

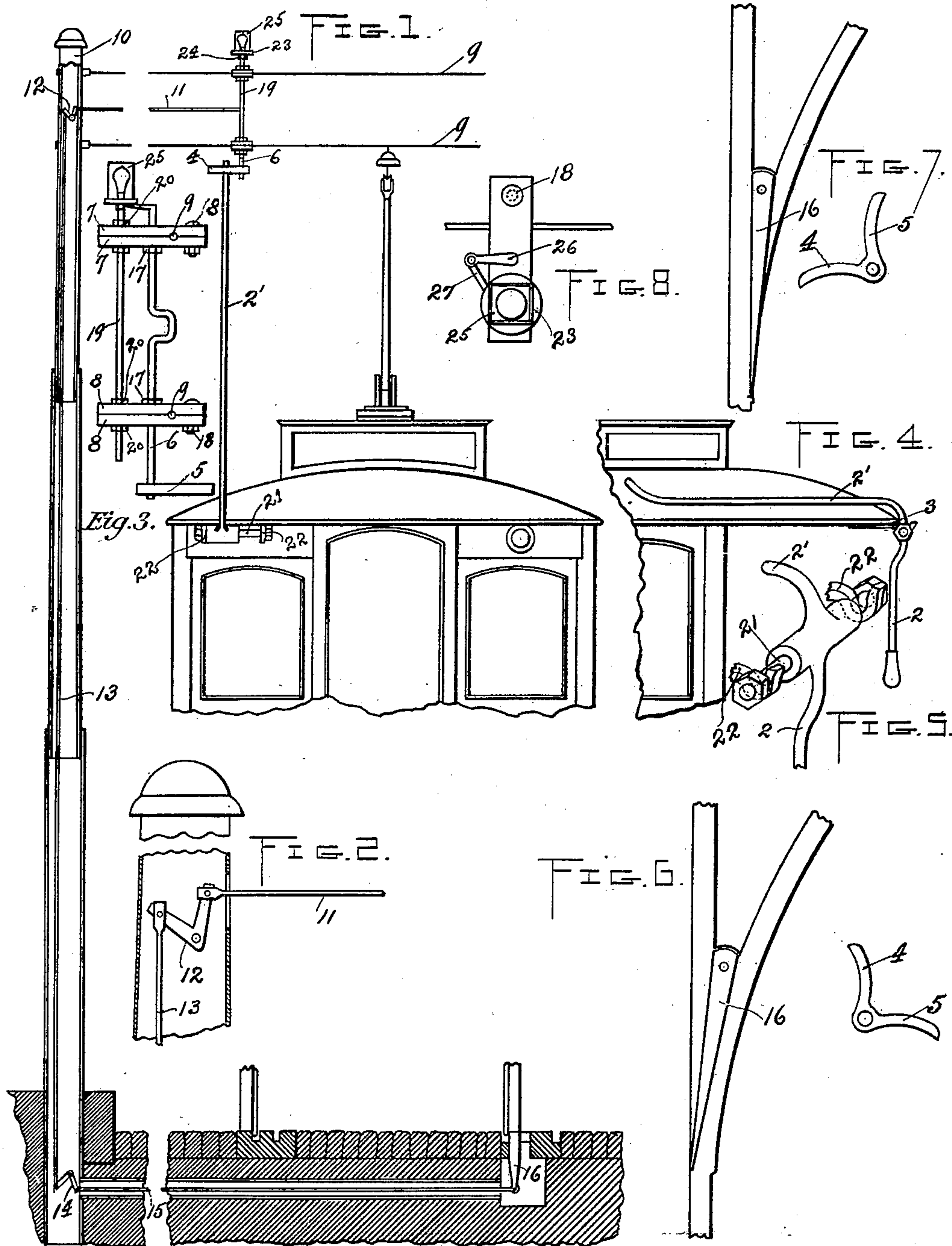
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Patented June 13, 1899.

A. W. BAKER.
RAILWAY SWITCH OPERATING MECHANISM.

(Application filed Mar. 7, 1898.)

(No Model.)



WITNESSES:

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RAILWAY-SWITCH-OPERATING MECHANISM.

[SPECIFICATION forming part of Letters Patent No. 626,662, dated June 13, 1899.

Application filed March 7, 1898. Serial No. 672,849. (No model.)

To all whom it may concern:

Be it known that I, AUGUST WILLAM BAKER, a subject of Her Majesty the Queen of Great Britain, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Railway-Switch-Operating Mechanism, of which the following is a specification.

My invention relates to apparatus for the automatic throwing of railway-switches, and is especially adapted for use in connection with electric street-railways having an overhead-conductor system. Signal devices indicating the position of the switch to the motorman of an approaching car are provided, and I employ devices whereby a swinging lever or car-arm may be elevated by the motorman to engage a trip on the overhead system, so that the moving car will automatically throw the switch.

The following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a broken elevation, partly in section, showing a street-car system provided with my improved switch mechanism. Fig. 2 is a detail view showing one of the bell-crank levers and connecting-rods I employ. Fig. 3 is a side elevation showing the vertical crank-shaft, at the lower end portion of which the trip-arms are attached. Fig. 4 is a side elevation of the car, showing the car lever or arm. Fig. 5 is a perspective view of the car-arm journal. Figs. 6 and 7 are diagrammatic views showing the relative position of the movable arm of the switch to the position of the arms of the trip. Fig. 8 is a top plan view of the signal device I employ.

In the drawings, 2 represents a lever pivoted to the car-roof at 3 and having a long arm 2', which may be elevated by the motorman for the purpose of engaging either of the right-angled arms 4 and 5 of the trip device.

6 is a vertical crank-shaft, to the lower end portion of which the trip is attached. This crank-shaft is journaled in plates 7 7 and 8 8, clamped to the cables 9 9, supported transversely over the track by poles 10. A rod 11 connects the vertical crank-shaft 6 with one arm of a bell-crank lever 12, the other arm

being connected by a rod 13, extending within the hollow pole to a second bell-crank lever 14 beneath the grade of the tracks. To the lever 14 is pivoted a rod 15, connected with and actuating the movable member of the switch 16.

The vertical operating-crank 6 is provided with collars or burs 17 17, (shown in Fig. 3,) holding the crank in position in the journal-plates, which plates are held in position on the supporting-cables by the bolt 18 18. To prevent the binding of the crank-arm shaft in its journals, a stay-rod 19, having collars 20, is employed, which serves to hold the journal-plates in the same relative position to each other.

It will be seen that when the movable bar of the switch is in such a position as to divert the car from the course desired the driver of the car has only to raise the lever-arm 2 as the car approaches the switch. The upper curved end of the arm 2' will engage the trip-arm as the car moves forward, swinging the vertical crank-shaft, which by means of the bell-crank levers and the connecting-rods throws the switch-bar before the wheels of the car reach the switch.

The crank 6 is designed to be so coupled up with the movable switch-bar 16 that a quarter-revolution of the crank will effect a complete throw of the switch.

The two trip-arms 4 and 5 are placed at right angles to each other, as shown in Figs. 6 and 7, and are preferably curved to insure the complete throwing of the switch. The trip-arms are so attached to the vertical crank that when the switch is completely thrown one of the arms will be in a transverse position to the line of the track, as shown in Figs. 6 and 7, and the other arm of the trip shall be on the opposite side of the vertical shaft from that on which a main-line car would approach to take the switch. As only a quarter-revolution of the vertical crank is necessary to throw the switch, it will be apparent that one of the trip-arms will be in a transverse position to the line of the track at all times irrespective of the position of the switch-bar and that whether the switch may be open to the main line or to the siding it will be automatically shifted if the motorman of the approaching car raises the lever 2.

In order that a single car-arm may be made to engage either trip-arm, I employ a rod 21, (shown in Fig. 5,) upon which the car-arm 2' is journaled. This rod is supported by the 5 hooks 22 22, attached to the front of the car and separated sufficiently so as to permit of a lateral movement of the car-arm, thus enabling the motorman to engage with the arm the trip-arm on either side of the vertical 10 crank.

It will be obvious that as the trip-arm is on one side of the vertical crank in one position of the switch-bar and on the other side of the vertical crank in the other position of the 15 switch the position of the trip-arm will indicate to the motorman the position of the switch-bar.

While the trip-arm is a sufficient target to indicate the position of the switch-bar during 20 the daytime, it might be invisible to the motorman at night, and a lamp-signal device is accordingly provided. It consists of a plate 23, attached to a collar 24, loosely surrounding the upper portion of the stay-rod 19. 25 Upon the top of the plate is placed a lantern 25, designed to inclose an incandescent lamp, two of the opposite faces of the said lantern being provided with colored glass.

A crank-arm 26 is attached to the top end

portion of the crank-shaft 6, the end of the 30 said crank-arm being connected by a rod 27 with the movable plate 23, causing the said plate to make a half-revolution at each quarter-revolution of the vertical crank. It will be apparent that at night a colored or a white 35 light will be displayed, according to the position of the switch-bar.

The efficiency of the device will be apparent to those skilled in the art.

Many changes may be made in the construction and arrangement of the parts without departing from my invention, since 40

I claim—

In a railway-switch-operating mechanism a vertically-extending crank-shaft carried in 45 stationary bearings over the track having at least two crank-arms extending horizontally at an angle to each other, connections between the crank-shaft and the switch and a movable car-arm arranged to engage and actuate either 50 of said crank-arms.

Signed by me, at Cleveland, Ohio, this 5th day of March, 1898.

AUGUST WILLAM BAKER.

Witnesses:

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