

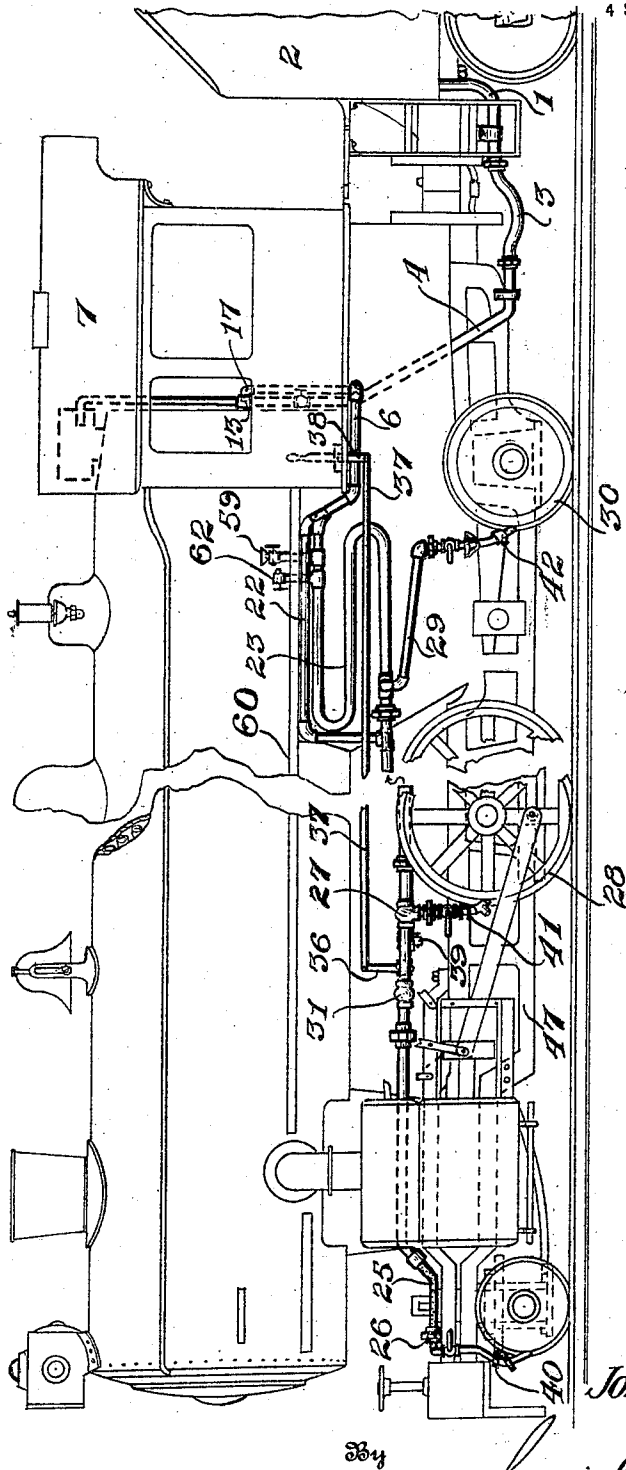
J. S. WHEELER.  
MECHANISM FOR OILING WHEEL FLANGES.  
APPLICATION FILED AUG. 23, 1920.

1,410,858.

Patented Mar. 28, 1922.

4 SHEETS—SHEET 1.

*Fig 1.*



Inventor

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4 SHEETS—SHEET 2.

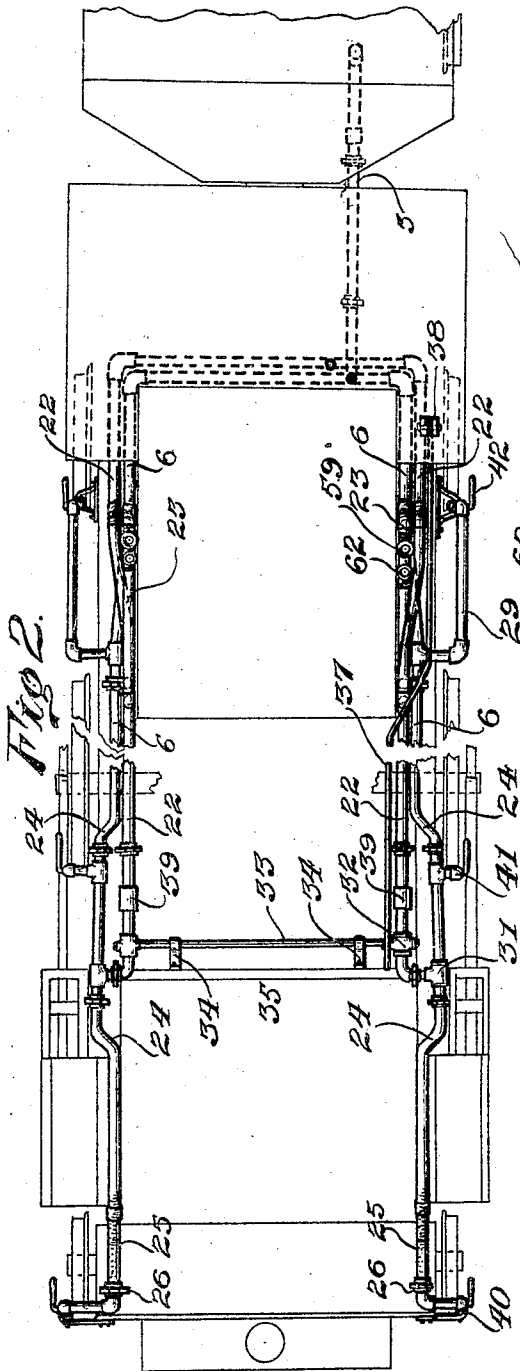


Fig. 2.

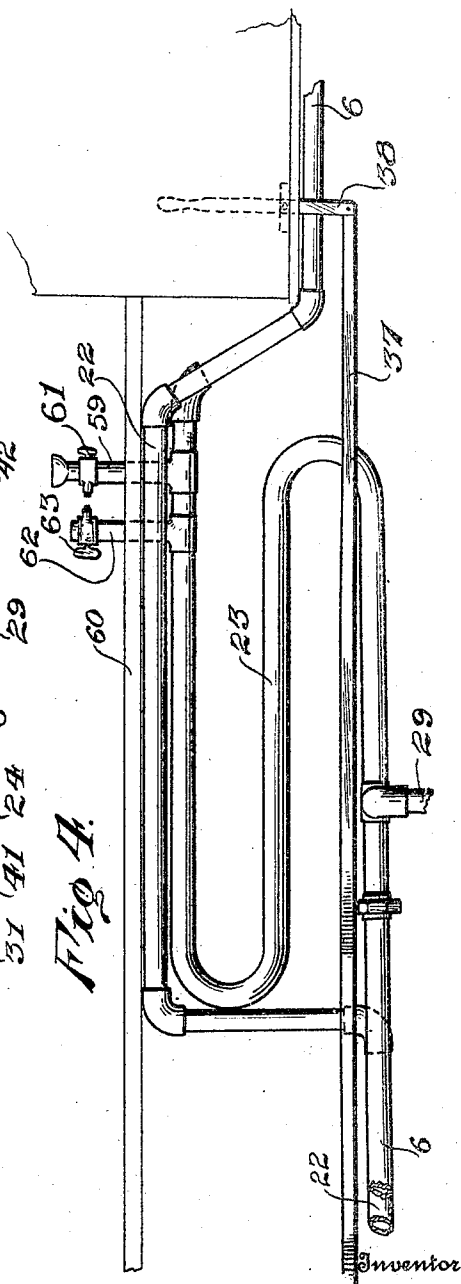


Fig. 4.

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Fig 3.

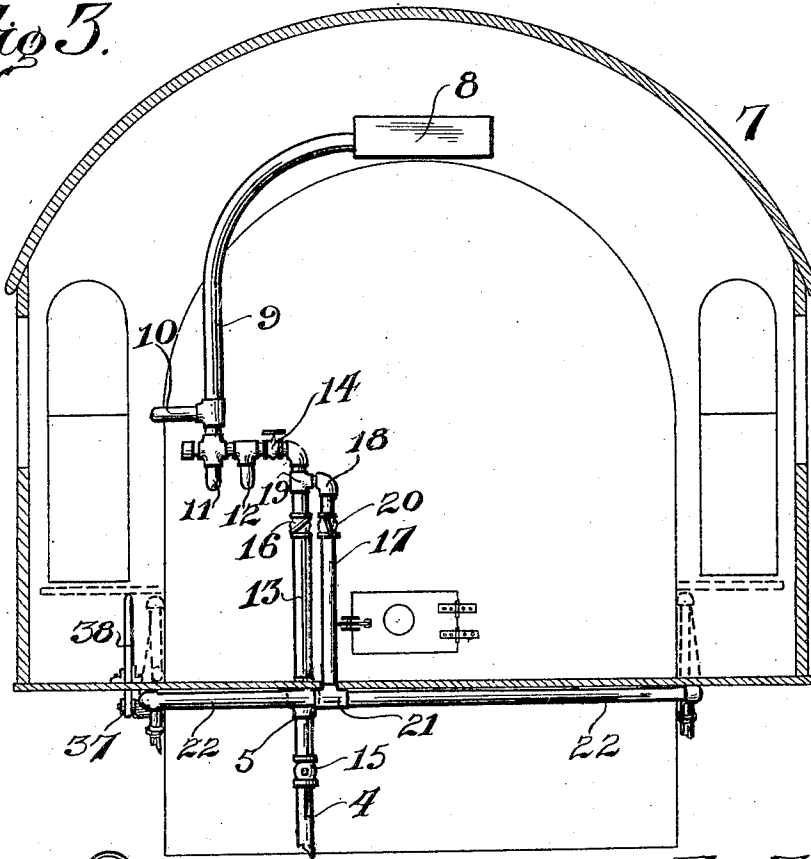


Fig 5.

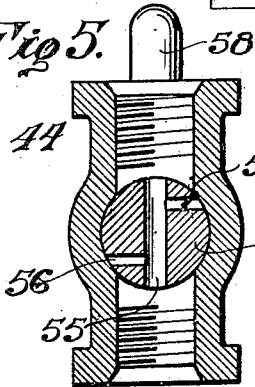


Fig 6.

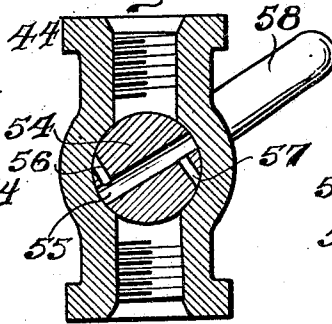
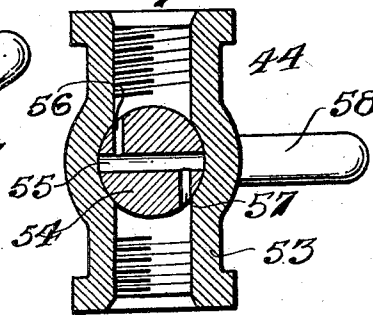


Fig 7.



John S. Wheeler INVENTOR.

BY

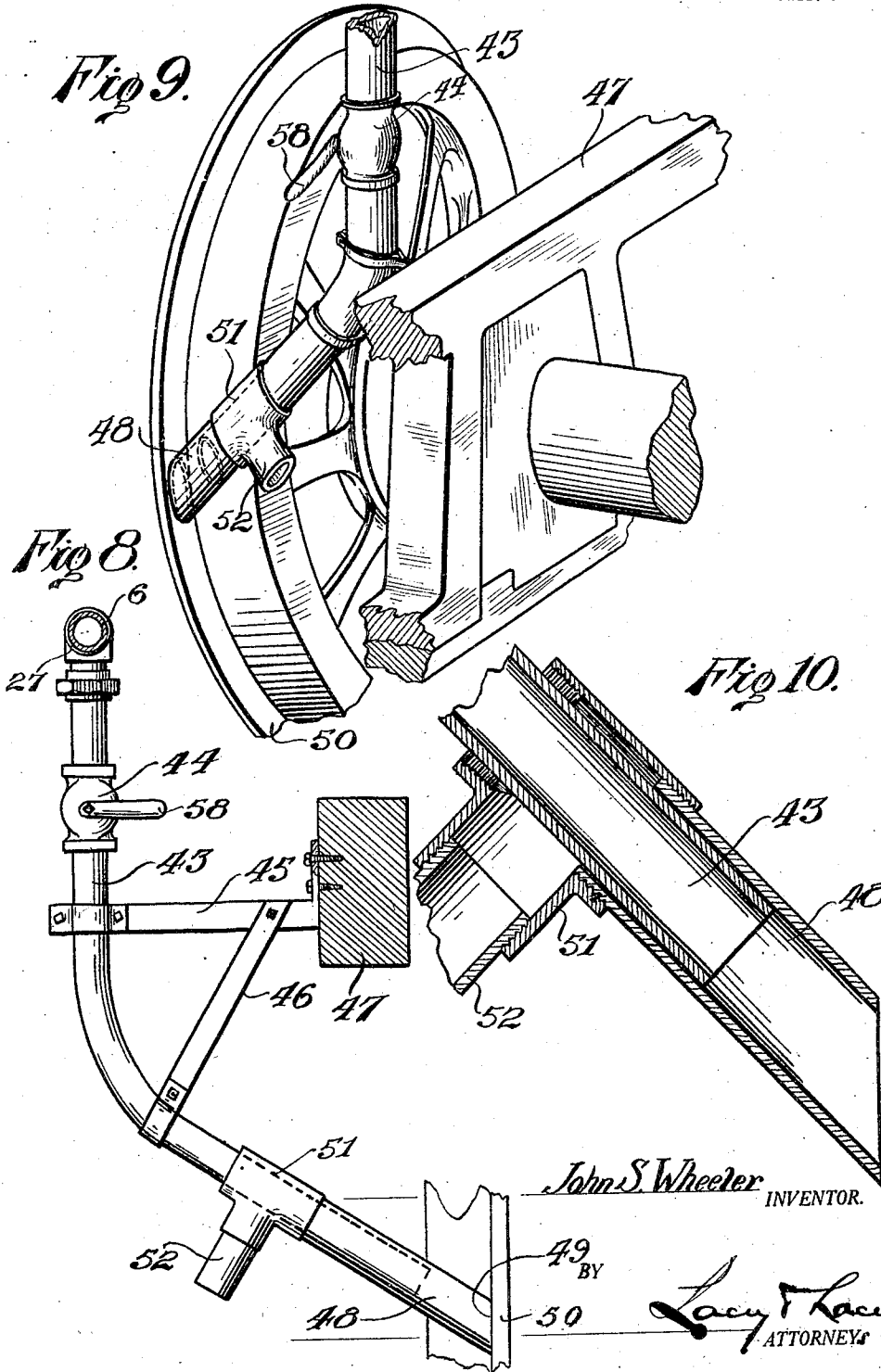
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4 SHEETS—SHEET 4.



# UNITED STATES PATENT OFFICE.

JOHN S. WHEELER, OF DUNSMUIR, CALIFORNIA.

MECHANISM FOR OILING WHEEL FLANGES.

1,410,858.

Specification of Letters Patent. Patented Mar. 23, 1922.

Application filed August 23, 1920. Serial No. 405,239.

*To all whom it may concern:*

Be it known that I, JOHN S. WHEELER, a citizen of the United States, residing at Dunsmuir, in the county of Siskiyou and State of California, have invented certain new and useful Improvements in Mechanisms for Oiling Wheel Flanges, of which the following is a specification.

This invention relates to apparatus for oiling the flanges of car wheels and has for its object the provision of means whereby the oil will be applied directly to the base of the flange and the oil-directing members may yield to the oscillation of the wheel as it rounds a curve in the track. Another object of the invention is to provide means whereby upon choking of the oil-applying member the accumulated oil will be directed onto the ground and will not fall upon the track to cause slipping of the wheels, and a still further object of the invention is to provide means whereby the oil may be applied to the flange in an increased flow when necessary or may be driven from the pipes and returned to the storage tank when so desired. A further object of the invention is to provide means whereby any dirt or sediment which may collect in the controlling valve may be easily driven therefrom. Other incidental objects of the invention will appear in the course of the following description and the novel features will be particularly pointed out in the claims following the description.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a locomotive having my improved wheel-flange oiler applied thereto;

Fig. 2 is a plan view of the same;

Fig. 3 is a rear elevation of so much of the locomotive cab as is necessary to an understanding of my invention;

Fig. 4 is an enlarged detail side elevation of a portion of the steam and oil lines;

Figs. 5, 6 and 7 are detail sectional views of the service valve showing different adjustments of the same;

Fig. 8 is an enlarged elevation of the oil-applying member and its support;

Fig. 9 is a perspective view of the oil-applying member showing the position of the same relative to a wheel when it is in use;

Fig. 10 is a longitudinal section of a portion of the oil-applying member.

For the purpose of illustrating my invention, I have shown a portion of an oil-burning locomotive of the three-truck type, parts of the locomotive being broken away and parts omitted. It is to be understood, however, that the particular type of locomotive is immaterial and that the invention may be applied to any form of locomotive without any material change in structure.

In carrying out my present invention, I connect a feed pipe 1 to the tank 2 and this pipe is coupled by a hose or flexible pipe 3 with the lower end of a supply pipe 4 on the locomotive. The said pipe 4 extends up into the cab of the locomotive and leads into a four-way coupling 5 from which oil-conveying pipes 6 lead through the sides of the cab and along the sides of the boiler to the front end of the locomotive as will be presently more fully set forth. In the upper portion of the cab, indicated at 7, is the usual fountain 8 from which steam is supplied to various elements of the locomotive, the steam being led from said fountain by a pipe 9 from which various branches 10, 11 and 12 extend and in the illustrated embodiment of my invention a pipe 13 rises from the coupling 5 to the branch 12 and is coupled through said branch to the pipe 9, a check valve 14 being fitted in the said pipe 13 at the junction of the same with the said branch 12 so that while steam will be permitted to flow into and through the pipe 13 a backward flow into the pipe 9 will be prevented. The oil supply pipe 4 is equipped with a cut-off valve 15 below the coupling 5 and above the said coupling a cut-off valve 16 is fitted in the pipe 13. A steam pipe 17 is disposed within the cab adjacent and parallel with the pipe 13 and the said pipe 17 communicates with the pipe 13 above the valve 16 through an elbow 18 and a coupling 19, as shown and as will be readily understood. A cut-off valve 20 is provided in the pipe 17 below the elbow 18, as shown, and the lower end of said pipe 17 leads into a T-coupling 21 from which steam pipes 22 pass to the sides of the cab and along the sides of the boiler close to the oil line 6, as shown.

In advance of the cab, the oil pipes are bent or coupled to elbows so as to form coils, shown at 23, which are preferably clamped to the sides of the fire-box so that the oil will be maintained in a heated condition and may, therefore, be very readily applied to

the wheel flanges. The steam pipes, as has been stated, are disposed close to the coils and the oil lines but may be offset therefrom at such intervals in their lengths as will facilitate the use of tools in assembling the parts and, therefore, expedite the work of applying the apparatus to an engine. The oil pipes and the steam pipes will preferably be wrapped together with asbestos from the point where they leave the cab to the point where the cut-off valves are inserted in the steam pipes adjacent their junctions with the oil pipes so that the loss of heat will be prevented and the proper thin condition of the oil will be maintained. Offsets 24 are formed in the oil pipes to permit them to pass behind the cylinders of the locomotive and provide clearance for wrenches or other tools which it may be desired to apply to either pipe for the purpose of repairing or properly connecting the same in operative relation. The oil pipes extend beyond the cylinders and at their front extremities are coupled to short lengths of hose 25 which serve to convey the oil to the couplings 26 at the upper ends of the oil-applying members carried by the pony truck. Similar oil-applying members are carried by the oil pipes and connected thereto by T-couplings 27 to apply the oil to the driving wheels 28 and adjacent the coils 23 branches 29 lead from the oil pipes to oil-applying members which are disposed to act on the wheels 30 of the trailer truck. It will be understood particularly upon reference to Fig. 2 of the drawings, that the oil and steam lines are carried along both sides of the locomotive and oil is applied to the wheels on both sides. Inasmuch, however, as the arrangement on one side is a duplicate of that on the other a description of the arrangement on one side will be sufficient. The front ends of the steam pipes 22 are turned outwardly and lead into the oil pipes through T-couplings 31 in rear of the locomotive cylinders and in rear of and adjacent these couplings cut-off valves 32 are mounted in the steam pipes, the said valves being of any well-known turning-plug construction and connected for simultaneous operation by a rock shaft 33 mounted in suitable brackets 34 on the locomotive saddle 35. The rock shaft 33 is provided with a crank 36 from the end of which a pitman or connecting rod 37 extends rearwardly to a point below the cab where it is connected to a hand lever 38 extending into the cab so that the valves may be opened or shut by the engineer or fireman as will be readily understood. Drain cocks 39 are also provided in the steam pipes adjacent the cut-off valves 32 so that the water of condensation may bleed from said pipes and not freeze and render the apparatus inoperative. The oil-applying members 40, 41 and 42 are duplicates in construction and arrange-

ment and are shown in detail in Figs. 8, 9 and 10. Each oil-applying member comprises a coupling 27 by which it is connected to the oil pipe 6 and from which a feeding pipe 43 depends, a service valve 44 being interposed in the said pipe 43 adjacent the coupling, as shown clearly in Fig. 8. The pipe 43 is supported by brackets 45 and 46 extending laterally from the truck frame 47 and the lower portion of the said pipe is curved or bent laterally so as to extend toward the wheel at an angle of about 45° to a horizontal plane and also at about the same angle to a transverse vertical plane of the locomotive. A nozzle 48 is slidably mounted upon the lower or discharge end of the pipe 43 and the extremity of this nozzle is beveled, as shown at 49, so as to properly bear against the base of the car wheel flange 50. The nozzle 48 is carried by a T-coupling 51 which encircles the laterally directed portion of the pipe 43 and from which depends a short nipple 52 having an open lower end. The T-coupling 51, the nozzle 48 and the nipple 52 may conveniently be threaded together, as shown clearly in Fig. 10, but it will involve no departure from my invention to form these members as one integral structure by casting and a single cast member may be sometimes preferred.

The service valve 44 is shown in detail in Figs. 5, 6 and 7 and comprises a valve case or cylinder 53 across the bore of which extends a turning plug 54. This plug has a central transverse port 55 which opens through the opposite sides of the plug and from the said port near the opposite ends thereof similar working ports 56 and 57 extend in opposite directions at right angles thereto. The plug 54 is equipped at one end with a handle 58 exteriorly of the casing or cylinder 53 and this handle is disposed in the same radial plane as the port 55. In the normal working position of the valve, the plug is turned, as shown in Fig. 7, so that the ports 56 and 57 will establish communication with the bore of the valve case and these ports should be of such diameter that only so much oil as is needed to properly lubricate the car wheel flange may pass through the valve, the rate of flow being determined by the needs when the wheels are running upon a straight track. When the engine is at rest and lubrication of the flanges is not necessary, the valve is turned to the position shown in Fig. 6 so that the ends of all the ports will be covered by the walls of the valve case and flow through the valve case will consequently be cut-off. Should sediment collect within the valve case so as to choke the port 56 and thereby unduly retard the flow of oil, the valve is turned to the position shown in Fig. 5 whereby the matter accumulated upon the plug around the port 56 will be scraped from said

port as the plug turns toward the adjacent wall of the case. When the plug has reached the position shown in Fig. 5 the large port 55 will be open and the oil may then flow directly therethrough, the increased flow being ordinarily sufficient to carry off all the accumulated dirt. Should the increased flow of oil, however, be insufficient to clear the valve, steam may be turned into the oil pipes and the accumulated sediment will then be very quickly blown out.

If the invention is to be applied to a locomotive which burns wood or coal and is not equipped with oil burners or with a large oil storage tank, it will be necessary to manually fill the oil pipes and to permit this to be done I connect in the oil pipes 6, preferably at the beginning of the coils 23, funnels or filling pipes 59 which extend up through the running boards 60 of the locomotive and are equipped with cut-off valves 61 of any preferred construction so that after the pipes have been filled, the valves may be closed and thereby prevent the entrance of dirt and dust into the oil pipes. In order that the oil pipes may be thus fully charged, it is necessary to permit the air trapped therein to escape and to this end I provide a vent pipe or tube 62 which rises from the oil pipe adjacent the filling tube or funnel 59 and is equipped with a valve 63 as will be readily understood. If the valve 63 be opened before oil is poured through the funnel or filling tube 59, the air in the pipe 6 will readily escape and the pipes may be thus fully and expeditiously charged.

Assuming the valve 16 to be opened and the valve 15 to be closed with the service valves 44 open, steam will flow through the pipe 13 to the coupling 5 and thence through the oil pipes to and through the oil-applying members so that said parts will all be heated prior to the introduction of oil into the same. If the valve 16 be then closed and the valve 15 opened, oil will flow through the pipe 4 into the oil pipes and to the several oil-applying members. It will be understood, of course, that the valves 32 are closed while the valve 20 may be opened or closed as circumstances may demand. Should it be desired to force the feeding of oil to the flanges as when rounding a curve and a somewhat greater flow is needed, the valve 15 is closed and the valve 16 is opened whereupon the steam acting upon the oil in the pipes 6 will force the same in an accelerated flow through the oil-applying members to the wheel flanges. When the engine again reaches a straight track, the valve 15 will be again opened and the valve 16 closed whereupon the partial vacuum created in the oil lines will set up a flow of oil from the storage tank to bring the supply in the oil line up to normal. When the engine has about completed its run, the valve 16 is closed, if it

should happen to be open, and the valve 20 is opened, after which the lever 38 is swung forward so as to exert a pull upon the crank 36 and thereby open the service valves 32, the last-named valves being closed except when it is necessary to blow out the oil-applying members or spreaders or drive oil back to the tank. The steam thus admitted to the oil line will drive the oil backward therefrom past the valve 15 and through the pipe 4 into the tank. When the engineer or the fireman hears the steam passing into the tank, the valves 32 are at once closed and the valve 15 may be closed so that the oil will be retained in the tank.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that I have provided a simple apparatus by the use of which the wheel flanges will be effectually lubricated and which may be readily controlled by an engineer or a fireman from within the cab. It will, of course, be understood that the operating lever may be duplicated on both sides of the cab so that the device may be controlled from either side as may be most convenient. Particular attention is invited to the oil-applying members by which the oil is deposited on the wheel flange. The nozzle 48 bears by gravity against the base of the flange and, therefore, deposits the oil at the point where it is most needed inasmuch as the motion of the wheel tends to feed the oil toward the edge of the flange. Inasmuch as the nozzle is mounted loosely upon the end of the pipe 43 it may slide back and forth upon the pipe and thereby accommodate the varying position of the wheel as it passes around the curves in the track. Should the wheel take up an excessive quantity of mud, the end of the nozzle may be choked to such an extent that the oil cannot flow through the same and in that event it will flow through the space between the pipe 43 and the nozzle and escape through the nipple 52 and inasmuch as the said nipple is set at an inclination toward the middle of the track, the oil will be deposited on the ground and not upon the rails where it would tend to make the treads of the driving wheels slippery and impair the efficiency of the locomotive. Moreover, this nipple 52 serves as a pendulum or weight to hold the nozzle 48 in such a position that its beveled edge or face 49 will be parallel to the wheel flange and, consequently, the operative relation of the nozzle to the flange will be maintained. In the actual application of the apparatus to a locomotive, the steam pipes or the oil lines may be offset at such intervals as may seem desirable to expedite the assembling of the parts and for the same reason union couplings will be employed to connect sections of the pipe so that repairs or renewals may be easily made.

Having thus described the invention, what is claimed as new is:

1. In an apparatus for the purpose set forth, the combination of an oil feed pipe, a nozzle slidably mounted thereon and projecting beyond the same, and a downwardly and inwardly directed nipple having an open lower end carried by the inner end of said nozzle.
2. In an apparatus for the purpose set forth, the combination of an oil feed pipe having its discharge portion inclined downwardly and laterally, a nozzle slidably mounted on said discharge portion and projecting beyond the same, the end of said nozzle being beveled whereby it may bear against a wheel flange, and an open inwardly and downwardly directed nipple carried by the inner end of said nozzle.
3. In an apparatus for the purpose set forth, the combination of an oil line, an oil-supply, oil-applying members connected with said oil line and adapted to bear upon car wheel flanges, a steam line, controlling valves in the oil-applying members, the steam line and the oil line, and valved connections between the steam line and the oil line whereby the steam may be caused to augment the flow through the oil-applying members or to return the oil from the oil line to the oil supply.
4. In an apparatus for the purpose set forth, the combination of an oil line, oil-applying members connected with said line and adapted to bear upon car wheel flanges,

a filling tube rising from the oil line, and an air vent connected with the oil line.

5. In an apparatus for the purpose set forth, the combination of an oil line extending forwardly along the side of a locomotive, a steam line also extending along the side of a locomotive and having its front end connected to the oil line adjacent the front end of the locomotive, means connected with the oil line for applying oil to the flange of a car wheel, a service valve in the steam line adjacent the junction of the same with the oil line, and means extending from said valve to the cab of the locomotive to set said valve.

6. In an apparatus for the purpose set forth, the combination of an oil supply, a steam supply, a pipe leading from the oil supply, a pipe leading from the steam supply, a coupling connecting said pipes, cut-off valves in said pipes, a check valve in the pipe leading from the steam supply in advance of the cut-off valve therein, an oil line leading from said coupling, oil-applying members connected with said oil line, a branch steam line connected with the pipe leading from the steam supply at a point between the check valve and the cut-off valve in said pipe, a cut-off valve in the last-mentioned steam pipe with the oil line, and a service valve in said steam pipe adjacent said coupling.

In testimony whereof I affix my signature.

JOHN S. WHEELER. [L. S.]