(No Model.) 2 Sheets—Sheet 1.

J. T. HAMBAY.

LOCK FOR SIGNAL INDICATORS.

No. 456,952. Patented Aug. 4, 1891.

FIG. 1.

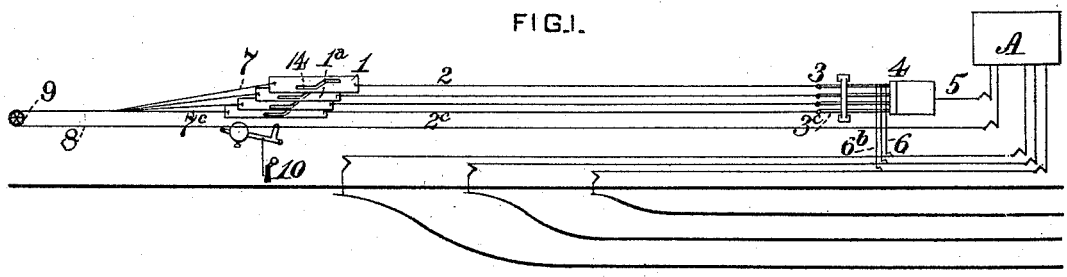


FIG. 2.

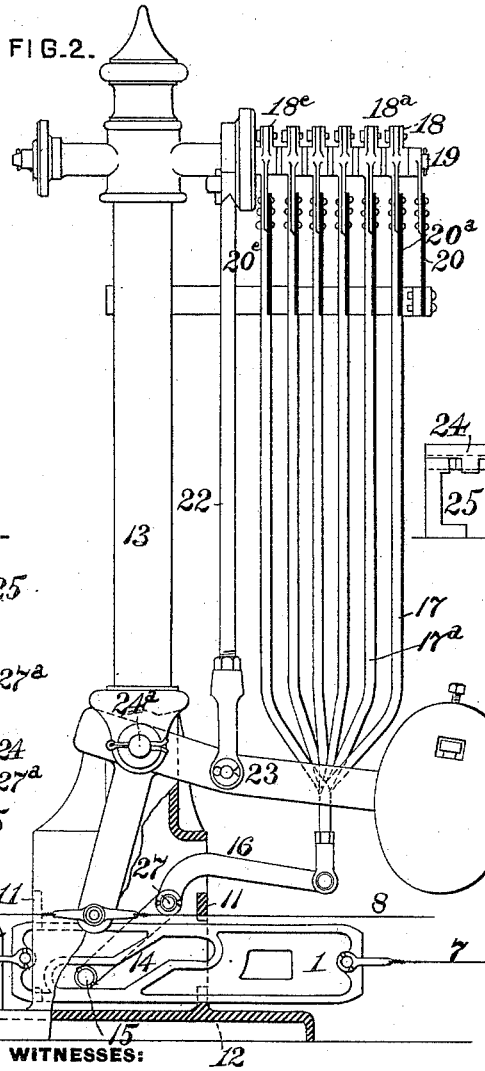


FIG. 3.

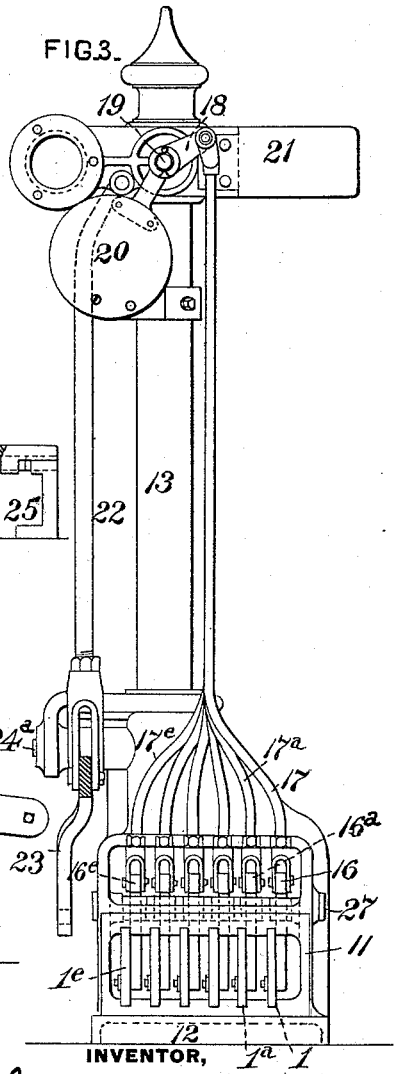


FIG. 7.

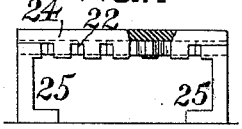
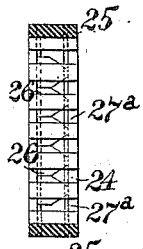


FIG. 6.



WITNESSES:

Dawin S. Wolcott

F. E. Gaither

INVENTOR,

James T. Hambay

by George H. Christy

Att'y.

(No Model.) 2 Sheets—Sheet 2.

J. T. HAMBAY.

LOCK FOR SIGNAL INDICATORS.

No. 456,952. Patented Aug. 4, 1891.

FIG 4.

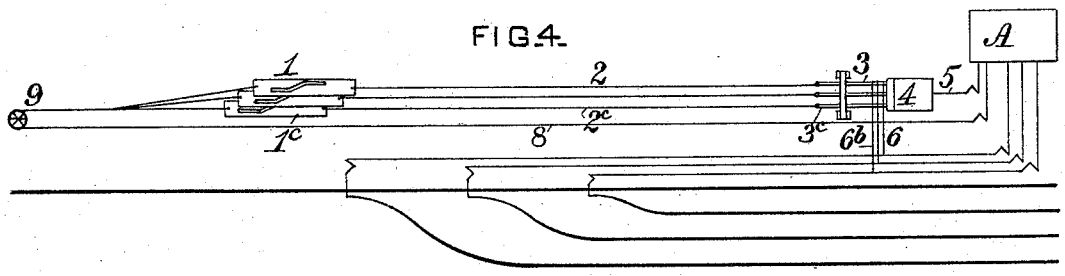


FIG 8.

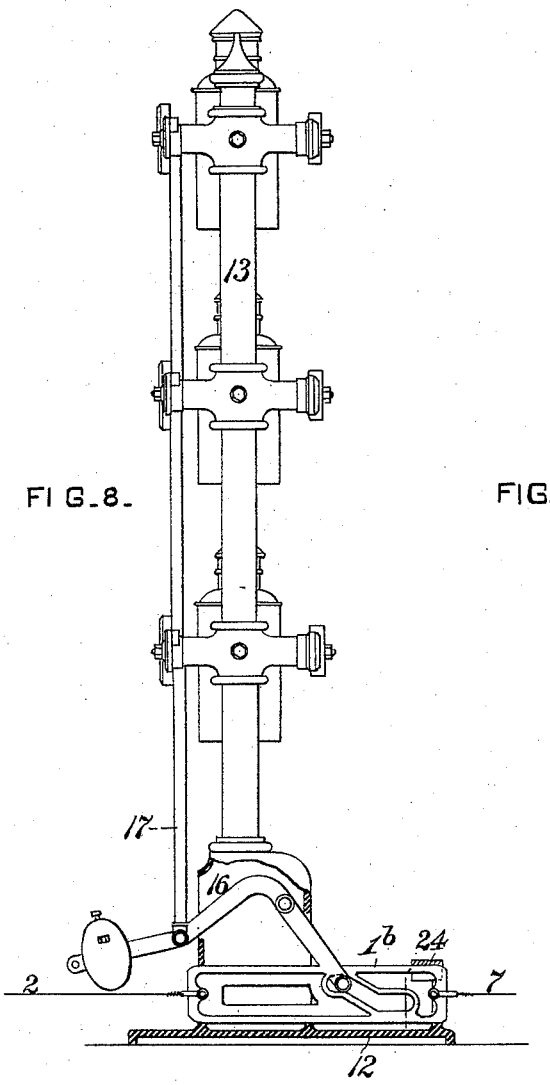
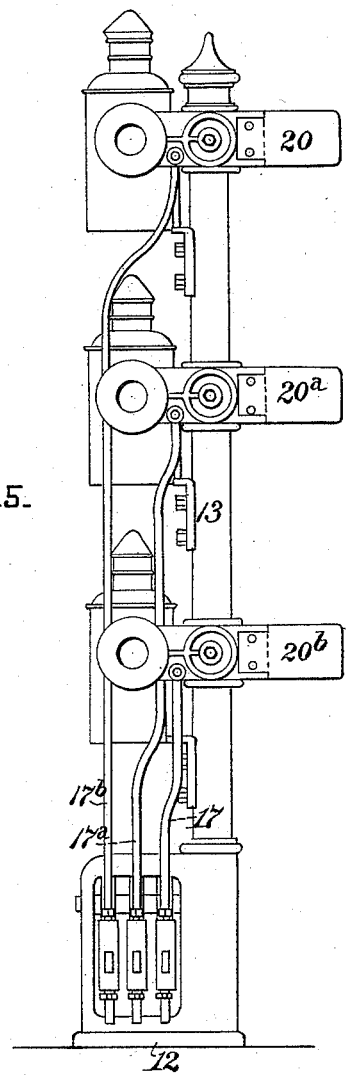


FIG 5.



WITNESSES:

Darwin S. Wolcott

F. E. Gaither

INVENTOR,

James T. Hambay

by George H. Christy

Att'y.

UNITED STATES PATENT OFFICE.

JAMES T. HAMBAY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE UNION SWITCH AND SIGNAL COMPANY, OF SAME PLACE.

LOCK FOR SIGNAL-INDICATORS.

SPECIFICATION forming part of Letters Patent No. 456,952, dated August 4, 1891.

Application filed November 3, 1890. Serial No. 370,133. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HAMBAY, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Locks for Signal-Indicators, of which improvement the following is a specification.

The invention described herein relates to certain improvements in that form of switch and signal apparatus wherein one signal is employed for controlling a series of two or more switches in connection with indicators to point the track for which the switch has been adjusted, or a series of signals are employed for the same purpose. These indicators are usually operated by means of cam-plates arranged on or near the signal-post. Such cam-plates, having independent connections to the bars of the selector, are connected by wires of greater or less length to the wire or rod leading to the signal in order that the proper indicator may be moved to position at the same time as or a little ahead of the signal. Hence in pulling an indicator and the signal to clear, the wires connecting the cam-plates of the other indicators to the signal-shifting wire or rod are slackened, and when so slackened the wires leading from the selector to the other cam-plates are liable to kink and thereby pull the cam-plates of the other indicators forward sufficiently to raise the other indicators.

The object of the present invention is to provide a lock which will prevent, when one cam-plate has been shifted, any forward movement of the other cam-plates until the first has been returned to normal; and, in general terms, the invention consists in the construction and combination of mechanical devices or elements, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a diagrammatic view showing the relative arrangement and connections of the selector-indicator cam-plates and one signal. Figs. 2 and 3 are side and front elevations of a signal-post having the signal and indicators, their operating mechanism, and the locking mechanism attached thereto. Fig. 4 is a view similar to Fig. 1, showing the arrangement of parts where the indicators are used alone as signals for each switch. Figs. 5 and 8 are views similar to Figs. 2 and 3, of the construction of signal mechanism employed in Fig. 4. Fig. 6 is a plan view looking at the under side of the locking mechanism; and Fig. 7 is a front elevation of the locking mechanism, a portion thereof being broken away.

As shown in Fig. 1, the cam-plates 1 1^a, &c., are independently connected by rods or wires 2 to the bars 3 3^a, &c., of the selector 4, which may be of any suitable construction known in the art. The selector has, as is customary, a single connection 5 to an operating-lever in the signal-tower A, the bars 3 3^a, &c., being shifted into engagement with the connection 5 by slides 6 6^a, &c., which are operated by the switches of the several tracks or by the rods leading to such switches, as shown. The front ends of the cam-plates 1 1^a, &c., are connected by wires 7 7^a, &c., to a wire 8, which, passing around a guide-pulley 9, is connected to the lever for operating the signal-blade 10, and passes thence back to a lever in the signal-tower A.

The cam-plates 1 1^a, &c., are arranged in vertical slots formed in vertical plates 11, formed on a bed-plate 12, preferably secured to suitable foundations at the foot of the signal-post 13. In these plates are formed cam-slots 14, and in these slots are arranged the pins 15, secured to one end of the bent levers 16 16^a, &c., pivoted, as shown, on a shaft 27, supported at its ends in side pieces on the bed-plate 12, as shown in Fig. 3. To the opposite ends of these levers are attached the rods 17 17^a, &c., which have their opposite ends connected to one end of the levers 18 18^a, &c., loosely pivoted, as shown, to a shaft 19, mounted, as shown in Figs. 2 and 3, in suitable bearings on the signal-post 13 at or near its upper end. Disks 20 20^a, &c., numbered or otherwise marked in accordance with the several tracks or sidings, are attached to the free ends of the levers 18 18^a, &c. A semaphore-blade 21 is secured to the shaft 19, and to said blade is connected one end of a rod 22, the opposite end of the rod being connected to one arm of a bell-crank lever 23, pivoted on a pin 24^a, secured to the signal-post at or near

its lower end. The other arm of this bell-crank lever is connected to the back wire 8, as shown in Fig. 1, so as to insure a movement of the indicator-blades prior to or simultaneous with the shifting of the semaphore-blade. As shown in Fig. 2, the bell-crank 23 is weighted, so as to counterbalance the weight of the blade of the semaphore.

A cross-bar 24, provided with a longitudinal groove or passage, is supported in front of the cam-plates 1 1^a, &c., by posts or standards 25. A series of transverse slots 27^a are formed in the cross-bar, which is arranged at such a height relative to the cam-plates that the upper edges thereof will pass through said slots. As shown in Figs. 6 and 7, the edges of the blocks 26 are beveled toward the cam-plates. The blocks 26 are made of such a width relative to the length of the groove or passage in the cross-bar, the ends of said groove or passage being closed by the posts or standards 25, that said blocks have only a movement equal to or slightly greater than the thickness of the cam-plates, so that when one of said plates lies between two of said blocks the other cam-plates are locked as against any forward movement.

In the plant indicated in Fig. 1, the signal controlling the movement of trains to the sidings is normally at "danger" and the switches for clear main line.

When it is desired to admit a train to one of the sidings, the proper lever in the signal-tower is shifted, thereby shifting not only the switch, but also one of the slides 6, for the purpose of causing the proper bar 3 of the selector to engage the connection 5, leading to signal-operating lever in the signal-tower. The signal-lever is then shifted, thereby pulling one of the cam-plates forward and between the locking-blocks 26, and also through one of the wires 7, connecting the cam-plates and signal or back wire 8, setting the signal to "safety." As hereinbefore stated, the forward movement of one of the cam-plates and its wire connection 7 will loosen up the other wires 7^a 7^b, &c., and the kinking or resilience of said wires will tend to pull the other cam-plates 1^a 1^b forward. Such forward movement of these cam-plates is, however, prevented by the locking-blocks, which have been crowded together by the entrance of the cam-plate 7 between two of them, as above stated.

As shown in Figs. 8 and 5, the indicators may be employed as signals, in which case the semaphore-blade 21 will be omitted, the disks 20 20^a, &c., being properly shaped to serve as semaphores.

I claim herein as my invention—

1. The combination of a series of two or more indicators, cam-plates for shifting said indicators, and a locking mechanism for locking all of the cam-plates except that one controlling the indicator for which the switch has been set, substantially as set forth.

2. The combination of a series of two or more indicators, cam-plates for shifting said indicators, and a locking mechanism operated by the forward movement of one of the cam-plates to lock the other plate in normal position, substantially as set forth.

3. The combination of a series of two or more indicators, cam-plates for operating the indicators, a longitudinally-grooved bar provided with transverse slots and arranged across the lines of movement of the cam-plates, and one or more movable blocks arranged in the groove in said bar and having a range of movement approximately equal to the thickness of one of the cam-plates, substantially as set forth.

4. The combination of a series of two or more indicators, interlocking mechanism, a selector operated by such mechanism, connections between the selector and the indicators, and locking mechanism for said connection and adapted on the movement of one of the indicators to operative position to lock the other indicators to normal, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES T. HAMBAY.

Witnesses:

DARWIN S. WOLCOTT,

R. H. WHITTLESEY.