June 20, 1933. C. A. CLARK 1,915,216

TRACK LUBRICATION

Filed Dec. 2, 1932

Fig. 1.

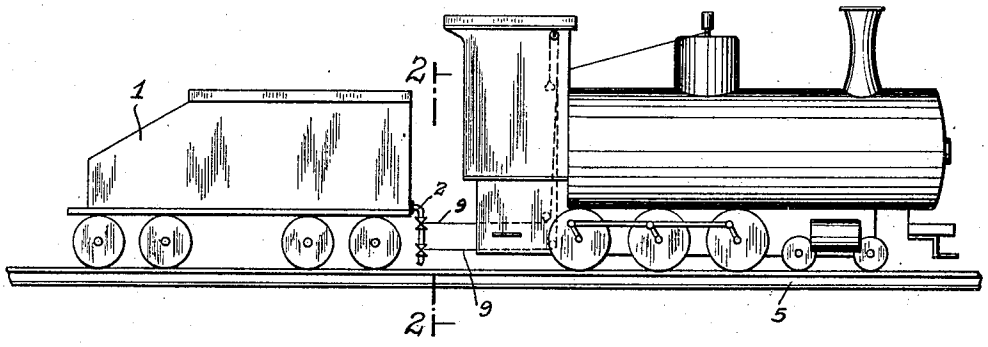



Fig. 2.

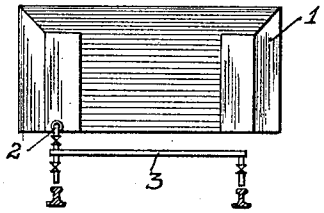
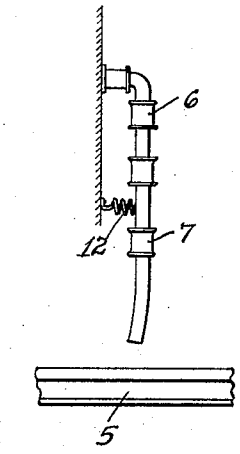



Fig. 4.



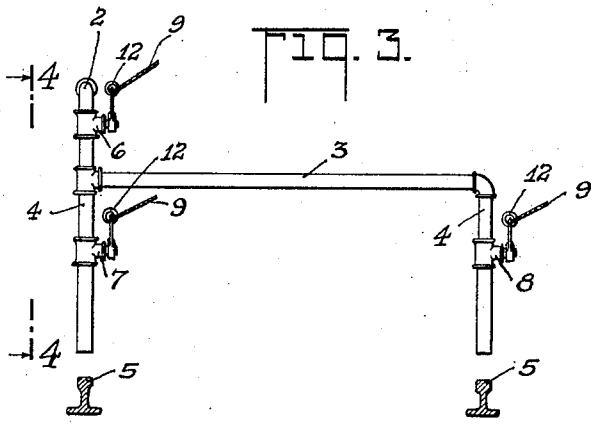




Fig. 3.

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# UNITED STATES PATENT OFFICE

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## TRACK LUBRICATION

Application filed December 2, 1932. Serial No. 645,472.

This invention relates to the lubrication of the contacting surfaces of railway tracks and wheels, to materially reduce the frictional losses which result from the slippage of wheels and the rubbing of wheel flanges on railway tracks in traversing curves in railways.

The object of the invention is to accomplish efficient lubrication between the rails and the contacting wheels of the cars of a train without diminishing the effect of the tractive contact of the locomotive driving wheels with the rails, due to lubricant which often remains upon the surface of the rails, and at the same time to dispense with expensive apparatus heretofore installed on each individual car to apply lubricant to wheel flanges.

As is well known, the wheels of railway rolling stock are rigidly fixed on the axles; so that the wheels on opposite sides of a car must rotate at the same angular velocity. As a result, in traversing curves there must be some slippage between the load bearing surfaces of the track and the wheels on one or both sides of a train; and the resulting friction occasions a heavy drag on the tractive power of the locomotive. This often necessitates a division of trains into sections in a region of sharp curves, a disadvantage which my invention has overcome in actual practice.

My invention contemplates the use of a lubricant which is entirely volatile at ordinary atmospheric temperatures, vaporizing completely without leaving any lubricating residue. Any such lubricant may be used whether liquid, semi-liquid or solid. For the purpose of this application I have disclosed an embodiment of the invention in its simplest and most inexpensive form, using water as the lubricant.

Figure 1 shows in elevation a locomotive and its tender, with a conventional arrangement of pipes adapted to deliver water from the usual tender water-tank directly to the rails.

Figure 2 is an elevation of the tender viewed from the front, illustrating the disposition of the pipes in such manner as to deliver water to either, or both, rails as may be desired.

Figures 3 and 4 are detail views showing the disposition of the necessary control valves.

Heretofore it has been the custom to confine wheel and track lubrication to wheel flanges and to the sides of the rails in order not to interfere with locomotive traction; for if any oil or other lasting lubricant finds its way to the top of the rails, the driving wheels spin on the application of power, without sufficient frictional engagement with the rails to move the load. And this supposedly necessary avoidance of lubrication of the tops of the rails has made it necessary to construct the rolling surfaces of the wheels conical rather than cylindrical, with sufficient transverse play between the wheels and the rails to permit of neutralization of friction in traversing curves. But this rolling friction cannot be entirely overcome in this way, because, due to natural features of the region through which the road is built, curves cannot be made uniform.

In the practice of my invention, as herein disclosed, I permit water to flow onto the rails at a point which the locomotive has passed over, and this effectively lubricates the track for the time being. When the train has passed over, the lubricating fluid quickly evaporates, leaving the rails perfectly free of any lubricant whatever, and ready for the next train to be drawn over.

Referring to the drawing, 1 indicates the water-tank of a locomotive tender; 2 is a pipe tapped into the water-tank near the bottom; 3 is a branch pipe leading to a point adjacent to the forward wheel on the opposite side of the tender. Branch pipes extend downward at 4, 4, to points directly over the tracks 5, 5.

Valves are indicated at 6, 7, 8, either or any of which may be operated separately or conjointly, as may be desired, according to the requirements for most efficient operation at any particular place, as experience may have taught. Cords 9 are provided for the purpose of operating the respective valves, which valves may be biased for closure by springs or otherwise, as indicated at 12. These cords

may be led to the locomotive cab and placed within convenient reach of the engineer or fireman.

It is to be understood that I do not restrict myself to the use of water as a lubricant, or to any particular location of the lubricant receptacle, the description herein being intended as illustrative only. It is also to be understood that in the claims the word "track" is used to designate the rails of a railway.

Having now fully described my invention, I claim:

1. In train and track lubrication the method which consists of applying a lubricant to the top of the track at a point between the tractor and the train.

2. In railway wheel and track lubrication, a track and a train, and means carried by the train for applying water directly to the top of the track.

In testimony whereof I affix my signature.

CHARLES A. CLARK.