

No. 815,637.

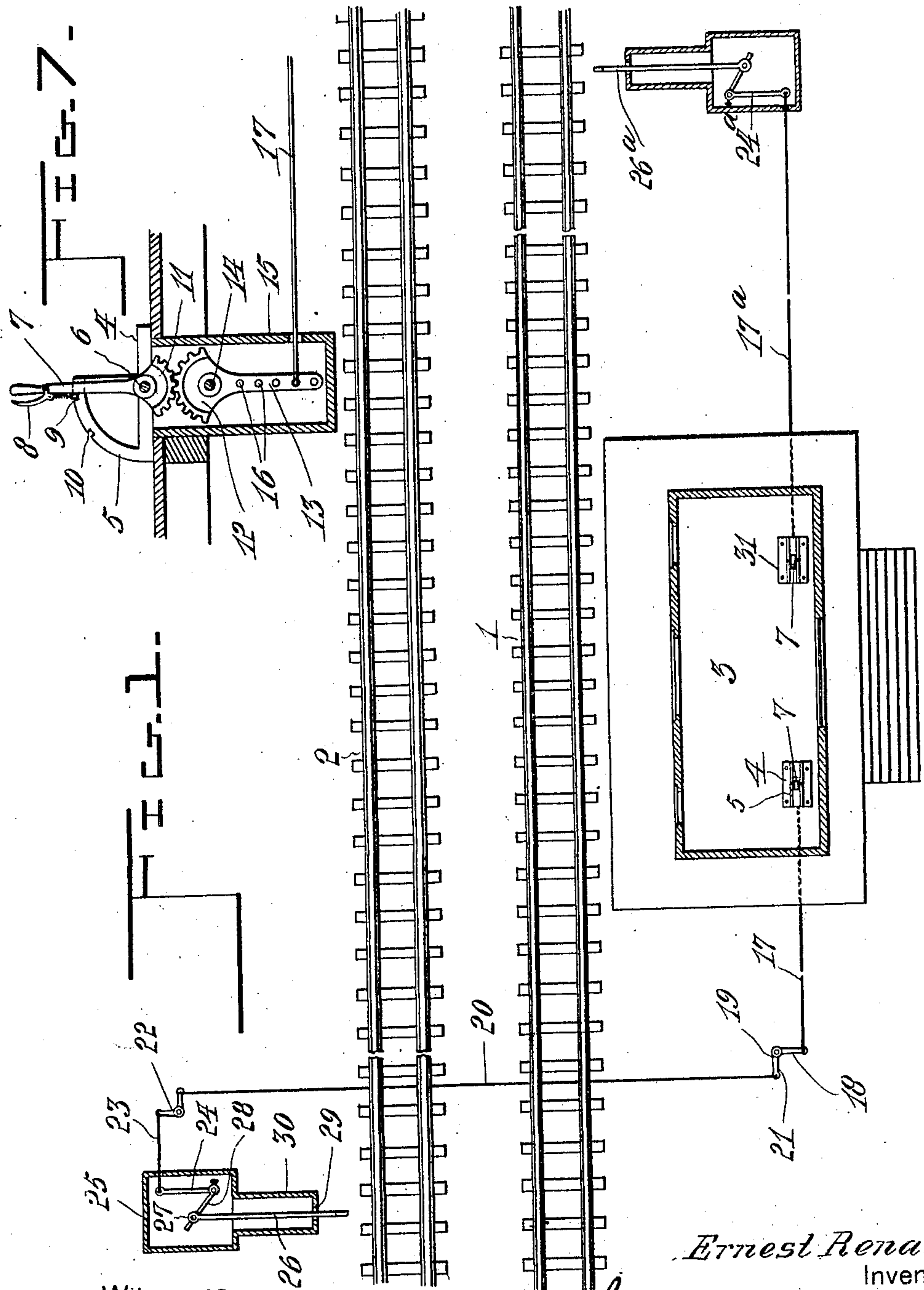
PATENTED MAR. 20, 1906.

E. RENAUD.

TRAIN STOPPING MEANS.

APPLICATION FILED JULY 15, 1905.

3 SHEETS—SHEET 1.



Witnesses:

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J. H. Gibbs

By

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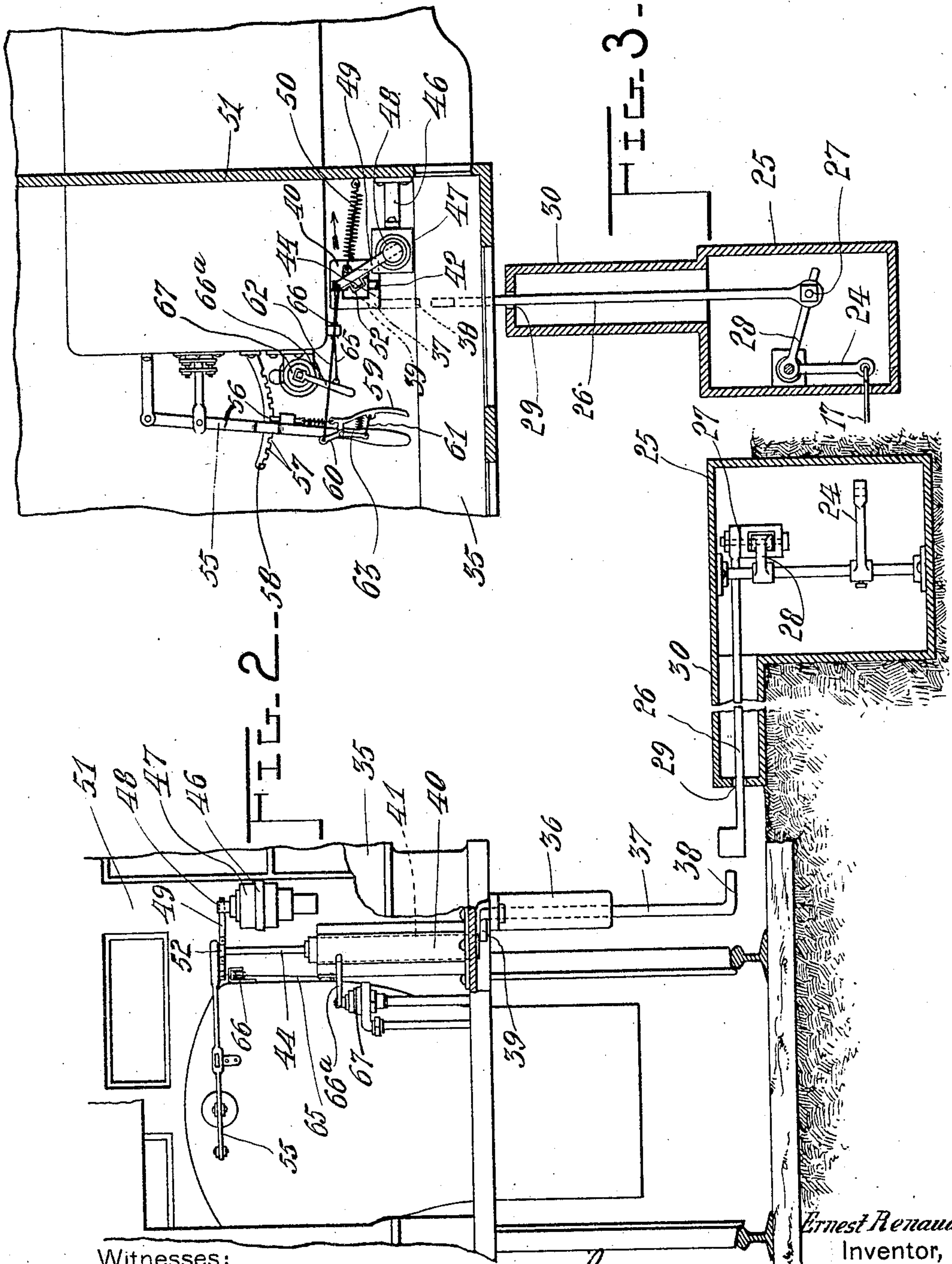
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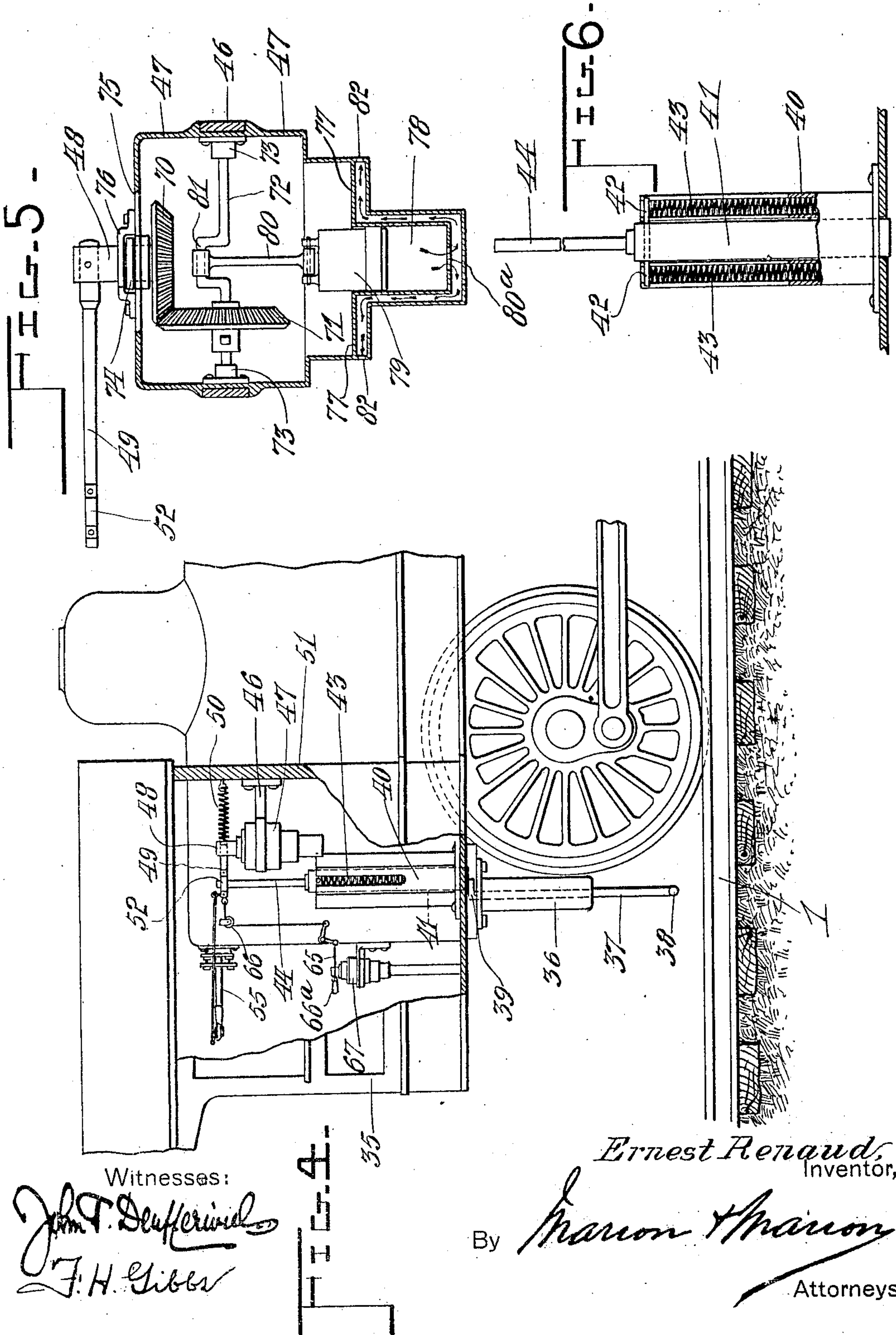
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UNITED STATES PATENT OFFICE

ERNEST RENAUD, OF MONTREAL, CANADA.

TRAIN-STOPPING MEANS.

No. 815,637.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed July 15, 1905. Serial No. 269,780.

To all whom it may concern:

Be it known that I, ERNEST RENAUD, a subject of the King of Great Britain, residing in the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Train-Stopping Means; and I do hereby declare that the following is 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 new and useful improvements in means designed for stopping trains of cars through suitable mechanism which is adapted to be operated from a station or from any suitable location along the track, which mechanism is adapted to shut off the steam in a locomotive in case the locomotive shall pass a station or predetermined point in violation of orders or signals properly displayed and comprises certain features of novelty, all as hereinafter more fully described, and specifically pointed out in the claims.

The object of this invention is to provide simple, economical, and durable means adapted for the purpose described which will be positively operated when properly set by the operator, as hereinafter described.

Referring to the accompanying drawings, in which similar numerals of reference indicate corresponding parts in all the views, Figure 1 is a diagrammatic plan view of a pair of railway-tracks, a station, and ground operating devices, as hereinafter described. Fig. 2 is a fragmentary rear elevational view of a locomotive looking into the cab. Fig. 3 is a plan view of the devices connected with the present invention which are shown in Fig. 2. Fig. 4 is a fragmentary side elevational view of a locomotive equipped with the present invention. Fig. 5 is an enlarged fragmentary sectional view showing a check-valve and an operating-lever hereinafter specified. Fig. 6 is a detached broken elevational view of the weight-socket, supporting-springs, and operating-weight hereinafter described; and Fig. 7 is a detached detail of the station-levers.

Referring to the parts, commencing with Fig. 1, 1 2 are railway-tracks. 3 is a station. 4 is a platform or plate from which rises the segmental rack 5, (shown in detail in Fig. 7,) a stub-shaft 6 being supported thereby and an operating-lever 7 being carried by said stub-shaft. Said operating-lever is provided

with a thumb-latch 8, which is adapted to release the pawl 9, said pawl being adapted to interlock with notches or recesses 10, formed in the perimeter of the segment 5 to lock said lever 7 in predetermined positions. Below the shaft 6 the lever 7 terminates in a segmental gear 11, which meshes with the corresponding gear 12 of the lower lever 13, said lower lever being mounted upon the stub-shaft 14, which is suitably supported in the casing 15. A plurality of perforations 16 are provided in the lever 13, with which may be connected the rod 17, which rod 17 is connected with the arm 18 of the bell-crank lever 19, a rod 20 being connected with the other arm 21 of said bell-crank lever. A second bell-crank lever 22 is connected to the opposite end of said rod 20, and a short rod 23 extends to the arm 24 of another bell-crank lever, which is rockably mounted in the ground-casing 25, a push-rod 26 being pivotally connected at 27 with the other arm 28 of said last-mentioned bell-crank lever, which push-rod 26 is adapted to be projected through the perforation 29 in the extension 30 of said ground-casing, so that when the lever 7 is rocked in the proper direction the push-rod 26 will be projected into proximity with the nearer rail of the track 2 or will be retracted into the extension 30 of the ground-case 25, as may be desired. A second platform 31 is provided in the station 3, upon which is mounted an operating-lever 7, which is connected in the manner shown in Fig. 7 with a lower lever 13, and from said second lower lever 13 extends a rod 17^a, which is connected with a bell-crank lever 24^a, which bell-crank lever is adapted to operate a push-rod 26^a in the same manner as the push-rod 26 is operated, the difference being that in the arrangement of the device shown at the right-hand side of Fig. 1 the bell-crank levers 19 and 22 are eliminated, owing to the direct thrust of the rod 17^a in engagement with the bell-crank lever 24^a, whereby said bell-crank levers 19 and 22 are rendered unnecessary.

Supported from the cab 35 is a tube or holder 36, in which is mounted a rockable rod 37, which rod is provided with lateral extensions 38 and 39 at the lower and upper ends thereof, respectively, the lower end 38 being adapted to contact with the rods 26 or 26^a when said rods 26 or 26^a are projected to the limit of their outward movement.

Supported in a suitable casing 40, preferably within the cab of the engine, is a weight

41, from which project pins or lateral extensions 42, which pins rest upon the upper ends of springs 43, which springs assist in supporting said weight 41 in an elevated position, there being a stem 44, which is preferably rectangular, projecting upwardly from the weight 41. The weight 41 rests normally upon the lateral extension 39 of the rod 37.

Supported in any convenient manner within the cab, as by means of the bracket 46, is a plunger-casing 47, in the upper portion of which is journaled the stem 48, which stem carries the arm 49, with which is connected a coil-spring 50, the opposite end of said spring being connected to the front wall 51 of the cab by any suitable means.

Secured to one face of the arm 49 is a clip 52, in which is normally seated the upper end of the rod 44, whereby the arm 49 is held in a relatively forward position against the stress of the spring 50.

It is evident that when the rockable rod 37 is turned from its normal position, in which the extension 39 serves to support the weight 41, that such weight 41 will drop by gravity, thereby releasing the arm 49, which will be drawn in the direction indicated by the arrow in Fig. 3—that is, toward the front wall of the cab.

The engine is provided with the usual throttle-lever 55, which is supported in the usual manner and carries a dog or pawl 56, which is adapted to be normally held in engagement with the notches 57 in the segment 58, a thumb-latch 59 being provided for the purpose of releasing said pawl 56 when desired. Coöperating with the thumb-latch 59 is a pivoted lever 60, one end of which is connected by the link or cable 61 with said thumb-latch 59 near the longer end thereof, while a link or cable 62 connects said lever 60 with the arm 49, before referred to, a spring 63 tending normally to hold the thumb-latch 59 and lever 60 separated. Extending also from said arm 49 is a cord or cable 65, which passes over the sheave 66, which is supported as shown in Figs. 2 and 3, said cable 65 running thence to the operating-arm 66^a of the air-brake valve 67, whereby it is evident that upon the fall of the weight 41 the throttle will be closed and the air-brakes will be set through the instrumentality of the powerful spring 50 referred to. As it is desirable to close the throttle gradually, means are provided, as shown in Fig. 5, for limiting the speed of movement of the arm 49 under the influence of said spring 50 as follows: Mounted upon the lower end of the stem 48 is a beveled gear 70, which meshes with a correspondingly-beveled gear 71, which is keyed or pinned upon the crank-shaft 72, which crank-shaft is mounted in suitable bearings 73 in said casing 47. A collar 74 is provided upon the stem 48, which collar rests upon the upper face 75 of the case 47, there being a clip

76, with central opening bolted to the upper side of said case to prevent upward thrust of the stem 48, said clip bearing against the upper face of said collar 44, as shown. The lower portion of the case 47 is of reduced diameter and is provided with an inner shell 77, which forms a seat or pocket 78 for the plunger 79, which is connected, by means of the link 80, with the crank portion 81 of said shaft 72. The inner shell 77 is perforated, as shown at 80^a, for the passage of air, and when the arm 49 is drawn forwardly by said spring 50 the plunger 79 is forced downwardly in the pocket 78 against the pressure of the air contained therein, which air will slowly pass in the direction indicated by the arrows in Fig. 3, and will escape through the perforations 82 to atmosphere, thereby decreasing the speed of movement of the said arm 49 and rendering more positive the operation of the throttle-lever. When it is desired to reset the device, the weight 41 is lifted, so that its stem 44 may become locked by the clip 52, the rod 37 being rocked to carry the lateral extension 39 below said weight for the purpose of supporting it in an elevated position.

The operation of the device is as follows: The ground mechanism and station-levers, with their appurtenant connections, being placed in position in proximity to a railway-track or to a plurality of railway-tracks, an operating-lever being provided for manipulating each of the push-rods in said ground connections, and a locomotive being equipped with the devices shown in Figs. 2 to 6, inclusive, it follows that in the event of a locomotive passing a station either in violation of orders or through ignorance of danger it is possible for the station operator to stop the train, if desirable, without consulting the engineer, and this is done by merely throwing the lever 7 to the proper position to cause the push-rod 26 to project in such close proximity to the track that the lower lateral extension 38 of the rockable rod 37 will contact therewith while the train is passing upon the track, whereupon said rockable rod 37 will be partially rotated in its socket, thereby permitting the weight 41 to drop by gravity and automatically shut off the supply of steam, at the same time setting the air-brakes and effectually stopping the train.

While I have shown in the accompanying drawings the preferred form of my invention, it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore reserve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. In an apparatus of the character described, a supporting-vehicle, a vertical bearing carried thereby, a rockable rod in said bearing, lateral extensions at the ends of said rod, a weight supported by one of said extensions, a weight-stem, an operating-arm in normal engagement with said weight-stem, a spring connected with said arm and with said vehicle, a throttle-lever, means for connecting said operating-arm with said throttle-lever, and means for actuating said rockable arm.

2. In a device of the character described, a vehicle, a vertical bearing carried thereby, a rockable rod held in said bearing, there being lateral extensions at the ends of said rod, a weight supported by one of said extensions, a weight-stem, an operating-arm adapted to engage with said weight-stem, a spring connecting said arm with said vehicle, a brake-lever, and a cable connecting said operating-arm and said brake-lever.

3. In a device of the character described, a cab, a bearing, a vertically-disposed rockable rod in said bearing, lateral extensions at the ends of said rod, actuating means supported by one of said extensions, a stem extending upwardly from said actuating means, an operating-arm, means thereon for engaging said stem, a spring connecting said arm with said cab, a throttle-lever, and means for actuating said rockable rod.

4. In a device of the character described, a cab, a bearing, a vertically-disposed rockable rod in said bearing, lateral extensions at the ends of said rod, actuating means supported by one of said extensions, a stem extending upwardly from said actuating means, an operating-arm, means thereon for engaging said stem, a spring connecting said arm with said cab, a throttle-lever, a reciprocatory rod, a ground-casing in which said reciprocatory rod is supported, and means for actuating said reciprocatory rod to actuate said rockable rod.

5. In a device of the character described, a throttle-lever, a brake-lever, an operating-arm, connections between said operating-arm and said levers, a spring connected with said arm and with a fixed member, said spring tending normally to actuate said levers, a vertically-disposed rockable rod, lateral extensions on the ends of said rod, a weight supported by one of said extensions, and a clip on said operating-arm adapted to normally lock said arm in engagement with said weight.

6. In a device of the character described, a cab, a vertical bearing, a rockable rod in said bearing, there being lateral extensions on said rod, a weight supported by one of said extensions, a weight-stem projecting upwardly from said weight, an operating-arm, means for locking said arm normally in en-

gagement with said stem, a spring connected with said arm and with said cab, a throttle-lever, means for connecting said operating-arm with said throttle-lever, a ground-casing, and a reciprocatory rod adapted to be projected therefrom into the line of travel of one of the extensions on said rockable rod.

7. In a device of the character described, a cab, a vertical bearing, a rockable rod supported therein, there being lateral extensions on the ends of said rod, a weight supported by one of said lateral extensions, a weight-stem extending upwardly from said weight, an operating-arm in normal engagement with said stem, a stub-shaft upon which said arm is mounted, a beveled gear on said stub-shaft, a plunger-casing, a crank-shaft in said plunger-casing, a gear on said shaft in mesh with said first-mentioned gear, a plunger-pocket having perforated walls, a plunger on said shaft, and means for actuating said rockable rod.

8. In a device of the character described, a cab, a vertical bearing, a rockable rod having lateral extensions at its ends, a weight supported by one of said extensions, a weight-stem, an operating-arm in normal engagement with said stem, means for actuating said operating-arm upon disengagement from said stem, a throttle-lever, means for connecting the operating-arm with said throttle-lever, and means for actuating said rockable rod.

9. In a device of the character described, a cab, a vertical bearing, a rockable rod having lateral extensions at its ends, a weight supported by one of said extensions, a stem extending upwardly from said weight, an operating-arm in normal engagement with said stem, means for actuating said operating-arm when disengaged from said stem, a throttle-lever, a brake-lever, means for connecting the operating-arm with said levers, in combination with a ground-casing, a reciprocatory rod adapted to project from said ground-casing, and means for actuating said rod.

10. In a device of the character described, a cab, a vertically-disposed bearing carried thereby, a vertical rod mounted in said bearing, there being lateral extensions at the ends of said rod, a weight supported by the upper lateral extension, a throttle-lever, means for actuating said throttle-lever, a ground-casing, a reciprocatory rod adapted to project from said ground-casing, and means for actuating said reciprocatory rod.

11. In a device of the character described, a cab, a vertical bearing, a rockable rod mounted in said bearing, there being lateral extensions on the ends of said rod, a weight supported by one of said lateral extensions, a weight-stem, an operating-arm, means for locking said arm to said weight-stem, a plunger-casing having a plunger-pocket, a plunger

reciprocatory of said plunger-pocket, means for connecting said operating-arm with said plunger, and means for rocking said rockable rod.

5 12. In a device of the character described, a cab, a vertical bearing, a rockable rod having lateral extensions at its ends, a weight supported by one of said extensions, an operating-arm normally locked in position by
10 said weight, means for actuating said operating-arm when disengaged from said weight, a throttle-lever, means for connecting said operating-arm with said throttle-lever, and means for actuating said rod.

15 13. In a device of the character described, a cab, a vertical bearing, a rockable rod having lateral extensions at its ends, a weight supported by one of said extensions, a weight-stem projecting upwardly therefrom, an operating-arm in normal engagement with said
20 weight-stem, means for actuating said operating-arm when disengaged from said weight-stem, a throttle-lever, a brake-lever, means for connecting the operating-arm with said
25 levers, and means for limiting the speed of movement of said operating-arm.

14. In a device of the character described, a cab, a vertical bearing, a rockable rod mounted in said bearing, there being horizontal
30 zontal extensions at the ends of said rod, a weight supported by one of said extensions, an operating-arm in normal engagement with said weight, means for actuating said operating-arm, a throttle-lever, means for
35 connecting the operating-arm with said throttle-lever, a plunger-casing, a crank-

shaft therein, means for actuating said shaft upon movement of said operating-lever, a perforated plunger-pocket, a plunger reciprocatory therein, and a link connecting said
40 plunger with said crank-shaft, in combination with means for actuating said vertical rod.

15. In a device of the character described, a cab, a rockable rod carried thereby, a weight
45 normally supported in an elevated position by said rockable rod, an operating-lever, a throttle-lever, means connecting said operating-lever and said throttle-lever, a spring connecting said operating-lever with said cab,
50 a plunger-casing having a perforated plunger-well, a plunger reciprocatory in said well, a crank-shaft on which said plunger is carried, and means for actuating said crank-shaft from said operating-arm.
55

16. In a device adapted to actuate a throttle-lever in a locomotive, an operating-arm, connections between said operating-arm and
said throttle-lever, a casing, a stub-shaft on said casing on which said arm is mounted, a
60 gear on said stub-shaft, a crank-shaft in said casing, a gear thereon in mesh with said first-mentioned gear, a plunger-pocket forming a portion of said casing, a plunger reciprocatory in said pocket, and a link connecting said
65 plunger with said crank-shaft.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ERNEST RENAUD.

Witnesses:

T. MYNARD,
M. McALEER.