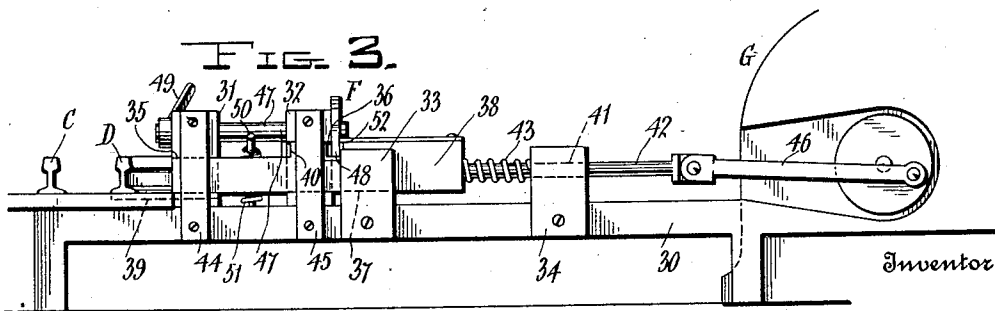
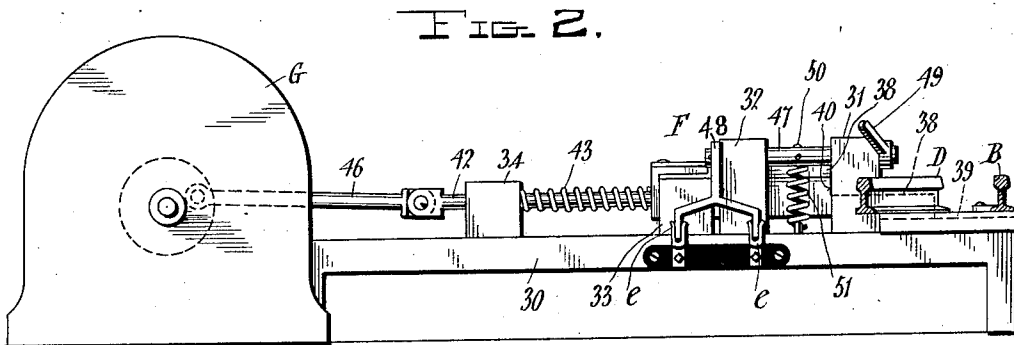
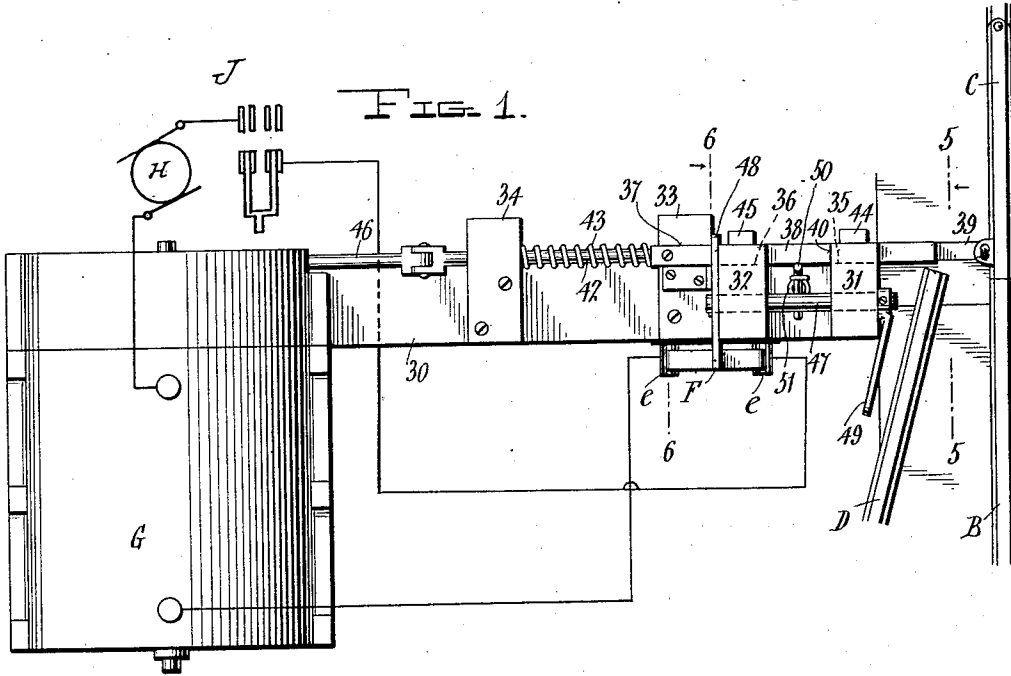


J. BAILEY.
ELECTRIC DELIVERY SYSTEM.
APPLICATION FILED MAR. 22, 1910.

1,020,016.

Patented Mar. 12, 1912.

2 SHEETS—SHEET 1.



Witnesses

Henry D. Wright

John Bailey

By

Charles C. Bailey

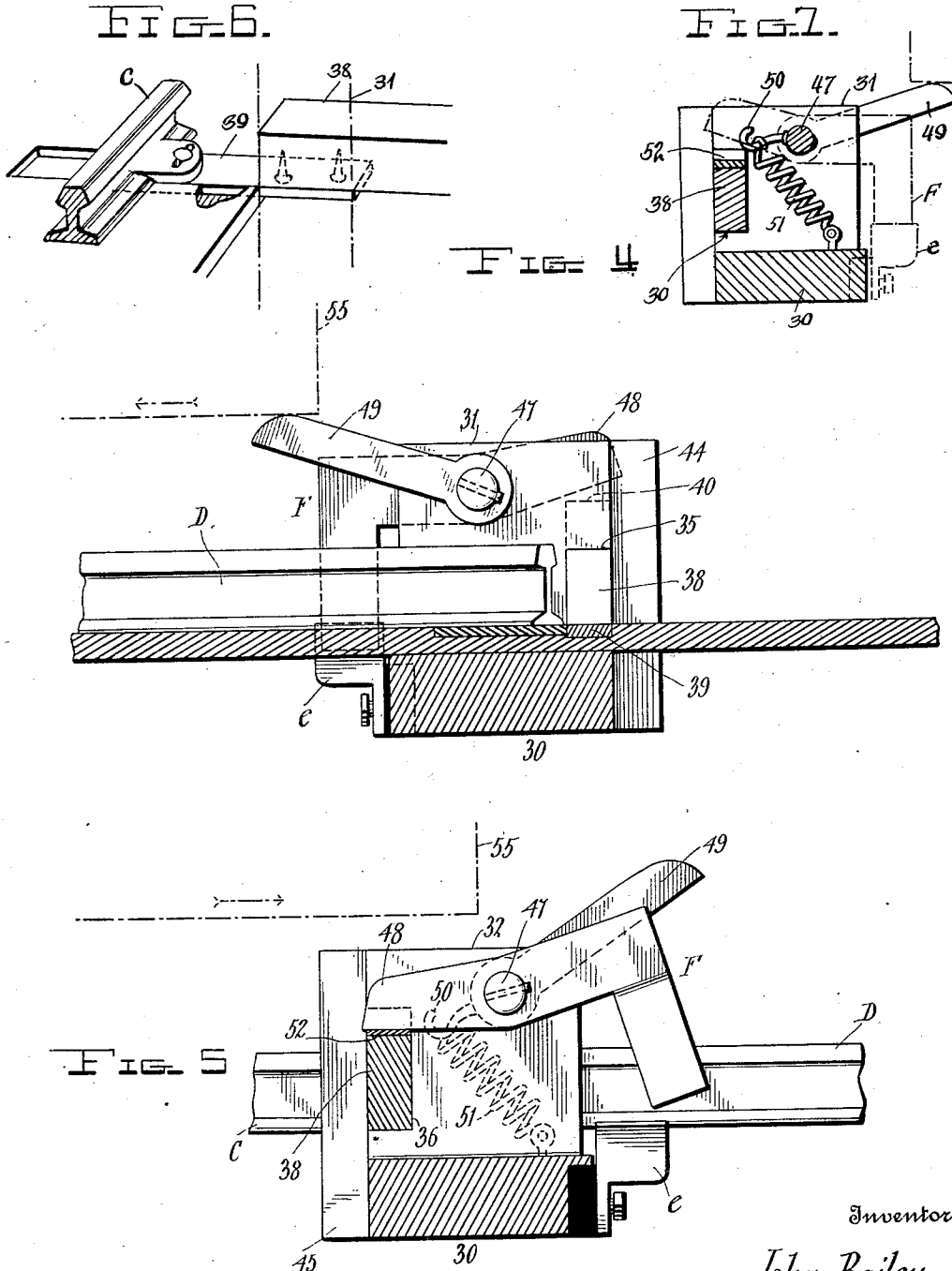
Attorneys

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Witnesses

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UNITED STATES PATENT OFFICE.

JOHN BAILEY, OF GREAT FALLS, MONTANA.

ELECTRIC DELIVERY SYSTEM.

1,020,016.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed March 22, 1910. Serial No. 550,837.

To all whom it may concern:

Be it known that I, JOHN BAILEY, a citizen of the United States, residing at Great Falls, in the county of Cascade, State of Montana, have invented certain new and useful Improvements in Electric Delivery Systems; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electrically controlled switch actuating mechanisms.

The object of the invention resides in the provision of an electrically controlled switch actuating mechanism which includes a common means for automatically breaking the actuating circuit and locking the switch after the latter has been operated to open position.

With the above and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters of reference denote like corresponding parts in the several views in which,

Figure 1 is a plan view of an electrically controlled switch operating mechanism constructed in accordance with the invention with the supplying circuit shown in operative connection therewith. Fig. 2 a side elevation of the switch mechanism illustrated in Fig. 1 with the supply circuit removed. Fig. 3 a side elevation of the switch mechanism viewed from the side opposite from that shown in Fig. 2 and with the switch shown in opened position. Fig. 4 a section of the line 5—5 of Fig. 1. Fig. 5 a section on the line 6—6 of Fig. 1, the parts exposed to view therein being shown in the position they would occupy when a switch is locked open. Fig. 6 a detail perspective view showing the connection between the switch operating mechanism and the switch rail, and Fig. 7 a section on the line 7—7 of Fig. 3.

Referring to the drawings the invention is shown as applied to a monorail system, but it will be perfectly apparent that same

may be associated with the switch of a two rail track with equal facility and efficiency as in the track system illustrated.

B indicates the main track and D the siding which latter is adapted to be connected with the main track by means of the pivoted switch point C. The switch operating mechanism which constitutes the subject matter of this invention is disposed adjacent the switch point C and is actuated by an electric motor G connected therewith to operate the switch point C to open position for the purpose of diverting a car traveling upon the main track B to the siding D.

The switch operating mechanism comprises a frame formed of a base 30 disposed transversely of the track B. Mounted on the upper face of the base 30 near its outer end is a pair of spaced uprights 31 and 32 while also mounted on the upper face of said base inwardly of the uprights 31 and 32 is another pair of spaced uprights 33 and 34, the last named uprights terminating short of the uprights 31 and 32. The uprights 31 and 32 have formed in corresponding sides horizontal recesses 35 and 36 respectively, while the upright 33 has formed in its upper end a recess 37 in alinement with the recesses 35 and 36. Mounted for a longitudinal sliding movement in the recesses 35, 36 and 37 is a bar 38 which has secured to and projecting from its outer end a foot 39 which is suitably connected to the free end of the switch point C so that the sliding of said bar in one direction will move said switch point to closed position and in the opposite direction to open position. The inner end of the bar 38 is enlarged and the recess 36 is accordingly made wider than the recess 35 so as to receive the enlarged inner end of said bar. A shoulder 40 is formed by the enlarged inner end of the bar and is adapted to engage the inner face of the upright 31 to terminate the movement of the switch point C when same is moved to closed position under the influence of the movement of said bar.

Passing transversely through the upright 34 is a cylindrical aperture 41 which forms a bearing for a sliding rod 42 the outer end of which is attached to the inner end of the bar 38. A spring 43 encircles the rod 42 and has one end bearing against the inner end of the bar 38 and the other end against

the side of the upright 34; said spring thus constantly tending to move the bar 38 outwardly to maintain the switch point C in closed position. The bar 38 is held against lateral displacement from the recesses 35 and 36 by cleats 44 and 45 which are disposed respectively across said recess and attached at their terminals to the uprights 31 and 32. Mounted on the extreme inner end of the base 30 is an electric motor G which is operatively connected with the mechanism previously described by means of a pitman 46 one end of which is eccentrically pivoted to the shaft of said motor and the other end pivotally connected to the inner end of the rod 42. Journaled between and projecting through the uprights 31 and 32 is a shaft 47. Nonrotatably mounted on the projecting inner end of said shaft is an arm 48, while another arm 49 constituting a tripping device is nonrotatably mounted on the projecting outer end of said shaft. Another arm 50 is fixed to the shaft 47 between the uprights 31 and 32 and has secured thereto one end of a spring 51, the other end of said spring being secured to the upper face of the base 30 and said spring constantly tending to rotate the shaft 43 so as to force one end of the arm 48 into engagement with the bar 38. A recess 52 is formed in the upper face of the bar 38 and is so positioned that when said bar is actuated to move the switch point C to open position, the said recess will move directly under one end of the arm 48 and permit said arm to enter therein and thereby lock the bar against movement under the influence of the spring 43 to return the switch point C to closed position. The release of the bar 38 from engagement with the arm 48 is effected by providing a car or the like with a projection which is positioned to contact with the arm 49 when said car is positioned into the siding D. This engagement with the arm 49 with the projection on a passing car will serve to partially rotate the shaft 47 so as to lift the arm 48 out of the recess 52, when the bar is free to slide forward under the influence of the spring 43 and return the switch point C to closed position.

As it is necessary to automatically break the circuit through the motor G when the switch point C has been moved to open position there is mounted on the base 30 a pair of electrical contacts *e*, while the end of the arm 48 which is adjacent said contacts terminates in a forked switch member F adapted to engage the contacts *e*, when the switch point C is closed and thus connects said contacts and in itself forms part of the motor circuit. One post of the motor G is then connected with a generator H by a conductor 4 while the other post thereof is connected with one contact *e* by a conductor 7. The other contact *e* is then connected with a switch J preferably located in a central sta-

tion by a conductor 8 and said switch is in turn connected with the other pole of the generator H by a conductor 1.

From the construction just described it will be apparent that in order to move the switch point to open position and divert a car from the main track to the siding D it is only necessary to move the switch J to the position shown in dotted lines when the circuit will be completed through the conductor 4, motor G, conductor 7, contact *e*, switch member F, contact *e*, conductor 8, switch J, conductor 1 and generator H. The completion of this circuit will operate the motor G, which operation of said motor will cause the bar 38 to slide inwardly and move the switch point C to open position. At the termination of this inward movement of the bar 38, the recess 52 therein will move under the arm 48 and said arm will be forced into said recess and lock the switch in open position, the spring 51 serving to impart the movement of the arm 48 last mentioned by rotating the shaft 47. When the arm 48 has been moved into the recess 52 as previously stated the switch member F will be simultaneously moved out of engagement with the contacts *e* and the circuit through the motor broken to effect the stopping thereof. After the motor is thus stopped and the switch locked in open position the actuation of the arm 49 by a passing car will release the arm 48 from engagement with the bar 38 and the switch will then be automatically moved to closed position under the influence of the spring 43 as previously referred to.

What is claimed is:

1. In an electrically operated switch mechanism, the combination with a switch, of means constantly tending to move the switch to closed position, an electric motor, an electric circuit controlling said motor connections between said motor and switch whereby the movement of said motor will open said switch against said closing tendency, means for automatically locking said switch in open position independent of the stopping of the motor and means for breaking the circuit of the motor simultaneously with the locking of the switch.

2. In an electrically operated switch mechanism, the combination with a switch, of a frame, a bar slidably mounted in said frame and operatively connected with said switch, said bar being provided with a recess, means for moving said bar in one direction to close the switch, an electric motor, a circuit controlling said motor, connections between the motor and said bar whereby the actuation of the motor will move the bar in the opposite direction to open the switch, a pivoted arm mounted on the frame, and means for moving said arm into the recess of the bar whereby the switch is locked in open position, said movement of

the arm to locking position being effected independently of the stopping of the motor.

3. In an electrically operated switch mechanism, the combination with a switch, of a frame, a bar slidably mounted in said frame and operatively connected with said switch, said bar being provided with a recess, means constantly tending to move said bar in one direction to close the switch, an electric motor, a circuit controlling said motor, connections between the motor and said bar whereby the actuation of the motor will move the bar in the opposite direction to open the switch, a pivoted arm mounted on the frame, means for moving said arm into the recess of the bar when said recess is disposed beneath the arm independent of the stopping of the motor whereby the switch is locked in open position and car-
20 operated means for moving said arm out of said recess to release the switch for movement to closed position.

4. In an electrically operated switch mechanism, the combination with a switch, of a frame, a bar slidably mounted in said frame and operatively connected with said switch, said bar being provided with a recess, means for moving said bar in one direction to close the switch, an electric motor, a circuit controlling said motor, connections between the motor and said bar whereby the actuation of the motor will move the bar in the opposite direction to open the switch,

a pivoted arm mounted on the frame, means for moving said arm into the recess of the bar when said recess is disposed beneath the arm whereby the switch is locked in open position, and means actuated by the movement of said arm to locking position to break the motor controlling circuit.

5. In an electrically operated switch mechanism, the combination with a switch, of a frame, a bar slidably mounted in said frame and operatively connected with said switch, said bar being provided with a recess, means for moving said bar in one direction to close the switch, an electric motor, a circuit controlling said motor, connections between the motor and said bar whereby the actuation of the motor will move the bar in the opposite direction to open the switch, a pivoted arm mounted on the frame, means operated independently of the stopping of the motor for moving said arm into the recess of the bar when said recess is disposed beneath the arm whereby the switch is locked in open position, and a switch carried by said arm adapted to break the motor controlling circuit when said arm is moved to locking position.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN BAILEY.

Witnesses:

S. M. WIBERG,
ED. HOGAN.