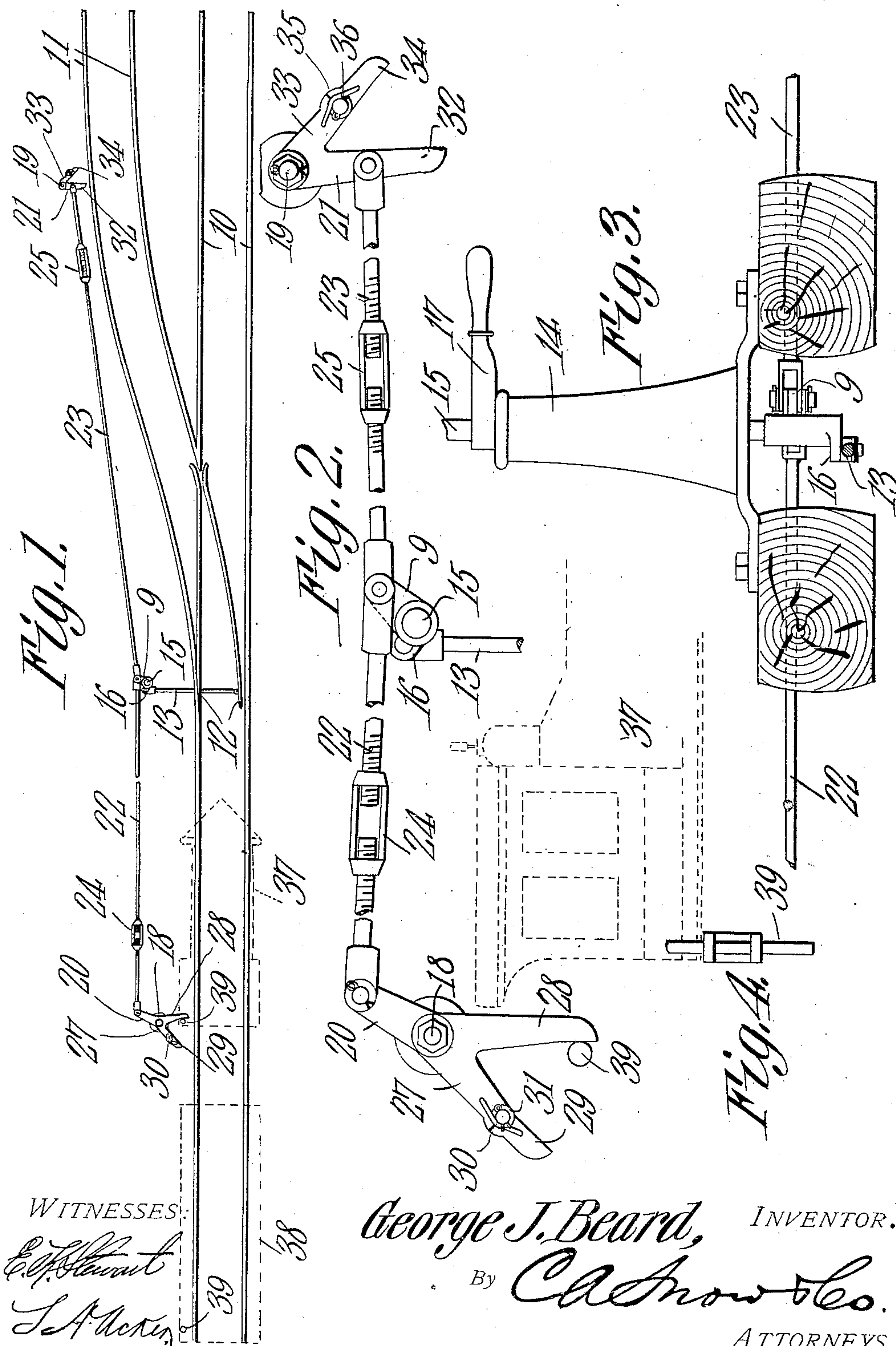


No. 875,651.

PATENTED DEC. 31, 1907.

G. J. BEARD.
SWITCH OPERATING APPARATUS.

APPLICATION FILED MAY 15, 1907.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE J. BEARD, OF WATERLOO, INDIANA.

SWITCH-OPERATING APPARATUS.

No. 875,651.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed May 15, 1907. Serial No. 373,793.

To all whom it may concern:

Be it known that I, GEORGE J. BEARD, a citizen of the United States, residing at Waterloo, in the county of Dekalb and State of Indiana, have invented a new and useful Switch-Operating Apparatus, of which the following is a specification.

This invention relates to railway switch operating apparatus, and has for its object to provide a comparatively simple and inexpensive device of this character in which the switch is under the control of the engineer and other operatives upon a train thereby to permit the throwing of the switch in advance of the train and likewise in the rear of the train after it has passed the switch.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction as hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification and in which corresponding parts are denoted by like designating characters is illustrated the preferred form of the embodiment of the invention, capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages.

In the drawings thus employed:—Figure 1 is a plan view of a section of a main line and siding including a switch and "frog", with the improved operating device applied. Fig. 2 is an enlarged plan view of the operating parts detached. Fig. 3 is an elevation of the switch stand. Fig. 4 is a detail view of one of the movable trip bars carried by the locomotive caboose or other moving structure.

The improved device may be applied to any of the various forms of switch "points" employed upon railways, but for the purpose of illustration is shown applied to an ordinary form of "split switch," in which the main line is represented at 10, the "siding" at 11 and the switch "points" at 12, the latter having the usual switch rod 13 connected thereto and extending laterally therefrom.

Disposed opposite the switch points 12 is a switch stand 14 provided with a standard 15 to which the rod 13 is connected by a crank

arm 16, there being an operating arm 17 secured to the upper end of the standard, as shown.

The standard 13 is preferably extended vertically and supplied with the usual signal "flag" and likewise provided with means for supporting a signal lantern in the usual manner, but as the construction and operation of these devices are so well known they are not illustrated.

Erected at points sufficiently remote from the switch upon either side to insure proper action, are standards 18—19 carrying crank arms 20—21 connected respectively with an arm 9 on the standard 15 by rods 22—23, the latter being preferably provided with turnbuckles 24—25, or other means of longitudinal adjustment.

The crank arm 20 is provided with diverging trip fingers 27—28, which may be integral with the arm 20, the trip finger 27 being provided with a hinged terminal 29 having a stop 30, and spring 31, so that said finger can swing in one direction only. The crank arm 21 is likewise provided with diverging fingers 32—33 with one of the same provided with a hinged terminal 34, stop 35 and controlling spring 36, the finger 32 being preferably a continuation of the arm 21.

The standards 18—19 will preferably be erected sufficiently near the main line rails and siding rails so that a trip member attached to the locomotive and likewise to the caboose of freight trains or the last car of passenger trains may be projected into the paths of the fingers 28 or 32 or the end portions 29 or 34 of the fingers 27, 33, as the case may be, and thus "throw" the switch as the train passes.

The outline of a locomotive and cab is indicated by dotted lines at 37, said locomotive and cab being each provided with a trip bar 39 movably connected thereto and adapted for projection into the path of the trip arms.

The trip bars may be of any suitable construction and operated in any suitable manner, and it is not desired therefor to limit the device to any particular construction of this portion of the apparatus. One of the trip bars will be under the control of the engineer on the locomotive and the other under the control of one of the train crew on the caboose, when employed in connection with freight trains, or on the last coach in the train when employed upon passenger trains. Devices of this character are required more

particularly in connection with the operation of freight trains, but may be employed upon passenger trains, if required.

With the switches of a railway line 5 equipped with the improved devices and the locomotive and caboose or other cars provided with the trip bars, the operation is as follows:—If the switch is set for the main line, the arm 28 will project into the path of the 10 trip arm 39 on the locomotive, but will not be engaged thereby unless the trip bar is depressed, and if the engineer desires to continue on the main line, he will pay no attention to the bar 39, and pass the device with- 15 out effect. If, however, he desires to run upon the siding 11, he simply depresses the trip bar which acting on the finger 28 throws the switch to the siding, as will be obvious. This action also throws the finger 33 with its 20 hinged end 34 into the path of the stop bar so that as the train passes to the siding the stop bar 39 on the caboose or last car of the train may be depressed to strike the end 34 and reverse the motion and close the switch 25 again or in position to conduct the next train along the main line and not upon the siding already occupied and leaving the fingers 32 and 28 in the position shown in Figs. 1 and 2. Then as the train backs off from the siding 30 the downward pressure of the stop bar 39 upon the caboose or last car will engage the finger 32 and open the switch to pass the train to the main line again. This will leave the fingers 27—29 projected into the path of 35 the bars 39, and as the train proceeds on its way, the pressure of the bar 39 on the locomotive will throw the switch for the main line again. It will thus be obvious that the switch can be manipulated from the train in 40 any desired manner and without stopping the train or rendering it necessary for any member of the crew to leave the train to operate the switches.

The device will work equally well upon 45 "blind" as upon "through" sidings, as will be evident from the construction.

The jointed portions of the fingers 27—33 are important features of the invention, as by these means if the jointed arms are ap- 50 proached from the rear when projected, and the trip bars 39 are inadvertently depressed, they will simply bend the jointed ends against their holding springs and do no harm. The jointed arms are thus important safety 55 attachments which prevent accidental breakage of the parts if for any reason the fingers 27 and 33 should be left projected and approached from the rear.

Having thus described the invention what is claimed is:

1. In a switch operating device, a main 60 track and siding having movable switch rails between them, a switch stand having a crank arm operatively connected to said switch rails, a standard spaced from said switch 65 stand and disposed contiguous to the main line track and having a crank arm provided with diverging fingers extending therefrom for alternate projection into the path of trip members movably disposed upon the 70 locomotive and one or more of the cars of the trains passing on the main track, a standard spaced from said switch stand and disposed contiguous to the siding and having a crank arm provided with diverging fingers extend- 75 ing therefrom for alternate projection into the path of said trip bars as the train passes to or from the siding, a connecting rod between said switch stand crank arm and the crank arm of said main line standard, and a 80 connecting rod between said switch stand crank arm and the crank arm of said siding standard

2. In a switch operating device, a main 85 track and siding having movable switch rails between them, a switch stand having a crank arm operatively connected to said switch rails, a standard spaced from said switch stand and disposed contiguous to the main 90 line track and having a crank arm provided with diverging fingers extending therefrom for alternate projection into the path of trip members movably disposed upon the loco- 95 motive and one or more of the cars of the trains passing on the main track, the outer one of said fingers being jointed to swing in one direction, a standard spaced from said switch stand and disposed contiguous to the siding and having a crank arm provided with 100 diverging arms extending therefrom for alternate projection into the path of said trip bars as the train passes to or from the siding, one of the fingers of the siding crank arm being jointed to swing in one direction, a connect- 105 ing rod between said switch stand crank arm and the crank arm of said main line standard, and a connecting rod between said switch stand crank arm and the crank arm of said siding standard.

In testimony that I claim the foregoing as 110 my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE J. BEARD.

Witnesses:

R. H. WEAMER,
L. R. WATERMAN.