No. 612,979. Patented Oct. 25, 1898.

J. B. STRUBLE.

INDICATION BOX FOR SWITCHES.

(Application filed Mar. 1, 1898.)

(No Model.)

FIG. 1.

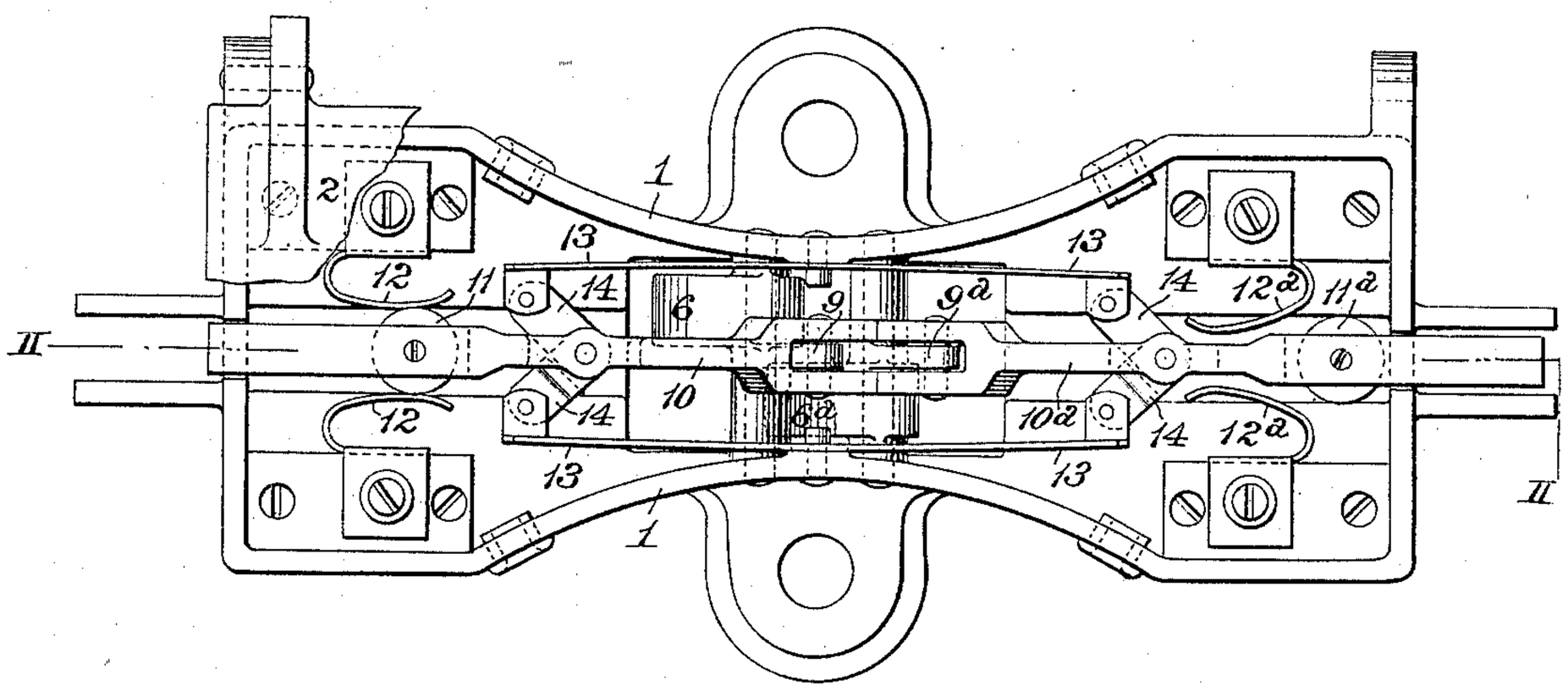


FIG. 2.

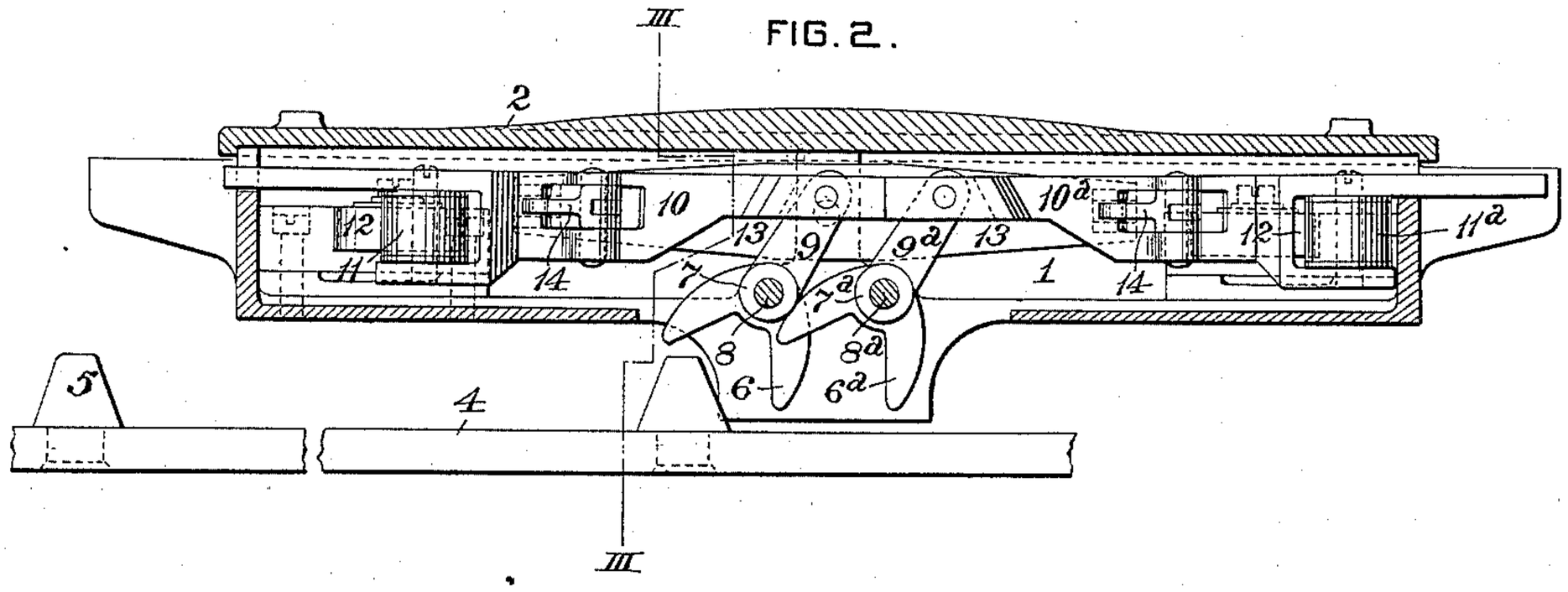
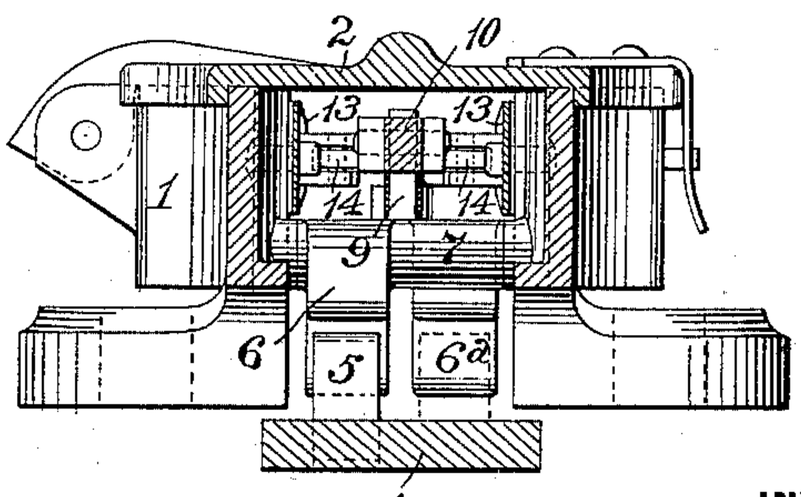


FIG. 3.



WITNESSES:

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INVENTOR,

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by Dawson & Wolcott

Att'y.

UNITED STATES PATENT OFFICE.

JACOB B. STRUBLE, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA.

INDICATION-BOX FOR SWITCHES.

SPECIFICATION forming part of Letters Patent No. 612,979, dated October 25, 1898.

Application filed March 1, 1898. Serial No. 672,195. (No model.)

To all whom it may concern:

Be it known that I, JACOB B. STRUBLE, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Indication-Boxes for Switches, of which improvements the following is a specification.

It is characteristic of the latest type of electropneumatic switch and signal mechanism that the switch-lever can be shifted sufficiently far to effect through suitable interposed mechanism an unlocking, shifting, and locking of the switch when shifted, but is prevented from being shifted sufficiently far to unlock the signal-lever by a lock electrically controlled from the switch mechanism. Two of these switch-lever locks—one controlling normal and the other reverse movements of the lever—are employed. It has heretofore been customary to maintain the circuit of one lock, as the normal, closed until the switch had been unlocked, shifted, and locked in reverse position by the described partial movement of its lever and then to break the normal lock-circuit and complete the reverse lock-circuit. Hence the switch may be locked in one position while the indication at the machine shows the switch locked in the opposite position.

The object of this invention is to provide for the breaking of one indication-circuit as a condition precedent to the unlocking and shifting of the switch, the other indication-circuit being closed after the switch has been locked in its new position, so that the operator at the machine may have accurate information as to the position or condition of the switch.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan view of the mechanism controlling the indicating-circuits. Fig. 2 is a view, partly in elevation and partly in section, of the controlling mechanism; and Fig. 3 is a transverse section, the plane of section being indicated by the line III III, Fig. 2.

The inclosing box or case 1, which is preferably provided with a hinged lid 2, is secured on the cross-ties 3 in such relation to the mechanism for operating the rails and locks that the slide-bar 4 will be moved simultaneously with or slightly prior to the shifting of such switch locks or rails. This slide-bar is preferably formed integral with the slide-plate of the switch-operating mechanism and is provided with lugs or bosses 5 5ª, arranged to engage one or the other of the prongs forming the jaws 6 6ª, which are formed in sleeves 7 7ª. These sleeves are loosely mounted on pins 8 8ª, so secured in the sides of the box 1 that the jaws will project down into paths of movement of the bosses 5 5ª on the slide-bar 4. The sleeves 7 7ª are provided with arms 9 9ª, which have their ends pivotally connected to blocks 10 10ª, which are movably mounted in line with each other in suitable bearings in the box or case 1. These sliding blocks are provided with contacts preferably constructed in the form of rollers 11 11ª, having their bodies formed of rubber or other insulating material and their peripheries by metal sleeves. As the blocks are shifted back and forth the rollers will be moved into and out of contact with the springs 12 12ª, which are secured on suitable insulating-supports in the box or case, at each end thereof and on opposite sides of the sliding blocks, and form terminals of the indicating-circuits.

The initial movements of the sliding blocks are effected positively by the sliding bar 4; but the movements are completed by springs suitably arranged to be compressed or placed under tension by the initial positive movements of the blocks. A convenient manner of arranging the springs and connecting them with the blocks is clearly shown in the drawings. The springs 13 are secured at one end to the walls of the box or case or other suitable abutment and have their free ends connected by links 14 to the sliding blocks. As the blocks are shifted from either position the pair of links connecting each block to the actuating-springs are brought into alinement with each other, thereby placing the springs under tension, which will be effective to complete the movement of the blocks as soon as the links have been moved slightly out of alinement.

The blocks are made of such a length, and

the contact-rollers are so mounted thereon, and the pairs of contact-springs 12 12ª are arranged such a distance apart that both circuits cannot be closed at the same time. The boss 5 is so arranged on the slide-bar 4 that it will engage and shift the jaw 6 and thereby shift the block 10 to break the normal indication-circuit before the switch-rails are unlocked. The boss 5ª is so located that it will not engage the jaws 6ª to shift the block 10ª until after the switch-rails have been shifted and locked in their new position.

It will be observed that the block which was shifted to complete the indication-circuit is held in such position by the boss or lug which effected the movement of said block. It will also be observed that when both blocks are in normal position—*i. e.*, with one indication-circuit broken and the other closed—the block which was shifted to break one indication-circuit is held in such position by the block shifted to close the other circuit, the latter being held by its shifting lug or boss, as described.

I claim herein as my invention—

1. The combination of two contacts forming terminals of switch-indicating circuits, two movable contact-blocks for closing said circuits, and means for shifting one of said blocks prior to the unlocking of the switch and the other block subsequent to the locking of the switch in its shifted position, substantially as set forth.

2. The combination of two contacts forming terminals of switch-indicating circuits, two movable contact-blocks for closing said circuits, means for shifting one of said blocks before and the other after the shifting of the switch-rails, and means for locking the blocks when shifted, substantially as set forth.

3. In an indication-box, the combination of two pairs of springs forming terminals of switch-indicating circuits, two blocks provided with contacts for engagement with said springs, pivotally-mounted jaws connected to said blocks and a slide-bar provided with bosses arranged to engage and shift said jaws, substantially as set forth.

4. In an indication-box, the combination of two pairs of springs forming terminals of switch-indicating circuits, two blocks provided with contacts for engagement with said springs, said blocks being so constructed and their contact so arranged thereon, that one block will hold the other block with its contact out of operative relation to springs and means for shifting the blocks in succession, substantially as set forth.

5. In an indication-box, the combination of two pairs of springs forming terminals of switch-indication circuits, two movable blocks provided with contacts, springs arranged on opposite sides of the blocks, links connecting the springs with the blocks, and means for positively shifting the blocks a distance sufficient to bring them into and slightly beyond alinement with each other, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JACOB B. STRUBLE.

Witnesses:

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F. E. GAITHER.