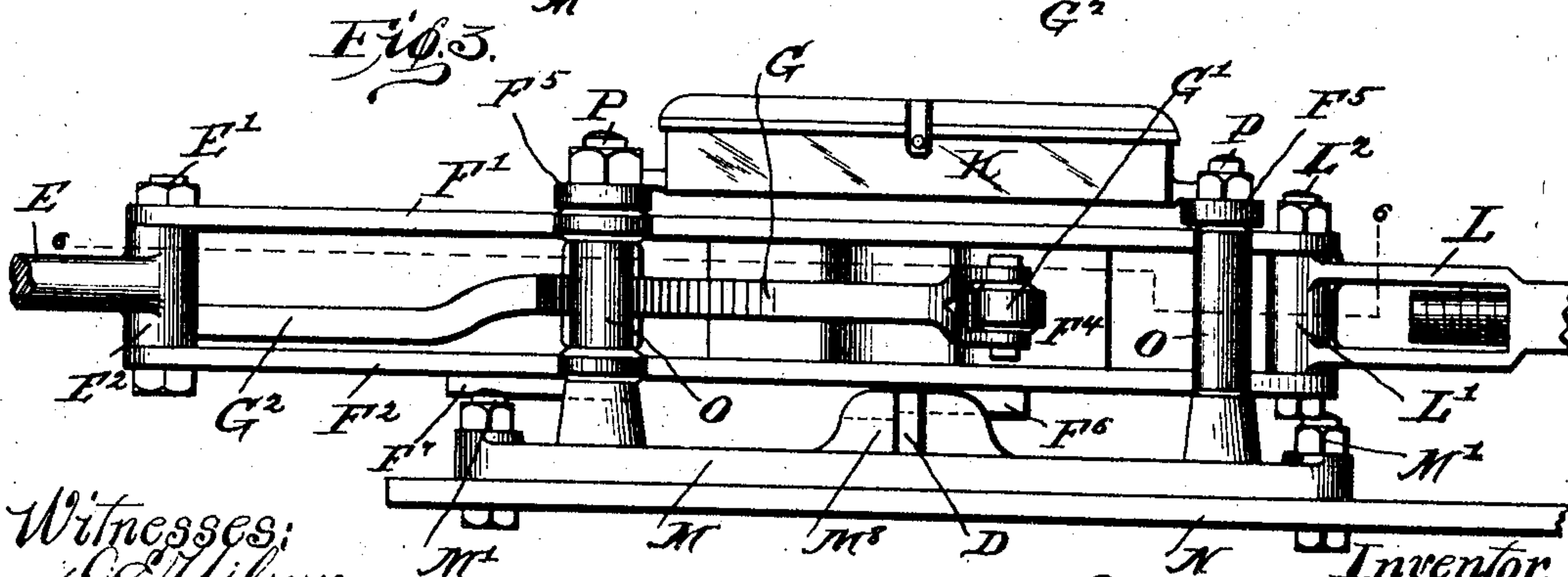
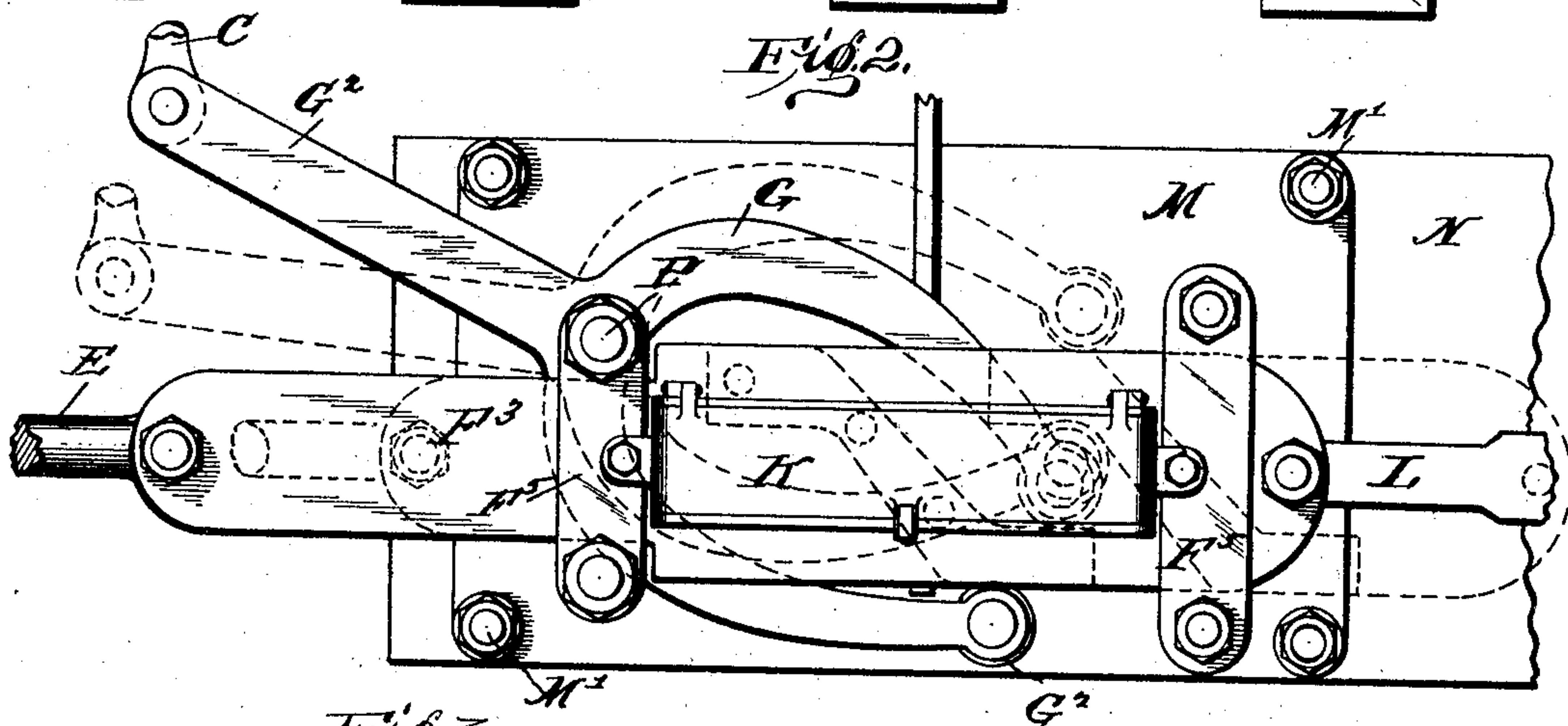
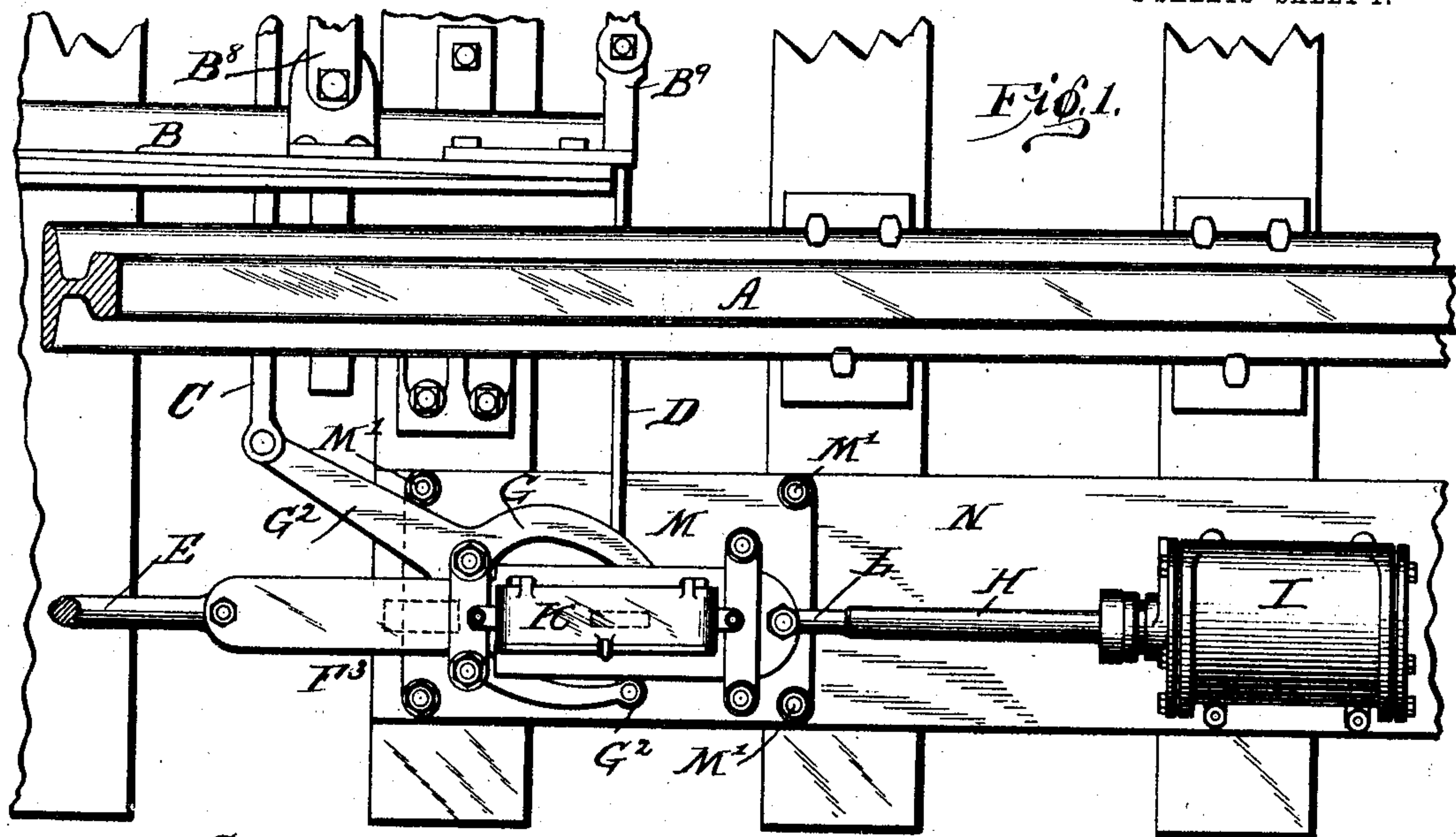
L. H. THULLEN.

SWITCH AND LOCK MOVEMENT.

APPLICATION FILED DEC. 19, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
L. E. Wilson.
A. Herman Wegner.

Inventor.
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By Frederic C. Evans.
His Attorney.

No. 768,205.

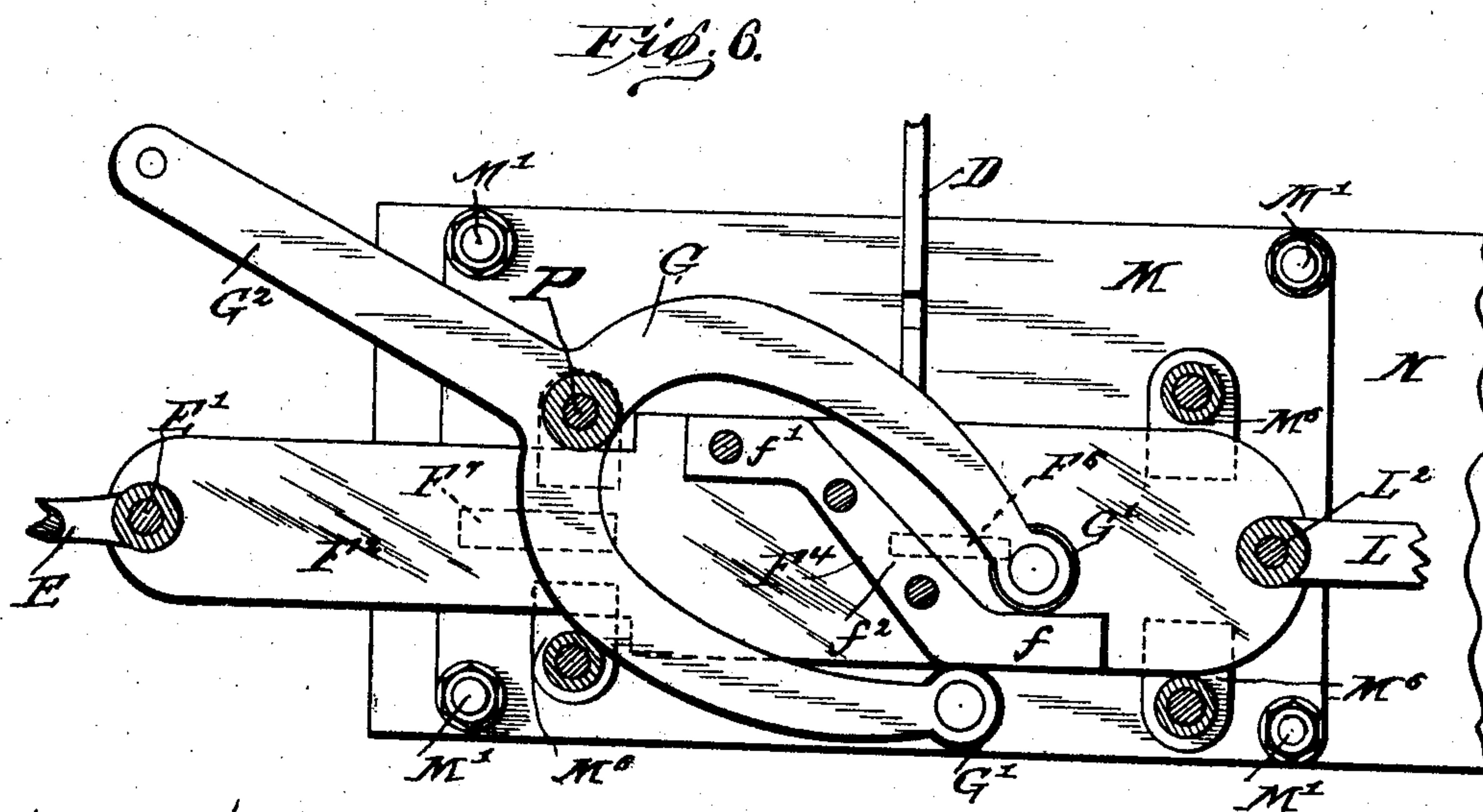
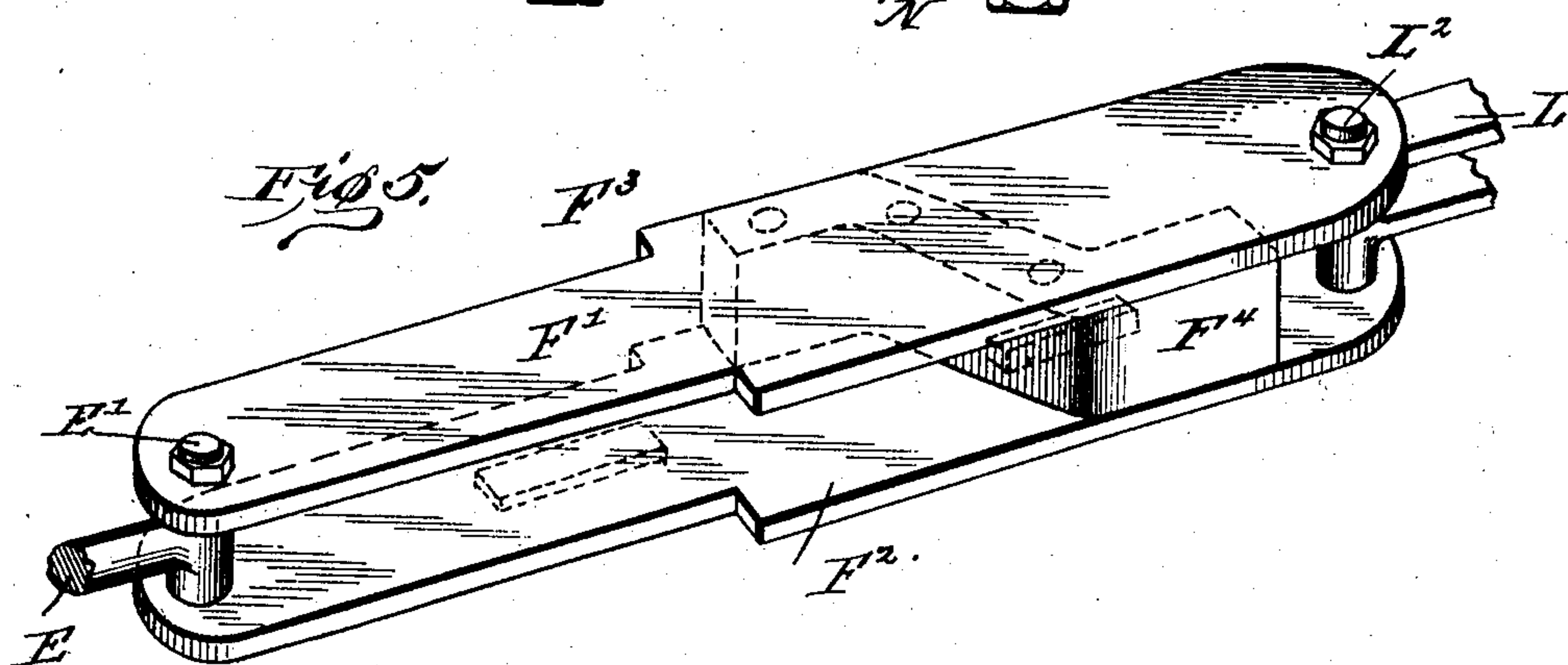
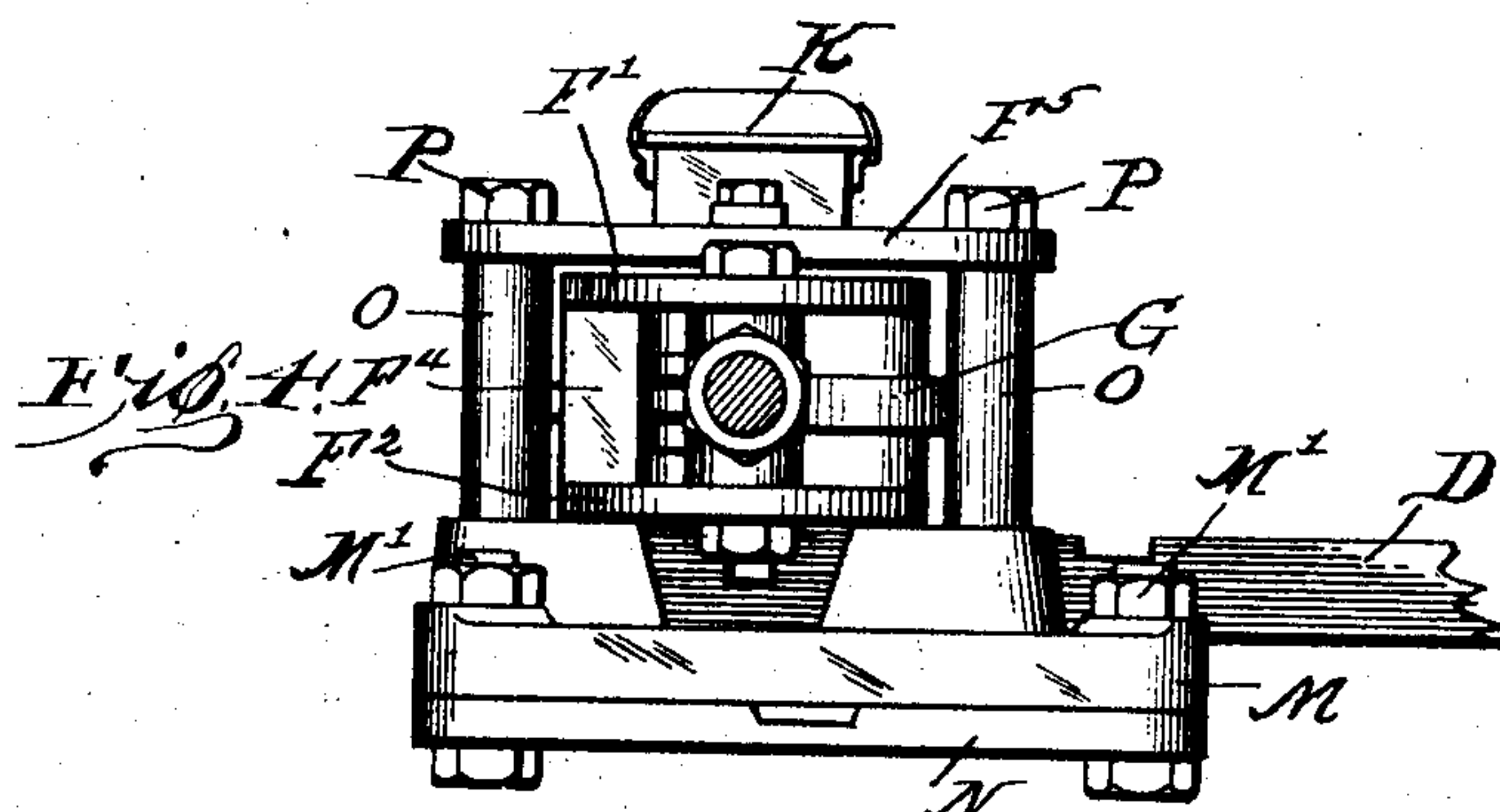
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Witnesses:
A. Wilson.
A. Herman Wegner.

Inventor
Louis H. Thullen
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UNITED STATES PATENT OFFICE.

LOUIS H. THULLEN, OF EDGEWOOD, PENNSYLVANIA, ASSIGNOR TO THE UNION SWITCH & SIGNAL CO., OF SWISSVALE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

SWITCH-AND-LOCK MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 768,205, dated August 23, 1904.

Application filed December 19, 1903. Serial No. 185,854. (No model.)

To all whom it may concern:

Be it known that I, LOUIS H. THULLEN, a citizen of the United States, and a resident of Edgewood, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Switch-and-Lock Movements, of which the following is a specification.

My invention relates to switch-and-lock movements, and particularly to that class of switch-and-lock movements which are operated by a motor.

I will describe a switch-and-lock movement embodying my invention and then point out the novel features thereof in claims.

In the accompanying drawings, Figure 1 is a top plan view of a switch-and-lock movement embodying my invention. Fig. 2 is a detail top plan view of a part of the movement shown in Fig. 1 and drawn to a larger scale. Fig. 3 is a side elevation of Fig. 2. Fig. 4 is an end elevation of Fig. 3. Fig. 5 is a detailed perspective view of a motion-plate embodied in my apparatus. Fig. 6 is a horizontal sectional view taken on a line 6-6 of Fig. 3.

Similar letters of reference designate corresponding parts in all of the figures.

Referring now to the drawings, A designates one of the two lines of rails of a railway, and B one of the two usual switch rails or points which are generally provided where it is desired to direct traffic from off and onto the line of rails A. As usual, the two switch-rails B are provided with connecting and spacing bars or rods B⁸ and B⁹, to which the usual switch-rod C and locking-rod D are connected.

Adjacent the switch-rails is provided the switch-and-lock movement for moving or shifting the switch rails or points B from one position to another and for operating the usual appurtenances of the switch-rails—for example, the detector-bar and the lock for the rails—in each of their positions. As shown, the movement comprises a motor and a mechanism which is operated by the motor. The motor is here shown as consisting of a cylinder I, in which a piston reciprocates. The

stem H of the piston is operatively connected to a motion-plate F³, comprised in the mechanism. The cylinder I is suitably mounted 50 on a base-plate N, and the mechanism is suitably mounted on a base-plate M, which is suitably secured by bolts M' to the base-plate N. The piston in the cylinder I may be reciprocated therein by any desired form of 55 fluid-pressure—for example, compressed air—and the supply of the fluid-pressure may be controlled either through valves manually operated or through valves automatically operated in a manner similar to that illustrated and 60 described in United States Patent No. 479,666, granted July 26, 1892, to J. G. L. Schreuder. The end of the piston-rod H is preferably screw-threaded and receives a yoke L, carried 65 by a sleeve L', which is removably secured to the motion-plate F³. The advantage of this construction is that adjustment may be provided between the motion-plate and the piston.

The motion-plate, as here shown, comprises two plates F' F², which are suitably spaced 70 apart and secured together. Bolts E' and L² may be provided for securing the plates together, and the desired spacing may be secured by means of the sleeves L' and E². The sleeve E² is carried by a rod E, which is suitably connected with a detector-bar, (not 75 shown,) the function of which is well known in the art. Intermediate the plates F' and F² is a motion-bar or cam-plate F⁴. As shown, this motion-bar comprises parallel portions 80 f f' and an inclined portion f². The motion-plate is suitably supported on the base M by the bosses M⁶ and is adapted to be reciprocated longitudinally of the rails A. It is guided in its longitudinal motion by means of 85 rollers O, which are carried by bolts P. The motion-plate is retained on the bosses M⁶ of the base M by means of straps F⁵, which are held in position by the bolts P.

K designates an indication-box, the function 90 and operation of which is well known in the art.

G designates a yoke pivoted on a bolt P and provided with rollers G' at its ends, which

rollers coact with the motion-bar F^4 . The lever G^2 of the yoke is suitably connected with the switch-rod C. It will be seen that a movement of the motion-plate in one direction will
 5 through the motion-bar rock the yoke on its pivot to move the switch-rails to one position and that a movement of the motion-plate in the opposite direction will through the motion-bar rock the yoke on its pivot to move
 10 the switch-rails to their second position.

The locking of the switch-rails in either of their two positions is attained by means of projections $F^6 F^7$, carried by the motion-plate, which projections are of different dimensions
 15 and enter correspondingly-formed recesses provided in the lock-rod D. The lock-rod D is guided in its movement beneath the motion-plate by bosses M^8 , extending upwardly from the base M.

20 The operation of the switch-and-lock movement, briefly stated, is as follows: Upon a movement of the piston in the cylinder—for example, in a direction to the right of Fig. 1—the motion-plate F^3 will move with it.
 25 The initial movement of the motion-plate F^3 will lift the detector-bar and withdraw the projection F^6 out of its notch in the lock-rod D. During the initial movement of the motion-plate the part f of the motion-bar will move
 30 between the rollers G' and will produce no motion of the yoke. As soon as the part f moves from between the rollers G' the part f^2 of the motion-bar will then engage the rollers G' to rock the yoke on its pivot, and thus
 35 move or shift the switch-rails B. The last part of the movement of the motion-plate will bring the part f' of the motion-bar between the rollers G' , and thus prevent further movement of the yoke. The detector-bar, pro-
 40 vided no train is above it, will have been lowered and the projection F^7 will have entered its corresponding projection in the lock-rod D to lock the switch-rails in the position to
 45 part of the movement of the motion-plate.

What I claim as my invention is—

1. In a switch-movement, the combination of a motion-plate, a motor for reciprocating the motion-plate, and a pivoted yoke connected with the switch-rails and rocked on its
 50 pivot by the motion-plate.

2. In a switch-and-lock movement, the combination of a motion-plate, locking projections carried by the motion-plate, a motor for reciprocating the motion-plate, a pivoted yoke
 55 connected with the switch-rails and rocked on its pivot by the motion-plate, and a lock-rod connected with the switch-rails and provided with recesses in which said locking projections enter.
 60

3. In a switch-and-lock movement, the combination of a motion-plate, locking projections of different dimensions carried by the motion-plate, a motor for reciprocating the motion-plate, a pivoted yoke connected with the
 65 switch-rails and rocked on its pivot by the motion-plate, and a lock-rod connected with the switch-rails and provided with recesses of different dimensions in which said locking projections enter.
 70

4. In a switch-movement, the combination of a motion-plate, a motion-bar carried by said motion-plate, a motor for reciprocating the motion-plate, and a pivoted yoke connected with the switch-rails and rocked on its
 75 pivot by the motion-bar.

5. In a switch-movement, the combination of a motion-plate, a motion-bar carried thereby and having two parallel portions and an intermediate inclined portion, a motor for re-
 80 ciprocating the motion-plate, and a pivoted yoke connected with the switch-rails and rocked on its pivot by the motion-plate.

In testimony whereof I have signed my name to this specification in the presence of two sub-
 85 scribing witnesses.

LOUIS H. THULLEN.

Witnesses:

W. L. McDANIEL,
 GEO. McCORMICK.