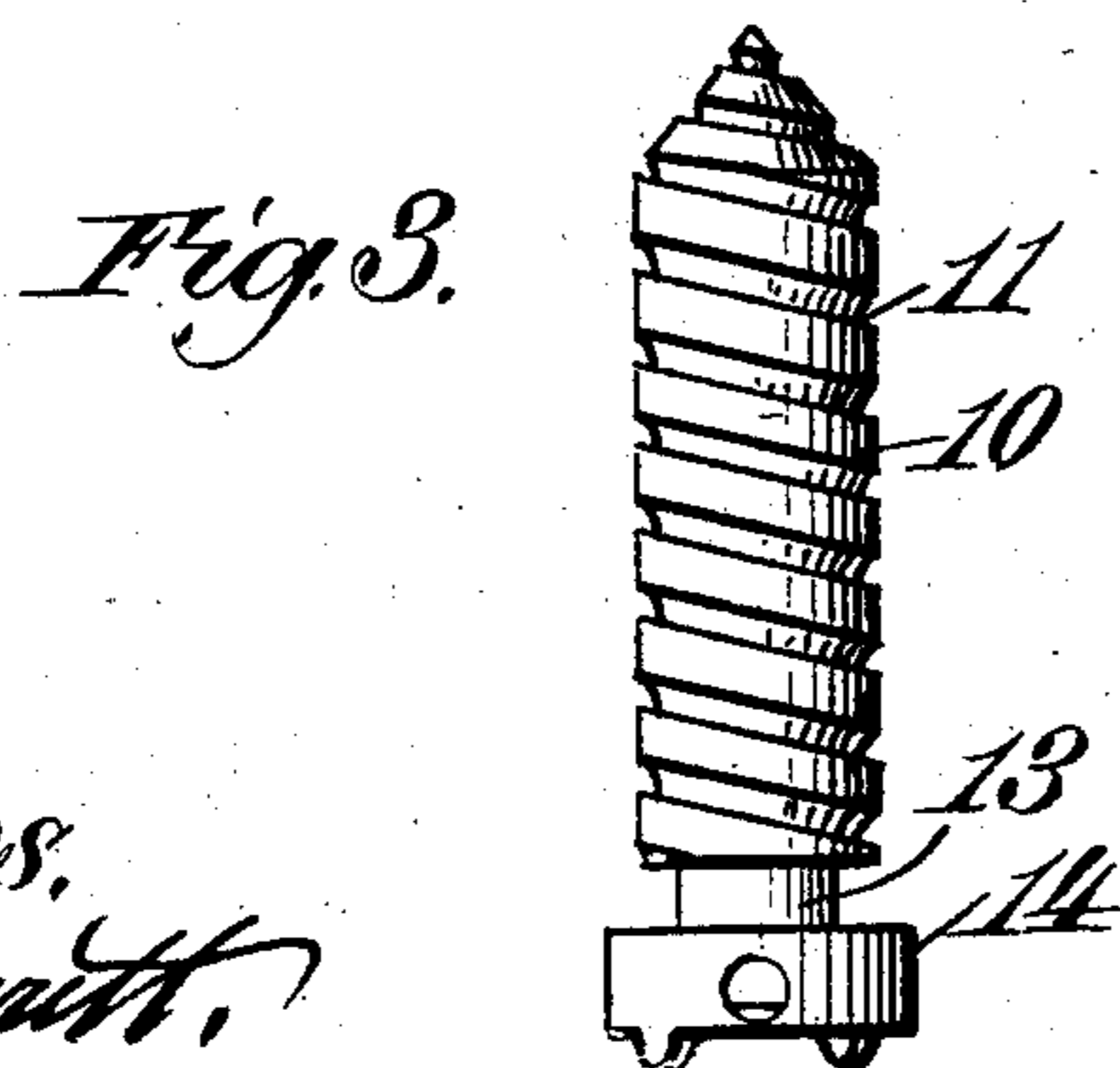
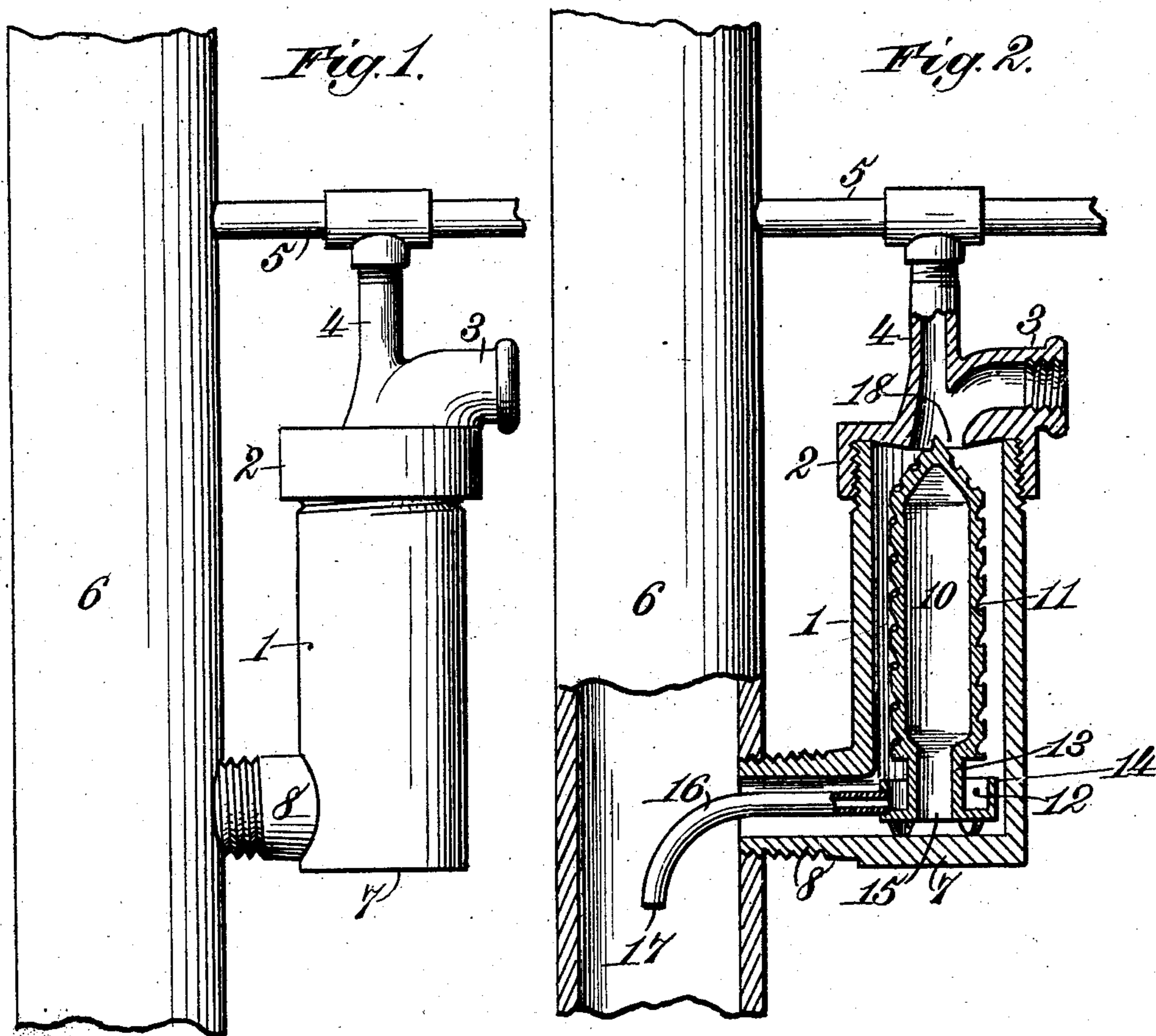


No. 850,771.

PATENTED APR. 16, 1907.

W. P. MAINGAULT.  
VAPORIZING DEVICE FOR LUBRICANTS.  
APPLICATION FILED DEC. 11, 1906.



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13  
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# UNITED STATES PATENT OFFICE.

WILLIAM P. MAINGAULT, OF MEMPHIS, TENNESSEE.

## VAPORIZING DEVICE FOR LUBRICANTS.

No. 850,771.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed December 11, 1906. Serial No. 347,338.

*To all whom it may concern:*

Be it known that I, WILLIAM P. MAINGAULT, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented new and useful Improvements in Vaporizing Devices for Lubricants, of which the following is a specification.

This invention relates to a vaporizing device for lubricants of that class wherein the lubricant is fed to a receptacle connected to a steam-supply pipe at opposite extremities, the one connection between the receptacle and steam-supply pipe being the outlet into the latter of a vaporized lubricant and steam, the object of such apparatus being to reduce the lubricant to vapor or spray form and commingle it with steam for effective application to the working parts of machinery designed to be operated by steam-pressure—such, for example, as the cylinder of an engine.

The present vaporizing device is simplified in its construction and operates to effectively vaporize the lubricant under steam heat and to insure a regular feed of the vaporized lubricant with the steam into the tubular conveying means or pipe connected to the machinery adapted to be lubricated.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter specified.

In the drawings, Figure 1 is a side elevation of a vaporizing device embodying the features of the invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a detail elevation of the vaporizing cone or bell forming the essential feature of the invention.

The numeral 1 designates a receptacle or receiver which may be of any suitable construction and preferably consists of a body or retort having a screw-cap 2, provided with a laterally-directed oil-feed-pipe connection 3, to which a suitable pipe, (not shown,) may be attached and supply the vaporizing device with lubricant or oil from a suitable source. Rising from the cap 2 is a steam-supply pipe 4, which is connected to a pipe 5, running from a steam-conduit 6, the latter serving as the steam-supply means for machinery designed to be operated by steam-pressure—such, for example, as a steam-cylinder or steam-chest or any analogous steam-controlled element. The bottom 7 of the receptacle or receiver 1 is horizontally flat and closed, and projecting outwardly therefrom

is a coupling flange or nipple 8 to receive a suitable attaching connection which engages the steam-conduit 6.

Arranged in the receptacle or receiver 1 is a cone or bell 10, comprising a cylindrical body with a conical top, and from the apex of the top downwardly over the said body a spiral groove 11 extends and at the lower end of the body communicates with or is disposed over a circumferential gutter 12, which is formed by diametrically reducing the lower part of the body, as at 13, and providing a lower upstanding guard-flange 14. The cone or bell 10 is hollow, and the body thereof is imperforate. The bottom, as at 15, is fully open and is held above the bottom 7 of the receptacle or receiver to permit the steam entering the receiver to circulate within the cone or bell with material advantage in heating the latter and reducing the lubricant flowing downwardly thereover. A small feed-pipe 16 connects with the flange of the gutter 12 and passes out through the nipple 8 into the conduit 6 and terminates in a downwardly-deflected nozzle or outlet extremity 17.

The operation of the improved device is as follows: The steam-conduit 6 conducts the steam from the generator to the machinery to be actuated, and said conduit may, for instance, lead from the dome of a steam-boiler to a valve chest or chests or in some instances to the cylinder or cylinders of a steam-engine. A portion of the live steam conveyed through the conduit 6 passes by means of the pipes 5 and 4 into the receptacle or receiver 1, it being observed that the steam passes across the entrance-opening or the point where the lubricant passes into the cap 2 and acts to force the lubricant downwardly to the apex of the conical top of the cone or bell 10, the opening in the cap 2, as at 18, directly over the apex of the conical cap of the cone or bell being of such reduced diameter as to cause the steam and oil to strike thereagainst. The lubricant or oil and steam both strike the apex of the cap, and the contact of the steam with the oil heats and reduces the latter, the steam passing down, around, and up into the cone or bell, and finally escaping through the nipple 8 back into the conduit 6. The oil flows downwardly over the cone or bell through the spiral groove 11 and gradually becomes thinner in its course downwardly toward the lower end of the cone or bell by reason of the

heat, and when the oil or lubricant reaches the gutter 12 it is in very thin condition. From the gutter the reduced oil or lubricant passes out through the small pipe 16 and is commingled with the steam and vaporized or sprayed in the conduit 12 and in such condition passes to the machinery adapted to be lubricated. It will be understood that the extent of vaporization of the lubricant or oil depends in a large degree upon the character of the lubricant employed and also upon the intensity of the heat.

The downwardly directed or curved nozzle 17 of the pipe 16 partakes somewhat of the nature of an injector to deliver the reduced lubricant about centrally with relation to the interior of the conduit 6, so that the live steam passing through the said conduit will spray the reduced lubricant, and an intimate admixture of the oil or vapors or particles with the live steam in the conduit will take place with obvious advantages in lubricating machinery.

It is proposed to use the improved vaporizing device with any kind of machinery, and as the steam which is directed, as it were, by means of a by-pass from the main supply-conduit 6 through the vaporizing device is caused to again return to the main conduit there is practically no loss of steam, but, on the contrary, a simplified and effective means for commingling the lubricant with the steam and economically utilizing a lubricant.

Another advantage of the improved vaporizing device is that the supply of reduced lubricant through the pipe 16 is continuous or uninterrupted in view of the provision of the gutter 12, and the latter being under the effect of steam heat the lubricant will be maintained in a desired thin condition for reduction to spray by its passage through the pipe 16 into the main conduit 6.

Having thus fully described the invention, what is claimed is—

1. The combination with a steam-supply conduit, of a receiver connected at its upper extremity to said conduit, an oil-supply means at the upper portion of the receiver, a connection at the lower portion of the receiver with the conduit, a cone or bell within the receiver having a gutter at its lower extremity, the body of the cone or bell being spirally grooved from the top to the bottom thereof, and a reduced pipe attached to the gutter and also projecting into the conduit.

2. A lubricant-vaporizing device of the

class specified, comprising a receiver having a steam and lubricant feed connection at the upper portion thereof, and an outlet connection at the lower extremity of the same, a hollow cone or bell within the receiver having a groove extending spirally thereover from the top to the bottom and also provided with a gutter at its lower extremity, and an outlet-pipe connected to the said gutter.

3. A lubricant-vaporizing device of the class specified, comprising a receiver having a steam and oil connection at the upper portion thereof, a cone or bell disposed in the receiver and having the apex projecting up in a position to first receive the lubricant and steam fed to the receiver, the lower extremity of the cone or bell having a circumferential gutter, and an outlet-pipe attached to the said gutter.

4. The combination with a steam-supply conduit, of a receiver having a cap with an opening therethrough and provided with steam-supply and lubricant connections above the opening, the lower extremity of the receiver having an outlet connection, a cone or bell disposed in the receiver and having the apex thereof projecting upwardly into the opening to first receive the steam and lubricant, the body of the cone or bell being imperforate and open at the bottom and having a groove extending spirally downward thereover from the apex to the bottom of the same, and an outlet-pipe connected to the lower extremity of the cone or bell.

5. The combination with a steam-supply conduit, of a receiver having the upper portion thereof connected to said conduit, and also provided with an upper lubricant-supply connection and a lower outlet, a tubular cone or bell disposed in the receiver and having an open bottom and the remaining portion of the body thereof imperforate, the body of the cone or bell also having a groove spirally extending downwardly thereover from the apex to the bottom of the same, and a diametrically-reduced pipe connected to the lower extremity of the cone or bell.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM P. MAINGAULT.

Witnesses:

LAURA HEYEL,

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