

No. 744,309.

PATENTED NOV. 17, 1903.

H. DE WALLACE.
LUBRICATING DEVICE FOR TRAIN ORDER SIGNALS.

APPLICATION FILED FEB. 24, 1902.

NO MODEL.

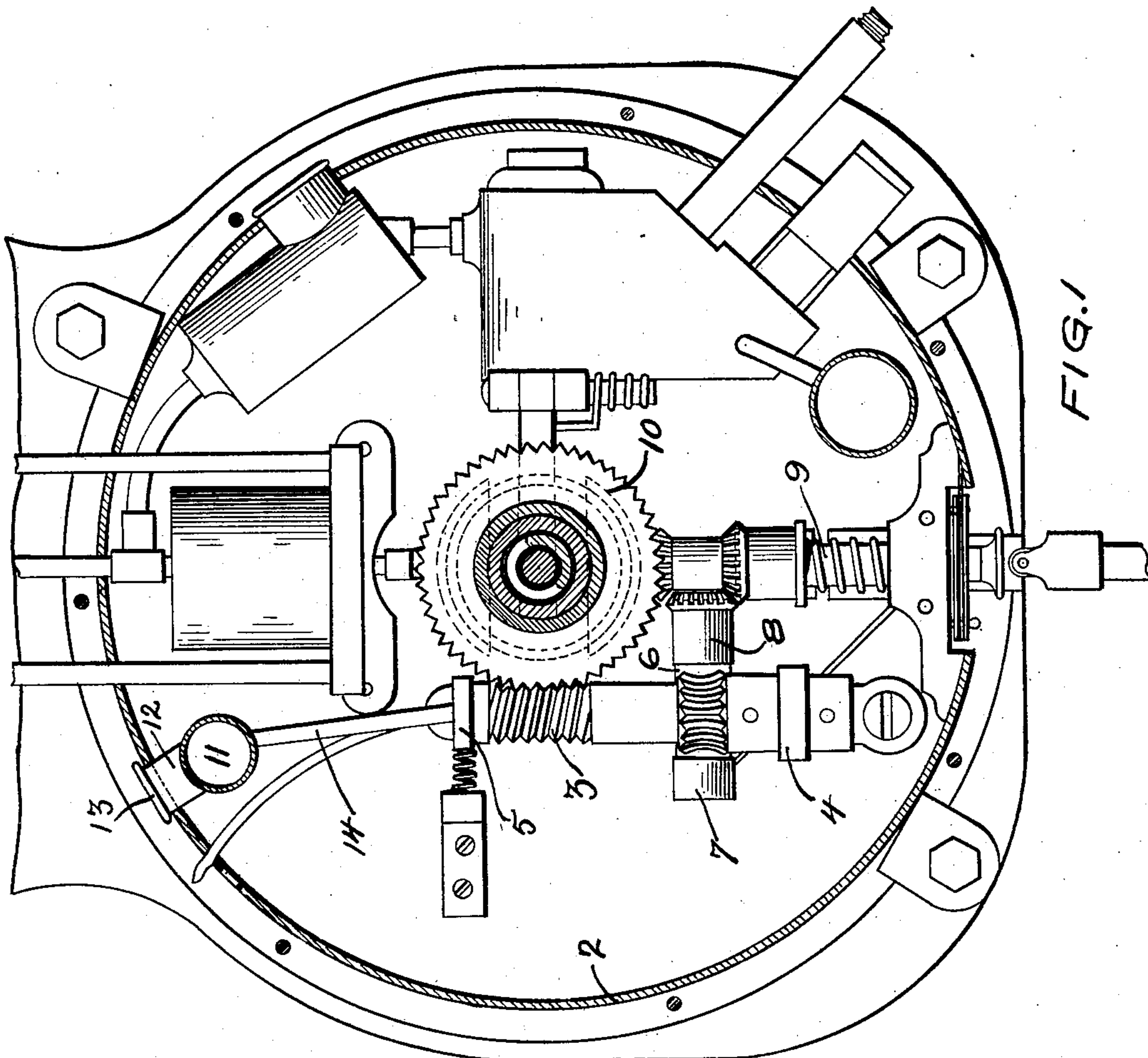


FIG. 1

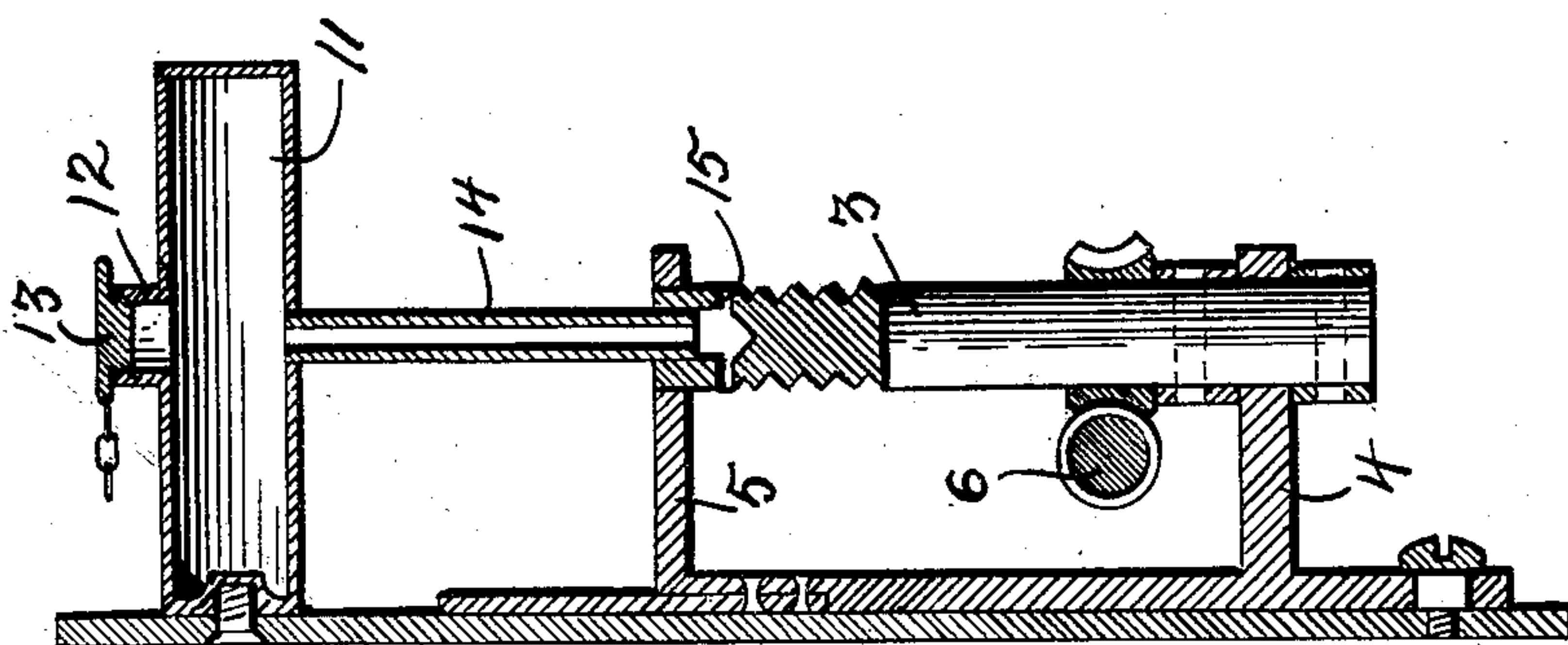


FIG. 2

WITNESSES
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UNITED STATES PATENT OFFICE.

HARRY DE WALLACE, OF WATERTOWN, NEW YORK.

LUBRICATING DEVICE FOR TRAIN-ORDER SIGNALS.

SPECIFICATION forming part of Letters Patent No. 744,309, dated November 17, 1903.

Original application filed May 16, 1901, Serial No. 60,543. Divided and this application filed February 24, 1902. Serial No. 95,298. (No model.)

To all whom it may concern:

Be it known that I, HARRY DE WALLACE, of Watertown, Jefferson county, New York, have invented certain new and useful Improvements in Lubricating Devices for Train-Order Signals, of which the following is a specification.

This invention relates to improvements in lubricating devices designed particularly for use in connection with train-order signals and train-stopping devices of the class described in my pending application for Letters Patent, filed May 16, 1901, Serial No. 60,543, of which this application is a division. It is essential to the proper operation of the train-order signal described in my said pending application that the apparatus be automatically lubricated while it is in operation, and it is very desirable that the lubrication shall automatically cease as soon as or soon after the machine ceases to operate. For the purpose of lubricating the bearings of the worm-shaft of the train-order signal and other bearings of the apparatus I have devised the lubricating device herein shown and described.

My present invention consists generally in the constructions and combinations hereinafter described, and particularly pointed out in claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a sectional view of a train-order signal having my improved lubricating device applied thereto. Fig. 2 is a section through the lubricating device and worm-shaft.

In the drawings, 2 represents the casing, and 3 the worm-shaft, of the train-order signal shown and described in my pending application hereinbefore referred to. This worm-shaft is mounted in suitable bearings 4 and 5 and is driven from a short counter-shaft 6, mounted in bearings 7 and 8. The shaft 6 is driven from the main driving-shaft 9, and the worm-shaft 3 operates the worm-wheel 10, which in turn operates the hand or pointer of the signal mechanism. Arranged within the upper part of the casing 2 is a small oil-tank 11, having a filling-tube 12, that extends through an opening in the casing 2 and is provided with a cap 13. This cap closes the filling-aperture, so as to make the tank air-tight.

A single tube 14 leads downward from the tank 11 and extends into the hollow end of the worm-shaft 3. The end of the worm-shaft is hollowed out and is provided with a cross-duct 15 for the purpose of letting the oil run out onto the worm and gravitate down the worm-shaft to the working parts below.

This device oils all of the bearings of the signal device below the central main-shaft bearing.

The oiling device herein described is, in effect, a temperature or expansion lubricator. When the cap is screwed down tight, the oil will not flow out through the single tube except upon a change of the temperature within the tank. A rise of temperature inside the tank causes an expansion of the air within the tank, and this displaces the oil and forces it out of the single tube into the end of the worm-shaft. In practice the tank would generally be filled at the roundhouse while the engine is cold or while it is being fired up, and at that time the small rise of temperature will start the oil to flow out of the tube and down over the several parts beneath the end of the tube which require lubrication; but not until the engine has become heated to a high degree, as after it has started on its run, will the oil flow from the tube in any considerable quantity. Even during the run, from the fact that the temperature in the cab when the engine is working is constantly changing, rising when stops are made or when the speed is low and lowering when the speed has attained a high rate, the feed of the oil is prolonged and extended over the entire period of the engine's run. This device therefore saves oil, equalizes its distribution, and keeps the mechanism constantly and thoroughly lubricated.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, with the signal mechanism, of a lubricating device, comprising a suitable oil-tank, means for making a tight closure of said tank and a pipe connected to said tank and extending downward throughout its length to the parts to be lubricated.

2. The combination, with the shaft 3, provided with a hollow end and cross-ducts of a reservoir arranged above said shaft, means

for closing said reservoir air-tight and a tube extending downward throughout its length from said reservoir and entering the hollow end of said shaft, substantially as described.

5 3. The combination, with the signal mechanism, provided with the inclosing case 2, of an oil-tank arranged within said case and having a filling-aperture outside of said case, a cap for closing said aperture air-tight, a
10 driving-shaft 3 provided with a hollow end

and a tube extending downward throughout its length from said tank into the hollow end of said shaft, substantially as described.

In testimony whereof I have hereunto set my hand this 14th day of February, 1902.

HARRY DE WALLACE.

Witnesses:

H. J. McCORMICK,
THOS. BURNS.