

B. FAY.
 TRAIN CONTROLLING APPARATUS FOR RAILWAYS.
 APPLICATION FILED APR. 29, 1914.

1,124,002.

Patented Jan. 5, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

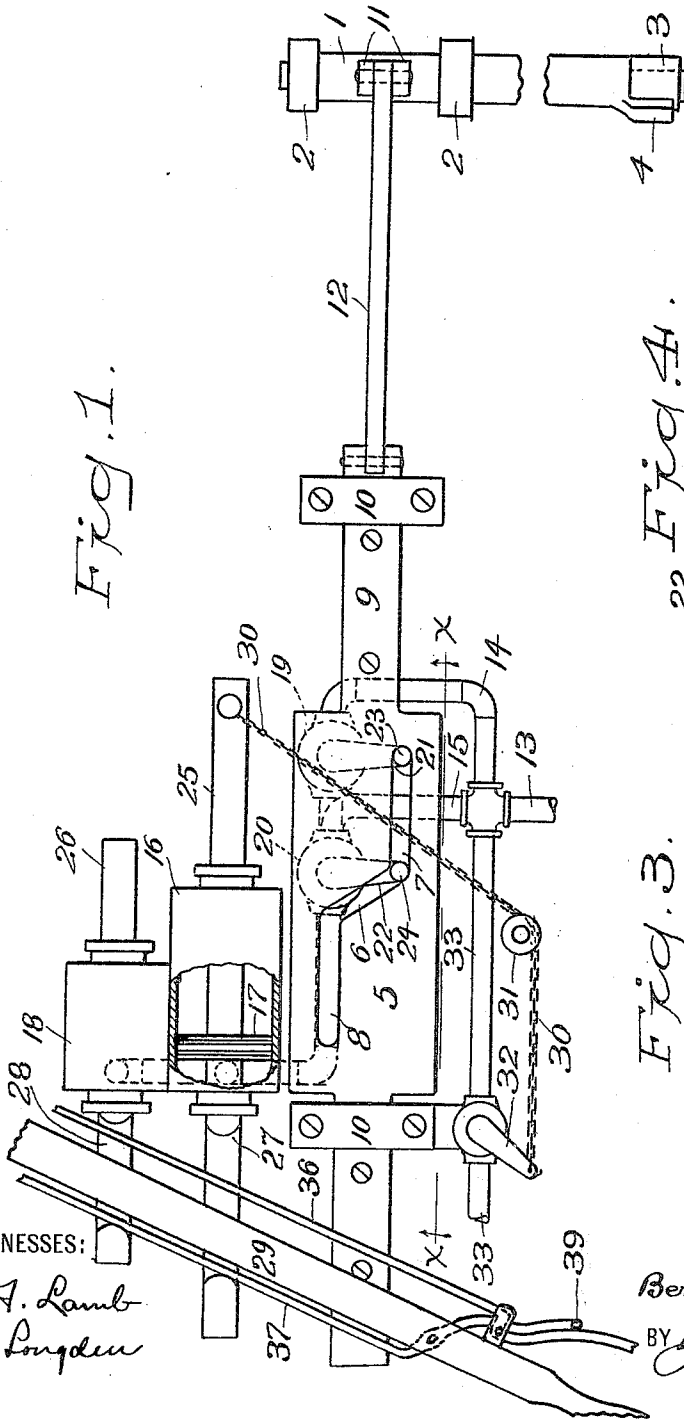


Fig. 4.

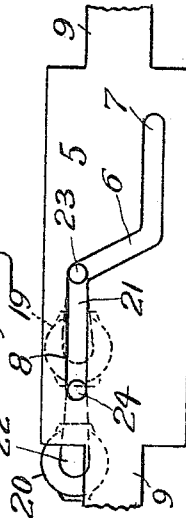
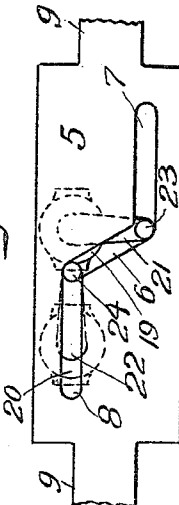


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2.

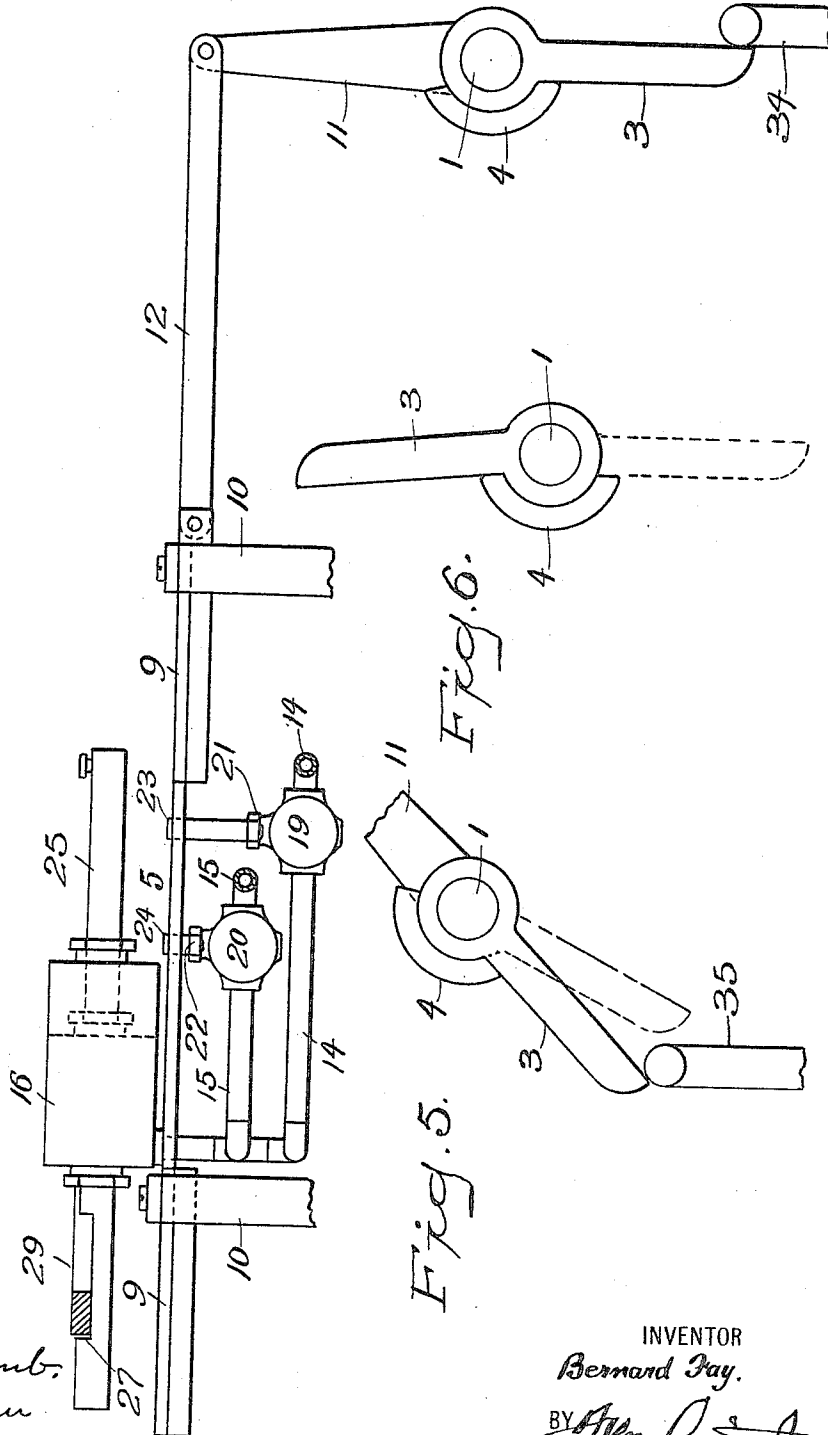


Fig. 5.

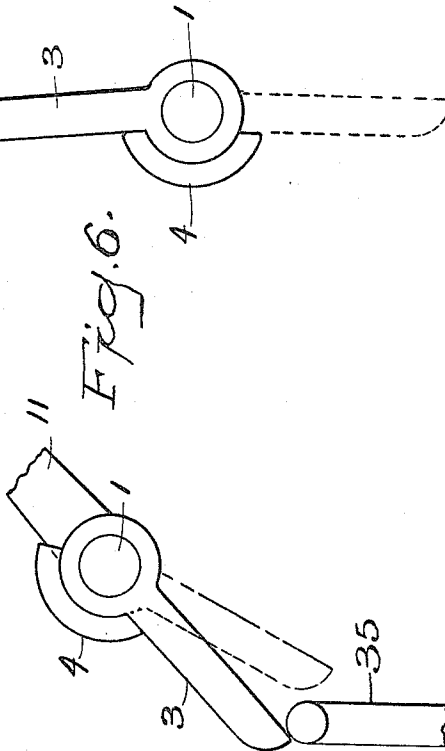
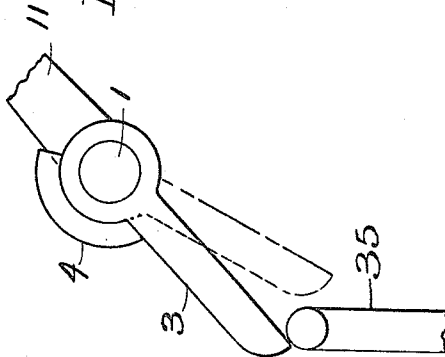


Fig. 6.



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BERNARD FAY, OF DANBURY, CONNECTICUT.

TRAIN-CONTROLLING APPARATUS FOR RAILWAYS.

1,124,002.

Specification of Letters Patent.

Patented Jan. 5, 1915.

Application filed April 29, 1914. Serial No. 835,308.

To all whom it may concern:

Be it known that I, BERNARD FAY, a citizen of the United States, residing in the city of Danbury, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Train-Controlling Apparatus for Railways; and I do 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 train controlling apparatus for railway systems, and the primary aim of the same is to provide simple, efficient and automatic means either for reducing the speed of a train or for causing the same to come to a complete stop.

The present invention has nothing whatever to do with any particular means adjacent to the track for effecting the operation of the mechanism carried by the train locomotive, it being merely necessary that suitable projections upstanding near the track should be in the path of the element carried by the locomotive for actuating the controlling mechanism of the latter, and in this connection I would say that I prefer to utilize the track appliances and system shown and described in my pending application, No. 751,107, filed February 27, 1913.

In carrying out my present invention it will of course be understood that various changes in minor details may be made, and that the drawings merely illustrate a preferred and practical construction, my invention consisting in certain features and arrangement of parts hereinafter to be more fully described, and then particularly pointed out in the claims which conclude this description.

Figure 1 is a plan view of my improved apparatus which is to be carried by a locomotive. Fig. 2 a general side elevation of such mechanism certain parts being sectioned on the line *x, x*, of Fig. 1. Figs. 3 and 4 are detail detached views of the air valve operating element. Fig. 5 a detail detached view of the lever that is carried by the locomotive and which is operated by the upstanding elements near the track, and Fig. 6 a detail detached view of such lever thrown out of operative position.

Similar numerals of reference denote like parts in the several figures of the drawing.

1 is a rotary shaft mounted in bearings 2 secured to a stationary part of the locomotive,

and 3 is a lever pivoted around the outer extremity of said shaft and adapted to abut against a shouldered portion 4 on said shaft when in a general vertical position.

5 is a plate having a deflected slot 6 extended therethrough from face to face, the ends of said slot leading into straight slots 7, 8. This plate 5 has reduced end extensions 9 that are guided within suitable bearings 10 secured to a stationary part of the locomotive, and said extensions are capable of free lengthwise movements throughout said bearings.

11 is a crank that extends upwardly from the shaft 1 and 12 is a pitman rod whose extremities are pivoted respectively to the end of the crank 11 and to the extremity of one end extension 9, so that it will be clear that when the shaft 1 is rocked reciprocatory movements of the plate 5 will be effected.

13 is a pipe which leads from a compressed air reservoir that is carried by the locomotive, and from this pipe extend two branches 14, 15, the branch 14 extending to and communicating with a cylinder 16 in the rear of the piston 17 within said cylinder while the branch 15 extends to and communicates with a cylinder 18 in like manner. Within these branch pipes 14, 15, are valves 19, 20, which are operated by crank stems 21, 22, respectively, and extending outwardly from the ends of these cranks are studs 23, 24, which normally project within the slot 7 at its closed end and at the end which leads within the slot 6, this position of these studs being assumed when the cranks are as is shown at Fig. 1, the valves 19, 20, at that time, being closed.

25, 26, are the piston rods which carry the pistons respectively within the cylinders 16 and 18, and these rods extend through and beyond both ends of each of these cylinders. Each of these rods is notched as shown at 27, 28, and the cylinders 16, and 18, are so disposed that these notched portions are in the same horizontal plane.

29 represents the throttle lever of the locomotive which extends horizontally within the notched portions 27, 28, as shown at Fig. 1, the inclined position of this lever indicating that the throttle has been opened full with the edge of the lever 29 in contact with the outer walls of the notches 27, 28.

30 is any suitable chain which is secured

to the far end of the rod 25, passed over an idle pulley 31 and secured at its other end to a resilient crank stem 32, the rotation of which stem opens a valve in a pipe 33 which latter is always in communication with the pipe 13, and this pipe 33 communicates with the mechanism for operating the air brakes.

It becomes important, at times, that the speed of a locomotive should be decreased, and at other times it is essential that the steam shall be entirely cut off and the air brakes put on so that the locomotive will come to a stop and my improvement provides for both of these contingencies in the following manner: As before referred to, there are upstanding rods located near the railroad track at suitable intervals, and these rods are within the path of movement of the lever 3 that is carried by the locomotive. These upstanding elements near the track are pre-supposed to be of different heights, and at Fig. 2 I have indicated a short element by the numeral 34 and at Fig. 5 a taller element by the numeral 35, and it will be clear that when the lever 3 strikes a short element the crank 11 will not be swung as far as when said lever strikes the taller element 35, as is clearly indicated at Fig. 5 of the drawings, wherein dotted lines show the position to which the lever was moved by the shorter element.

While my present invention makes provisions for either stopping the locomotive entirely or reducing its speed by about one-half, nevertheless it will be clear that, by a mere duplication of parts and a change in relative heights of the elements alongside the track the degree of reduction of the speed of the locomotive may be varied. As the lever 3 strikes a relatively short upstanding element 34 the crank 11 will be operated to slide the plate 5 from the position shown at Fig. 1 to that shown at Fig. 3, and this movement of this plate will effect the opening of the valve 20, and the compressed air will enter the cylinder 18 and will drive the piston forwardly which will cause the piston rod to swing the throttle lever 29 to about a one-half speed position. During the opening of the valve 20, the valve 19 will of course remain closed because the stud 23 of the crank stem 21 will be idly traveling throughout the straight slot 7.

When the lever 3 strikes the taller element 35 the crank 11 will be swung to its limit so as to effect the opening of the valve 19 through the travel of the stud throughout the deflected slot 6, and compressed air will then rush into the cylinder 16 behind the piston 17 and will drive the latter outwardly thereby causing the outer wall of the notch 27 to force the throttle lever inwardly to its full extent and shut off the steam entirely while at the same time the

consequent outward movement of the piston rod 25 will swing the crank stem 32 and thereby effect the operation of the air brakes. When these results have been brought about by the full swing of the crank 11, the position of the studs 23, 24, with respect to the slots 6, 7, and 8, in the plate 5, will be as is shown at Fig. 4.

Air pressure is removed from the cylinders and the parts restored to normal position by thrusting the plate 5 outwardly in any convenient manner, and any suitable pet cocks (not shown) opened in the cylinders 16, 18.

Whenever it is desired that the locomotive shall run freely without affecting the throttle mechanism by means of the upstanding elements near the track, the lever 3 is merely thrown upwardly against the shoulder 4 as shown at Fig. 6.

Throttle lever 29 has the usual locking pawl 36, and a lever 37, within notches 27, 28, is pivoted to the throttle lever and has its extremity 39 bearing against the handle of the pawl 36, so that the pawl will be operated by the rods 25, 26, preparatory to the shifting of the throttle 29.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a train controlling apparatus, the combination with the motor and the brake mechanism, fluid-pressure actuated means for controlling the motor, a valve controlling the motor control, fluid pressure actuated means for controlling the brake mechanism, a valve controlling the brake control, a train-carried slide provided with a cam slot engaging and successively actuating the valves, and means for actuating the slide.

2. A train controlling apparatus comprising mechanism for actuating a throttle lever and for controlling the brake mechanism, a train-carried slide provided with means for operating the throttle and brake mechanism, a rocker shaft provided with an upstanding crank having a pitman connection with the slide, a trip pivotally connected to and normally depending from the rocker shaft and having a pivotal connection therewith, a shoulder carried by the shaft for limiting the pivotal movements of the trip, and means disposed in the path of movement of and adapted to actuate the trip.

3. A train controlling apparatus comprising fluid pressure actuated means for controlling the throttle and the brake mechanism, supply pipes discharging fluid pressure to the said controlling means, valves in said pipes provided with crank stems, a train-carried slide provided with a cam slot for engaging the stems to operate said valves, and means for actuating the slide.

4. In a train controlling apparatus, the

combination with a throttle lever and a locking pawl therefor, of a slidable piston rod having a seat for the throttle lever, said seat being provided with an abutment
5 for releasing said pawl and operating said lever, and means actuated by track mechanism for operating said rod.

5. In a train controlling apparatus, the combination with the throttle lever and the
10 controlling means for the brakes, said brake controlling means including a valve, of a cylinder provided with a piston and a piston rod, said rod having portions that project beyond the ends of the cylinder, one
15 of said projecting portions having a throttle lever seat, means for connecting the other projecting portion of the piston rod with the valve, means including a valve for supplying pressure to the cylinder, a reciprocating member for engaging and operating
20

the pressure supply valve, and means for actuating said member.

6. A train controlling apparatus comprising pressure actuated mechanism provided with means for progressively actuating a
25 throttle lever, means including controlling valves for supplying pressure to said mechanism, brake controlling means actuated by said mechanism, a slide provided with a deflected slot having straight end extensions
30 for engaging and successively actuating the controlling valves, and means for actuating the slide.

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

BERNARD FAY.

Witnesses:

CATHERINE F. FARRELL,
HENRY C. WILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."