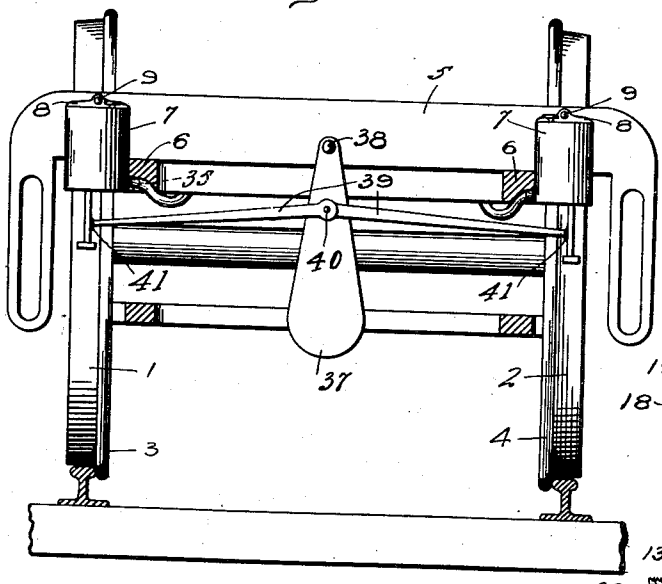
W. A. NOBLE.

AUTOMATIC FLANGE OILER.

APPLICATION FILED JAN. 13, 1910.

981,597. Patented Jan. 10, 1911.

Fig. 1.



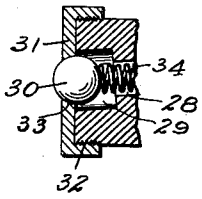


Fig. 4

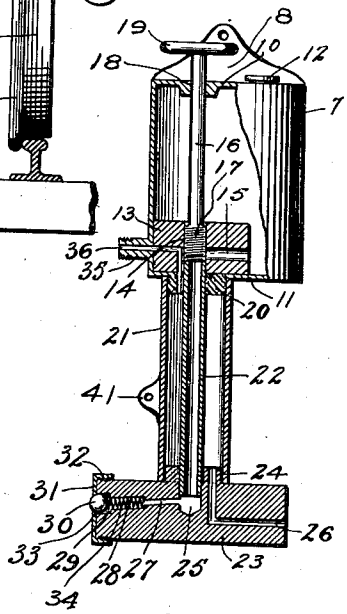


Fig. 3.

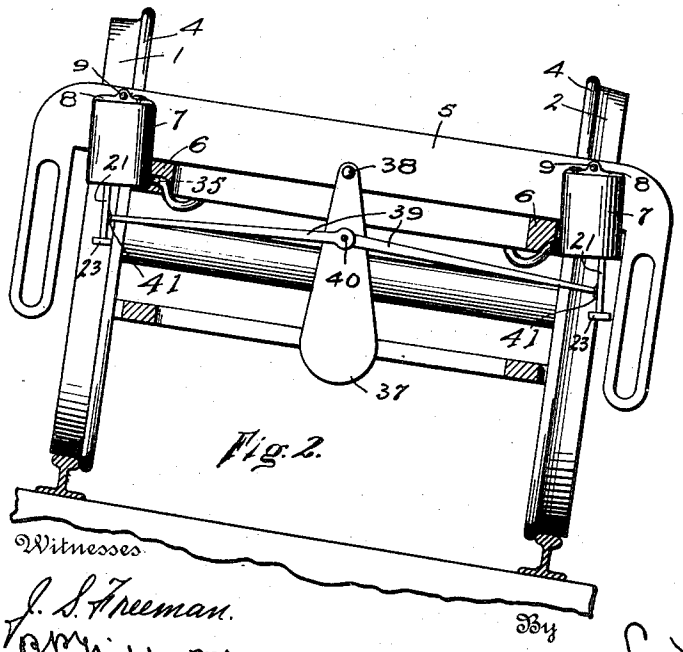


Fig. 2.

Witnesses

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AUTOMATIC FLANGE-OILER.

981,597. Specification of Letters Patent. **Patented Jan. 10, 1911.**

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To all whom it may concern:

Be it known that I, WILLIAM A. NOBLE, a citizen of the United States, residing at Isabella, in the county of Polk and State of Tennessee, have invented certain new and useful Improvements in Automatic Flange-Oilers, of which the following is a specification.

My invention relates to a device for applying oil or a lubricant automatically to the flange or periphery of a car wheel or the like while rounding curves.

An important object of my invention is the provision of a device of the above character, which is adapted to oil the flange of the wheel traveling upon the outer higher rail of a curve, while the wheel traveling upon the inner rail is not oiled.

A further object of my invention is to provide a device of the above character, comprising a plurality of valves which are controlled by a single pendulum device.

In the accompanying drawings forming a part of this specification and in which like numerals are used to designate like parts throughout the same, Figure 1 is a side view of my device, the same being applied to the guide yoke of a locomotive. Fig. 2 is a similar view, my device being shown in a different position with relation to the yoke. Fig. 3 is a vertical cross sectional view through the oil tank and associated members. Fig. 4 is an enlarged cross sectional view of the valve shown in Fig. 3.

In the preferred embodiment of my invention, as illustrated in the drawings, 1 and 2 designate driving wheels upon an ordinary locomotive. The driving wheels 1 and 2 are provided with peripheral flanges 3 and 4 respectively.

The numeral 5 designates a guide yoke of the locomotive and is rigidly connected to the supports 6.

Near each of the wheels 1 and 2, I provide an oil-tank 7 provided upon its upper end with an extension 8, by the means of which the tank 7 is pivotally connected as at 9 to the guide yoke 5. The side of the tank adjacent the guide yoke 5 is preferably flat, and the tank 7 is capable of swinging in a substantially vertical plane. Each of the tanks 7 have upper and lower closed ends 10 and 11, and the upper end 10 is provided with a removable cap 12, whereby a lubricant may be introduced into the tank.

Within each of the tanks 7 adjacent its lower end 11, is arranged a block 13 which is rigidly secured to the tank and provided with a vertical transverse opening 14. The block 13 is further provided with a horizontal longitudinal opening 15 which communicates with the central portion of the transverse opening 14.

The numeral 16 designates a valve which is screw-threaded as at 17 and disposed within the transverse opening 14. The end 17 of the valve 16 is adapted to close the inner end of the longitudinal opening 15 and to control the communication of said opening 15 with the transverse opening 14. The valve 16 is journaled through the upper end of the tank 7 as at 18 and is provided upon its upper end with a fixed wheel 19. The lower closed end 11 is provided with a boss 20 through which the transverse opening 14 extends, and said boss 20 carries an outer cylindrical casing 21 which is rigidly secured thereto by any suitable means. Within the outer casing 21 is disposed a pipe 22, the upper end of which is rigidly secured within the transverse opening 14 below the horizontal opening 15, as clearly illustrated in Fig. 3.

At the lower end of the outer casing 21 is arranged a block 23 provided upon its upper side with a boss 24 which is disposed within the lower end of the outer casing 21 and rigidly secured to said casing by suitable means. The block 23 is provided centrally thereof with an opening 25 which passes through the boss 24, and within which the lower end of the pipe 22 fits. The block 23 is provided with an L-shaped opening 26 which communicates with the outer casing 21 upon the outer side of the tube 22, as shown. The block 23 is further provided with a longitudinal opening 27 which communicates with the opening 25 and with a larger opening 28. The opening 28 in turn communicates with a cylindrical recess 29 formed upon the inner end of the block 23. The cylindrical recess 29 is much larger than the opening 28 and is adapted for the reception of a ball valve 30 which in turn is smaller than the internal surface of the recess 29. The ball valve 30 is retained within the recess 29 by means of a cap 31 which is screw threaded as at 32 upon the block 23. The cap 31 is provided with an opening 33 which forms a seat for the ball valve 30. The ball valve 30 extends beyond the outer side of the cap 31, and it is obvious that

when the block 23 engages the flange of a wheel, in a manner to be hereinafter described, the ball valve 30 will be forced into the recess 29 until said ball valve becomes flush with the outer side of said cap 31. When the ball valve 30 is thus forced within the recess 29, the same is moved from its seat 33 and a lubricant may then flow from the pipe 22 to the flange of the wheel. The ball valve 30 is normally held upon its seat 33 by means of coil spring 34 which is arranged within the opening 28.

The tank 7 is provided with an externally threaded boss 35, which is arranged near the lower closed end 11 and through which passes an opening 36, which communicates with the outer casing 21. By means of the boss 35 and its opening 36, a flexible hose may be secured to said boss and steam fed from the engine to the outer casing 21. The steam within the casing 21 keeps the oil or lubricant warm and thus prevents the same from hardening. The opening 26 forms a means whereby the steam may leave the outer casing 21.

The guide-yoke 5 has a pendulum or weight 37 pivotally connected to the central portion of the same as at 38. The pendulum 37 tapers toward its upper end and being pivotally connected at its upper end, to the guide-yoke 5, said pendulum is capable of swinging in a substantially vertical plane. Connecting rods 39 have their inner ends pivotally connected as at 40 to the pendulum 37, and have their outer ends pivotally connected as at 41 to ears formed upon the outer casings 21.

In the operation of my device, the valve 16 is raised so that oil may pass from the tank 7 into the tube 22. Steam is also fed into the outer casing 21. When the engine is rounding a curve, the wheel 1 is raised above wheel 2, as illustrated in Fig. 2. This causes the guide-yoke 5 to be tilted. The pendulum 37 will remain in a substantially vertical position and accordingly draw the tank 7 toward the wheel 1 and at the same time move the other tank 7 away from the wheel 2. It is to be understood that the pendulum 37 is acted upon by two opposing forces, namely centrifugal force and gravity. The force of gravity tends to retain the pendulum in a vertical position while centrifugal force tends to swing the same outwardly, and the pendulum therefore occupies a position which is the resultant of the two forces, as shown in Fig. 2. The tank 7 adjacent the wheel 1 will have its ball valve 30 forced into engagement with the flange 3, whereby said ball valve will be unseated and the oil allowed to flow upon said flange 3. It is obvious that the flange 4 of the wheel 2 is oiled in a similar manner when the wheel 2 is elevated above the wheel 1.

Having fully described my invention what I claim is:—

1. In a device of the kind described, the combination with a wheel provided with a flange, of a member supported by said wheel, an oil tank pivotally connected to said member, a discharge pipe connected to said tank, and a valve structure to control said pipe and engage the flange when said member is tilted.

2. In a device of the character described, the combination with a wheel provided with a flange, of a member supported by said wheel, a tank pivotally connected to said member, a pipe connected to said tank, a valve structure to control said pipe, and engage the flange when said member is tilted, a pendulum pivotally connected to said member, and connecting means between said pendulum and pipe.

3. In a device of the character described, the combination with a wheel provided with a flange, of a member supported by said wheel, a tank pivotally connected to said member, discharge means for said tank, a valve structure including a ball-valve, to control said means and engage the flange, said ball-valve being unseated by its engagement with said flange, when said member is tilted, a pendent structure pivotally connected to said member, and connecting means between said pendent structure and tank.

4. In a device of the character described, the combination with a wheel provided with a flange, of a member supported by said wheel, a tank pivotally connected to said member near said wheel, a discharge pipe for said tank, a valve structure to control said pipe, including a ball-valve, a spring to normally hold said ball-valve seated, said valve structure being disposed to engage the flange when the member is tilted, and said ball-valve being unseated by its engagement with the flange.

5. In a device of the character described, the combination with a wheel having a flange, of a member supported by said wheel, an oil tank pivotally connected to said member near the wheel, a discharge pipe for said tank, a valve structure to control said pipe and engage the flange when said member is tilted, said valve structure including a spring pressed ball-valve to be unseated by the flange, a casing surrounding said discharge pipe, and steam supply means for said casing.

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

WILLIAM ACER NOBLE.

Witnesses:
G. B. FARISS,
R. L. HILL.