W. J. TREMAIN.

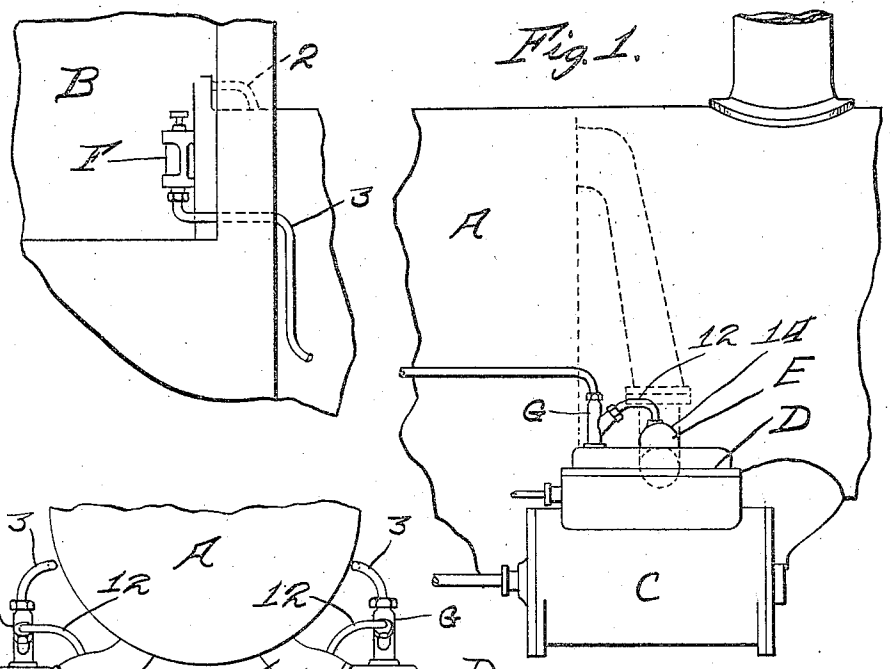
LUBRICATING MECHANISM FOR LOCOMOTIVES.

APPLICATION FILED JAN. 3, 1916.

1,197,873. Patented Sept. 12, 1916.

2 SHEETS—SHEET 1.

Fig. 1.



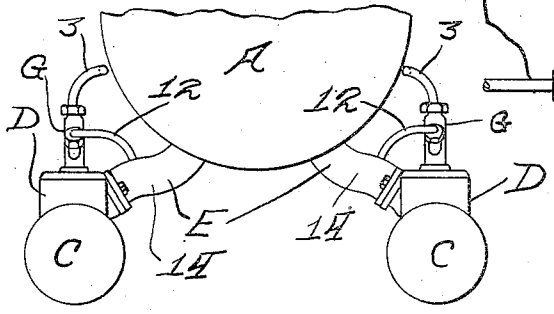


Fig. 2.

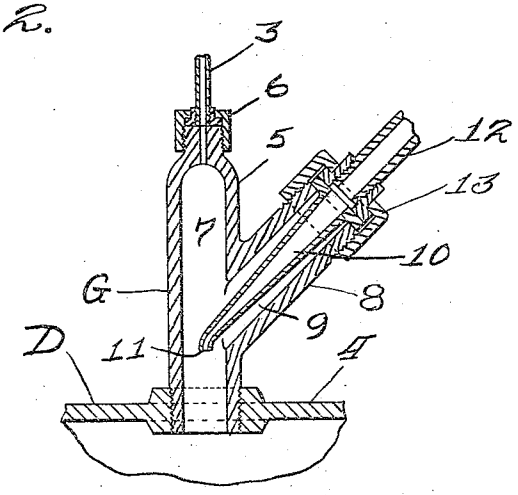


Fig. 3.

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2 SHEETS—SHEET 2.

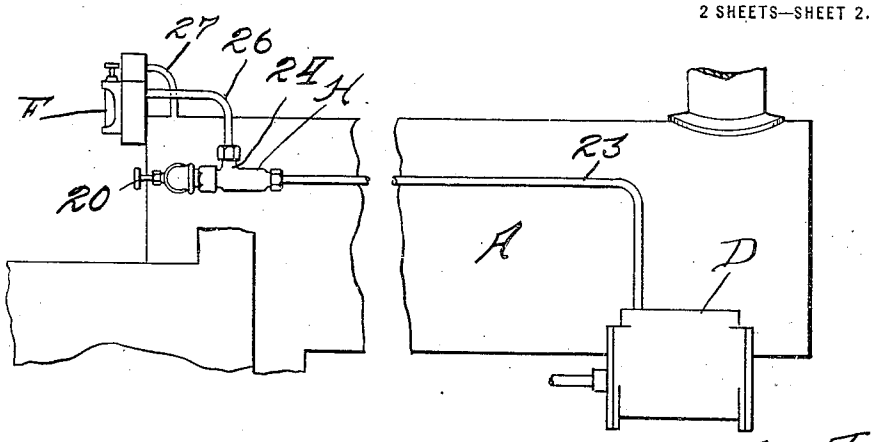


Fig. 4.

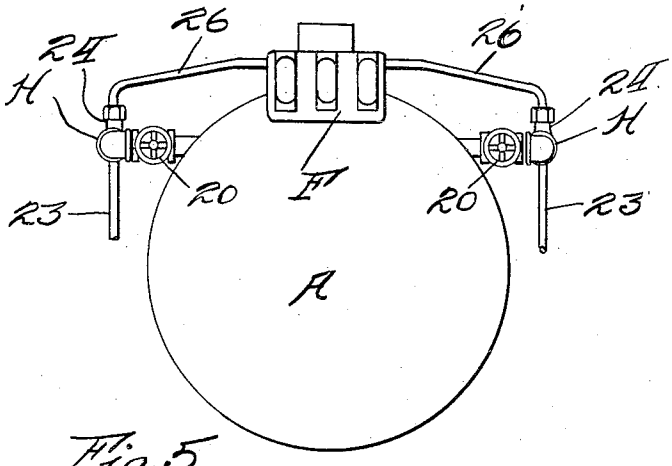


Fig. 5.

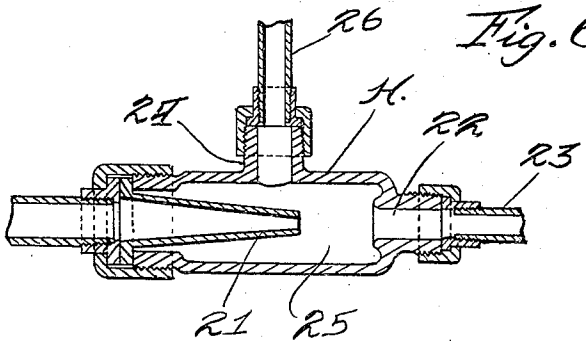


Fig. 6.

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UNITED STATES PATENT OFFICE.

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LUBRICATING MECHANISM FOR LOCOMOTIVES.

1,197,873. Specification of Letters Patent. Patented Sept. 12, 1916.

Application filed January 3, 1916. Serial No. 69,738.

To all whom it may concern:

Be it known that I, WILLIAM J. TREMAIN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Improvement in Lubricating Mechanism for Locomotives, of which the following is a specification.

This invention relates to lubricating mechanism for cylinder valve chambers on steam engines, and is adapted for coöperation with boilers on locomotives or stationary steam plants or in other places.

The primary object of this invention is to force the oil positively into the valve chambers, so that the parts of the valves and the working surfaces between the pistons and cylinders upon steam engines are thoroughly and efficiently lubricated.

In the accompanying drawings, I have illustrated the application of my invention to a locomotive, but the invention is applicable to other types of engines and boilers.

In the drawings, Figure 1 is a side elevation of a detail of a locomotive showing my invention applied thereto; Fig. 2 is a front elevation of another detail; Fig. 3 is a section of a detail; Fig. 4 is a side elevation of a detail of an alternative construction; Fig. 5 is an end view of a detail of the construction illustrated in Fig. 4, and Fig. 6 is a longitudinal section of a detail of the construction illustrated in Fig. 4.

In the drawing, A indicates a portion of the boiler of a locomotive, B a detail of the cab, C one of the cylinders, D one of the cylinder steam chests, E the steam duct leading from a source of superheated steam in the boiler and F the usual lubricator, which is located in the cab. The lubricator being of ordinary construction has the usual source of oil supply and may be connected to a source of saturated steam by the pipe 2 tapped into the boiler. 3 indicates one of the outlet pipes leading from the lubricator which usually is connected directly with the cylinder steam chest D. As the parts of the apparatus which lead to each of the cylinder valve chambers are similar, a description of one set will suffice, it being understood that a similar set of devices is employed leading from the lubricator to each cylinder valve chamber. Arranged on the casing 4 of the cylinder valve chamber is a steam attachment G, the body of which is in the form of a tube 5 having its lower end threaded into the wall of the valve casing and its upper end coupled by the bushing 6 with the lower end of the pipe 3, whereby oil from the lubricator is free to enter the chamber 7 in the tube leading downwardly into the cylinder valve chamber. The tube 5 is formed with a branch 8, the passage therein being inclined downwardly into the tube toward the valve casing. Mounted within this downwardly extending branch duct 9 is a nozzle 10, the reduced lower end of which enters the chamber in the tube, so that its orifice 11 faces downwardly toward the cylinder valve chamber. The upper end of the nozzle is coupled with a steam pipe 12 by means of a bushing 13, said pipe being tapped into the duct 14 leading from a source of superheated steam supply in the boiler A. The size of the orifice 11 and the pipes leading from the lubricator and source of superheated steam supply are proportioned, so that a jet of superheated steam will automatically and positively project the oil which is forced by the lubricator through the pipe 3 downwardly into the cylinder valve chamber.

In the alternative construction the attachment H which is of modified form is located near the lubricator and is operated by saturated steam instead of superheated steam, the supply of saturated steam being admitted into the attachment through the hand operable valve 20. The nozzle 21 through which the saturated steam is forced, projects a jet of steam longitudinally through the passage 22, which is connected by the pipe 23 with the cylinder steam chest D. The branch 24 which extends into the chamber 25 of the attachment at substantially right angles to its longitudinal axis admits the oil from the supply pipe 26 leading from the lubricator F. The lubricator F is of substantially the same construction as that illustrated in Fig. 1, it being connected by the pipe 27 with a supply of saturated steam received from the boiler. A similar set of devices is employed for each cylinder as in the preferred construction. In operation the lubricating oil which is forced downwardly from the lubricator F enters the attachment immediately back of the orifice of the nozzle. The saturated

steam which blows through the nozzle catches the oil and projects it forwardly and causes it to enter the cylinder valve chamber positively through the pipe 23.

In accordance with the patent statutes I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative, and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. Lubricating mechanism, comprising, in combination with a cylinder valve chamber and an oil feed, an attachment comprising a casing formed with a main passage and a branch passage, an end of one of said passages being connected with said oil feed to receive lubricating oil therefrom, and the other end of the passage opposite said oil receiving passage being connected with said cylinder valve chamber, a nozzle arranged in the other of said passages having its inlet directly connected with a source of superheater steam supply and its orifice directed forwardly to project the oil from said feed supply positively toward and into said cylinder valve chamber.

2. Lubricating mechanism, comprising, in combination with a cylinder valve chamber on a locomotive and an oil feed in the cab of said locomotive, an attachment comprising a casing formed with a main passage directly connected with said oil feed to receive pure lubricating oil therefrom and with said valve chamber and a branch passage inclined forwardly into said main passage toward said valve chamber, a nozzle in said branch passage extending forwardly into said main passage and having its orifice directed forwardly to force oil from said main passage directly into said valve chamber and a source of superheated steam supply with which the inlet of said nozzle is connected, whereby oil is projected automatically by a jet of superheated steam issuing from said orifice into said valve chamber.

3. A lubricating device for superheater locomotives provided with an oil feed and a cylinder valve chamber, an attachment comprising a casing formed with a main and a branch passage opening thereinto to deliver at the same point into said chamber, a direct connection between said oil feed and one of said passages, and a connection between the superheater steam supply and the other of said passages for projecting by a force feed action the lubricant into said chamber.

4. The combination with a superheater locomotive having an oil feed and a cylinder valve chamber, an attachment comprising a casing formed with a main and a branch passage opening thereinto to deliver at the same point into said chamber, a direct connection between said oil feed and one of said passages, and a direct connection between the superheater steam supply and the other of said passages for automatically projecting the lubricant into said chamber.

5. The combination with a superheater locomotive having an oil feed and a cylinder valve chamber directly fed from the superheated steam supply, of a casing communicating with said chamber and located in proximity to said feed connection, a direct feed connection between said oil feed and said casing, and means directly connecting said superheated steam supply with said casing for projecting the lubricant from said oil feed into said casing.

6. The combination with a superheater locomotive having an oil feed and a cylinder valve chamber directly fed from the superheated steam supply, of a casing communicating with said chamber and located in proximity to said feed connection, a direct feed connection between said oil feed and said casing, and means connecting said superheated steam supply with said casing for automatically projecting the lubricant from said oil feed into said casing.

In testimony whereof, I have signed my name to this specification.

WILLIAM J. TREMAIN.

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