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UNIVERSAL STATES PATENT OFFICE.

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MEANS FOR OILING TRACKS AND APPLYING THE AIR-BRAKES FOR STOPPING RAILWAY-TRAINS.

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To all whom it may concern:

Be it known that we, ELIJAH STERLING GUNN and HARRY RODGERS ROMBERGER, citizens of the United States, residing at Winona, in the county of Montgomery and State of Mississippi, have invented certain new and useful Improvements in Means for Oiling Tracks and Applying the Air-Bra kes for Stopping Railway- Trains; and we 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.

For neutralizing the traction power of the locomotive-engine of a railroad-train and for stopping the train we provide means operated by a track device which is operated by the movement of the train for effecting a flow of oil upon the top of the rails in front of the drivers and by the same means which effects the oil-flow to cause the brakes to be partially applied to destroy the momentum of the train, and while the slipping of the drivers will be effective to stop the train the conjoint effect of the oil-flow and applying the air-brakes will conduces to greater effectiveness and safety without the intervention of the engineer who from any cause may be incapacitated to act on the showing of the danger-signal.

The design of our invention is to make the engineer more careful, and in the event of his failure to note the signal then the movement of the train will bring into action means for causing the oiling of the rails in advance of the drivers in conjoint cooperation with means for automatically operating the air-brake lever to apply the brakes. In this combination a track device, means for delivering a flow of oil on the rails to cause the driving-wheels to slip, and means for applying the brakes are caused to be operated by the movement of the train, the track device being operated from the block-house and is connected with and operates the signal, while the attachments for oiling the rails and for applying the brakes are carried on the front of the locomotive and connected together for operation by the track device. When the train has been stopped, the engineer can cut off the flow of oil and restore the oil-feeding mechanism and the air-brake-lever connections to their normal positions. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side view of so much of a locomotive-engine as shows those parts of our invention, including an oil-tank and a depending arm at the pilot, whereby the oil is caused to be fed to the top of the rails and the connections from the oil-feed-operating parts to the air-brake lever, whereby the brakes are caused to be partially applied at the same time and by the same means, including said pending arm, and a fixed track device whereby said pending arm is operated by the moving train. Fig. 2 shows in perspective the oil-tank and its valve-controlled feeding connections, including the train depending arm which is operated by the track device. Fig. 3 is a vertical cross-section of the oil-tank, showing its valve-controlled connections in the closed positions of the valves. Fig. 4 shows the friction-clamp by which the valve-operating rock-rod is automatically held when rotated to hold the valves open to allow the feed of the oil. Fig. 5 shows a portion of a railroad-track, the track-impact device, the connected rock-rod leading to the block-house, the signal device, and its operative connections with the track-impact device, and the block-house connections whereby the impact device is set to operate the depending arm in connection with the danger signal. Fig. 6 shows the track rock-rod block-house connection. Fig. 7 shows the track rock-rod impact-arm and the abutment for supporting it against the impact of the depending arm of the locomotive. Fig. 8 shows in top view the track rock-rod and its impact-arm in its horizontal position in which the signal indicates "safety." We have shown the usual swinging pivoted weighted semaphore mounted on a post and connected by a wire cord, by which it is set to show the danger-light and which is connected to and operated by a crank-arm 3, connected to and operated by a ground or track rod 4, mounted in fixed bearings and extending from the track to the station or block-house, where it is provided with suitable connections by which the attendant will cause said ground or track rod to be rocked on its bearings, while at its other end said ground or track rod has an impact arm or crank 5 at the side of the track whereby it
may be raised to a vertical position when the signal is set to show the danger-light or in horizontal position when the signal is set to show "safety." It is this arm or crank 5, when set vertically, that receives the impact of an arm 6, depending from the engine-frame, that causes the automatic operation of means whereby oil is fed to the rails of the track and at the same time causes the air-brake lever to be operated to apply the brakes, both means coacting to stop the train and actuated by the same connections independently of the engineer.

For feeding the oil a tank 7 is mounted, preferably, in front of the pilot on the under side of the engine-frame 8, and is provided at each end with a pipe 9, which terminates to deliver oil upon the top of the rails 10 to cause the slipping of the drivers of the locomotive. A valve-case 11 is suitably connected with each pipe, the stem 12 of the valve rising at the rear side of the tank and has a jointed connection with the end of a horizontal arm 13, which rigidly connects with a horizontal rock-rod 14, mounted in bearings at the top of the front beam 15 of the engine-frame. At one end this rock-rod has the arm 6 depending at the end of said beam beyond the side of the pilot and in the path of the track impact arm or crank 5, so that in the raised position of this crank-arm it will be struck by the depending arm of the moving train, thereby forcing the depending arm to swing back and causing it to pass over the swing-out and to apply the oil to the rails 10.

This movement of the arm 6 will cause its connected rod 14 to be rocked, thereby causing its horizontal arms 13 to be lifted and with them the valves and allow the oil to flow from the tank through the feed-pipes upon the rails. A simple means for holding the valves open is by friction, and for this purpose the bearing-supports 16 for the rock-rod 14 are formed by friction-clamps, each clamp having a tightening-screw 17 to give more or less friction upon the rod to prevent it from turning except by force, the friction being sufficient to overcome the weight of the valve connections and the tendency of the depending arm to assume its normal vertical position. These friction-clamps also serve to hold the depending arm and the valve connections in their normal positions.

It will be understood that the impact of the depending arm against the track impact-arm will cause the rock-rod on the engine-frame to be turned in a forward direction, and this turning of the rod is utilized to actuate the air-brake lever to apply the brakes simultaneously with oiling the rails, and for this purpose a pull-rod 18 connects a lug 19 on the rock-rod 14 with an arm 20 of the air-brake lever 21 in the engine-cab, said pull-rod extending along the outside of the engine, so that the turning of the rock-rod will cause said pull-rod to be drawn forward, and thus operate the brake-lever and cause the brakes to be applied. By these same connections the engineer can pull the rod, and thereby cause said rock-rod to be turned back, its valve connecting horizontal arms 13 to be turned down, thereby depressing and closing the valves and stopping the flow of the oil. Therefore while the impact track-arm is the prime means of causing the feed of the oil and the applying of the brakes the engineer from his position in the cab can control the air-brake lever in the usual way and cut off the feed of the oil by the same means by which the track impact-arm causes the brakes to be applied.

It is important to note that the track impact-arm is caused to have a rocking movement of half a revolution from a horizontal to a raised position to receive the impact of the depending arm of the locomotive, and therefore the impact-arm must be firmly supported. For this purpose a fixed abutment 22 serves as a stop for the impact-arm in its raised position to limit its movement, and thereby control the setting of the danger signal by controlling the rocking of its connected ground-rod. This abutment also serves to prevent the force of the impact against the impact-arm from endangering any change in the position of the signal. At the blockhouse or station this ground or track rod has suitable connections by which it is rocked to raise and to lower its impact-receiving arm, and which, as shown, may consist of a vertical rod 23, having a handle 24 and connected with the ground or track rod by a crank-arm 25, so that raising the hand-rod 23 will cause the partial rotation of the ground or track rod to raise its impact-arm against the abutment and to set the danger-signal, and for this purpose the signal-connecting wire is preferably connected to the crank-arm of the signal-rod by a chain 26 to relieve the shock of the blow of the engine depending arm against the impact-arm of said rod. Any suitable means may be used to hold the hand-rod in its raised position—such, for instance, as ratchet-teeth 27 on the hand-rod engaging a floor-plate.

A chain 28 connects the air-brake pull-rod with the brake-lever, so that the air-brake may be operated by the engineer without moving the pull-rod which connects with the oil-feeding mechanism. This chain may also be employed to adjust the extent of the movement of the pull-rod to partially apply the brakes by partially opening the brake-valve.

The slipping of the engine-drivers and the applying of the brakes will notify the engineer when he may cut off the oil-supply and stop the train as usual; but supposing there is no engineer or from any cause he may not see the signal the oil continuing to flow and...
the air-brakes partially applied the train would be stopped. Therefore, the engineer, acting on the signal, may at once apply the brakes and stop the train and at the same time cut off the flow of oil without disturbing the signal; but in a contingency in which the engineer may be asleep or dead when the train should be stopped, then the flow of oil alone would effect this, while the air-brake connections would render this more effective and with comparative quickness.

The danger-signal and the track impact-arm being connected and operated by the same means the track impact-arm will be raised in operative position when the danger-signal shows, and the engineer having observed the danger-signal gives notice thereof by the whistle that he will stop. Thereupon the block-house operator turns down the impact-arm to a horizontal position and the engine passes without operating the impact-arm, and thus avoids a waste of oil or causing the brakes to be applied by the movement of the train; but it is the purpose of our invention to provide two cocking causes rendered active to safely and quickly stop the train without regard to the signal or to the engineer at all stopping-places, while placing the control of these causes under the block-house operator to render them inactive under notice from the engineer.

The track rock-rod may be suitably inclosed to protect it. Obviously the oil-feeding appliance may be used independently of the brake-operating appliance.

We claim—

1. For neutralizing the traction-power of a locomotive-engine, mechanism consisting of an oil-containing tank, a chamber containing a valve at each end of said tank, a pipe connecting each valved chamber arranged to deliver oil upon the tops of the rails, a rock-rod on each valved chamber, an arm on each end of said rock-rod, connections for each arm with said valves, an arm depending from said rock-rod at one end of the tank, in combination with means for opening said valves consisting of a rock-rod extending from the tank to the track and having an impact-arm at its track end, and means whereby said station rock-rod is caused to be rocked in one direction to raise its impact-arm in the path of the depending arm whereby the latter is caused to be operated to feed the oil, and rocked in the opposite direction to lower said impact-arm out of the path of said depending arm, and means connected with said tank to hold said valves open, and means under the control of the engineer and connected with said tank rock-rod for closing said valves.

3. For causing the slipping of the drivers of a locomotive-engine, the following instrumentalities, an oil-containing tank, a chamber containing a valve at each end of said tank, a pipe connecting each valved chamber arranged to deliver oil upon the tops of the rails, a rock-rod on said tank, an arm on each end of said rock-rod, connections for each arm with said valves, an arm depending from said rock-rod at one end of the tank, a rock-rod extending from the station to the track and having an impact-arm at its track end, the other end of said rod having connections for rocking it in one direction to raise its impact-arm in the path of the tank depending arm whereby it is caused to feed the oil and for rocking said rod in the opposite direction to lower said impact-arm out of the path of said depending arm, friction-clamps connected with said tank and its rock-rod to hold said valves open, and a pull-rod under the control of the engineer and connected with said tank-rod for closing said valves.

4. For causing the slipping of the drivers of a locomotive-engine and simultaneously causing the air-brakes to be applied, an oil-tank, a chamber containing a valve at each end of said tank, a pipe connecting each valved chamber arranged to deliver oil upon the tops of the rails, a rock-rod on said tank, an arm on each end of said rod, connections for each arm with said valves, an arm depending from said rock-rod at one end of the tank, in combination with the air-brake lever, means for opening and for closing said valves and for applying the brakes consisting of a rock-rod extending from the station to the track, an impact-arm fixed on the track end of said rod, the other end of the latter having connection for rocking it in one direction to raise its impact-arm in the path of the depending arm, means for supporting said track impact-arm in vertical position against the impact of the depending arm, means connected with the tank and with said rod for holding the valves open, a pull-rod having connection with said tank-rod, and means connecting said pull-rod with the air-brake.
lever, whereby said tank-rod is rocked in one direction by the depending arm to lift its valve connections to open said valves and to draw said rod in the same direction to operate the air-brake lever to apply the brakes.

5. For causing the slipping of the drivers of a locomotive-engine, the combination with an oil-tank, a valve-containing chamber on each end thereof, a pipe connecting each oil-chamber arranged to deliver oil upon the tops of the rails, a rock-rod on said tank, an arm on each end of said rock-rod, connections for each arm with said valves, an arm depending from said rod at one end of the tank, a rock-rod extending from the station to the track and having an impact-arm on its track end, the other end of said rod having connections for rocking it to raise and to lower its impact-arm, means for supporting said impact-arm in its raised position against the impact of the depending arm, means connected with the tank and its rock-rod for automatically holding said valves open, means under the control of the engineer and connected with said tank rock-rod for closing said valves, whereby said tank-rod is rocked in one direction by the movement of the train to open the oil-feeding valves and rocked in the opposite direction by the engineer to close said valves.

6. For neutralizing the traction-power of the drivers of a locomotive-engine, and for applying the brakes, means for feeding oil to the tops of the rails, means for operating the air-brake levers to apply the brakes both said means carried by the engine and operatively connected thereto independent of the engineer, in combination with an impact device fixed at the track and serving to activate the means for feeding the oil and for applying the brakes, the means for effecting the feed of the oil constituting the means whereby the air-brakes are applied, and means for raising and lowering said impact device from the station, substantially as described, for the purpose specified.

7. For stopping railroad-trains without the intervention of the engineer, means for automatically feeding oil upon the rails in front of the drivers and means for actuating the air-brake lever, both said means carried by the locomotive-engine, and operated simul-aneously by the same connections, and a track device for actuating said means by the movement of the train.

8. Mechanism for stopping railroad-trains comprising a rock-rod extending from the track to the block-house and having an impact-arm on its track end, and hand operating connections at the block-house, an oil-tank mounted on the locomotive-engine, conduits for feeding oil from said tank upon the track-rails in front of the traction-drivers, a valve for each conduit, an arm depending from one end of said oil-tank, in the path of the track impact-arm, means connecting said depending arm with said valves to cause them to be opened to allow the flow of the oil, means for automatically holding said valves open, means under the control of the engineer for closing said valves, and means for supporting the impact-arm against the impact of the depending tank-arm, whereby, in the movement of the engine, the tank depending arm is caused, by impact against the fixed track-arm, to be swung to open the oil-feeding valves, or to pass over said track impact-arm without contact therewith.

9. A semaphore-signal for railroad-trains, an arm at the side of the track, means connecting said arm and the signal with connections at the block-house for operating both; at the same time, an arm depending from the engine-frame in front of the drivers, an oil-tank, valve connections with said oil-tank and with said depending arm for causing a flow of oil from said tank, means whereby said oil-flow is caused to be delivered upon the rails, whereby the track impact-arm and the signal may, by the same means and at the same time be set for stopping the train or to let it pass.

10. Means for applying the air-brakes of railroad-trains comprising a rock-rod extending from the track to the block-house and having an impact-arm on its track end, a rock-rod mounted on the front of the engine-frame, an arm depending from said rock-rod on one side of said frame in the path of the impact track-arm, means connecting the block-house end of said rock-rod for raising and lowering its impact-arm, and a pull-rod connecting the rock-rod of the engine with the lever of the air-brake, whereby the movement of the locomotive will cause its depending arm to come in contact with the track-rod impact-arm and thereby cause the air-brake lever connected rod to be pulled forward and cause the brakes to be applied.

11. In an oiling device for railroad-trains, an oil-containing tank mounted on the locomotive-engine, feed-controlling connections for the oil, and a movable track device adapted to operatively engage said feed-controlling connections by the movement of the train, and means whereby said movable track device is rendered inoperative.

12. For stopping railroad-trains without the intervention of the engineer, a rock-rod extending from the track to the block-house and having an impact-arm at its track end, connections at its other end for rocking said rod, and an intermediate arm thereon, a signal, a chain connecting it with said intermediate arm, and an abutment-support for the impact-arm, in combination with an arm depending from the engine in the path of the impact-arm, an oil-tank, means for delivering oil therefrom upon the rails in front of the drivers, means controlled by said de-
pendning arm for causing the flow of the oil, and means controlled by said depending arm for causing the air-brakes to be applied.

13. Means for applying the air-brakes of railway-trains without the intervention of the engineer, comprising a rock-rod extending from the track to the block-house and having an impact-arm on its track end, a rock-rod mounted on the engine-frame, an arm depending from said rock-rod at one side of said frame in the path of the impact track-arm, the air-brake lever, a pull-rod connecting the engine rock-rod, and a chain connecting the pull-rod with the air-brake lever, whereby the pull-rod is caused to operate the air-brake lever while the latter is free to be operated by the engineer independent of the pull-rod.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

Elijah Sterling Gunn.
Harry Rodgers Romberger.

Witnesses:
Henry Marshall Romberger,
Edward Richard Blackston.