July 27, 1926. 1,593,710

C. C. FARMER

VALVE LUBRICATING DEVICE

Filed March 24, 1922

Fig 1.

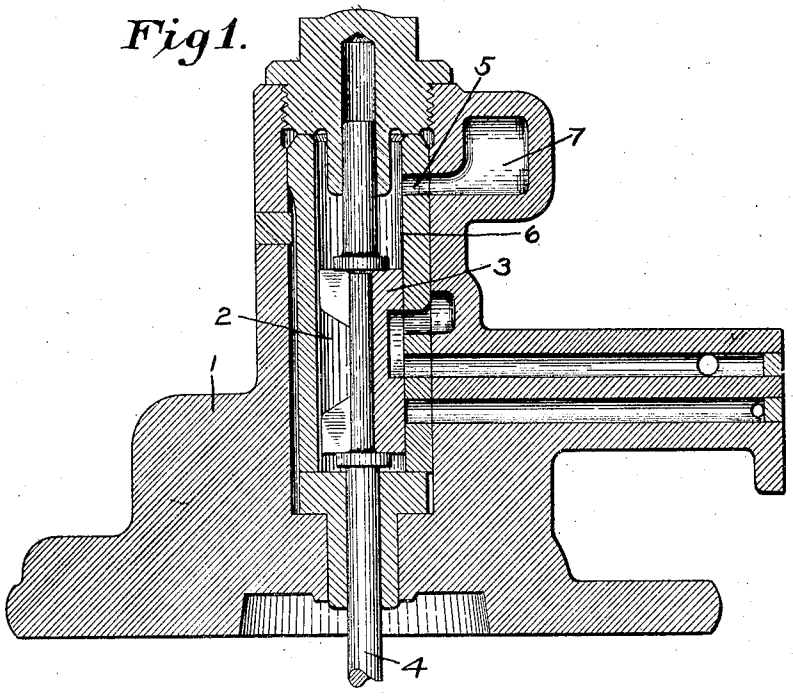
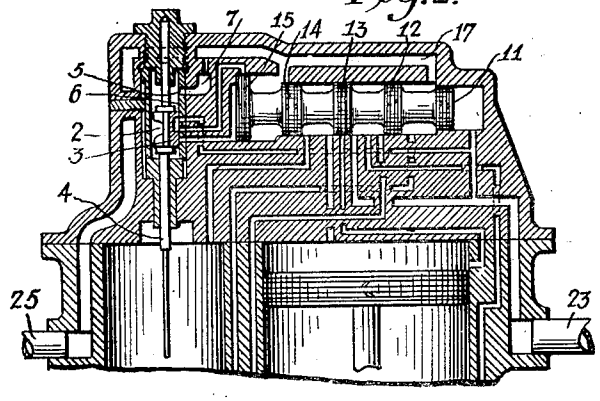


Fig. 2.



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UNITED STATES PATENT OFFICE.

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VALVE-LUBRICATING DEVICE.

Application filed March 24, 1922. Serial No. 546,528.

This invention relates to fluid compressors and has for its principal object to provide improved means for lubricating the reversing valve of a fluid compressor.

In the accompanying drawing, Fig. 1 is a sectional view of the actual structure of the reversing valve portion of a fluid compressor showing the improved means for lubricating the reversing valve applied thereto, and Fig. 2 a digrammatic sectional view of a portion of a compound fluid compressor showing the reversing valve of Fig. 1 associated with the usual main steam distribution valve.

For the purposes of the present invention, it is not deemed necessary to show more than the reversing valve portion of the compressor, the compressor being of the well known type as employed at the present time on locomotives for supplying fluid under pressure for operating the fluid pressure brakes, the reversing valve portion being similar to that shown in Patent No. 1,176,108 of Walter V. Turner, dated March 21, 1916.

As shown in the drawing, the reversing valve portion of the compressor comprises a casing 1 having a valve chamber 2 containing the usual reversing valve 3 for controlling ports through which steam is supplied to and exhausted from a main steam distribution valve, comprising, as shown in Fig. 2, connected piston heads 11, 12, 13, 14, and 15, the main valve being adapted to control the admission and exhaust of steam to and from the steam piston which operates the compressing piston, the exhaust of steam being effected by way of exhaust pipe 23. The valve 3 is operated by a valve rod 4 which is moved up and down by the movement of the steam piston to opposite ends of its stroke as in the Turner patent hereinbefore referred to.

The reversing valve 3 is mounted to reciprocate vertically and according to my invention, the port 5, which supplies live steam to the valve chamber 2 is disposed so as to enter the valve chamber through the valve seat 6 at a point above the reversing valve 3, the port 5 leading to a steam supply chamber 7 preferably of relatively large capacity, the chamber 7 being connected to the steam supply passage 17. In the usual well known manner, lubricating oil is fed to the steam supply pipe 25 of the compressor, so that the steam carries lubricating oil in suspension for lubricating the steam cylinder of the pump or compressor.

The lubricating oil carried by the steam supplied to the compressor tends to collect on the walls of the chamber 7 and when in sufficient quantity, the oil will flow out through the port 5 and into the valve chamber 2 and will then trickle down the valve seat 6, thus providing the desired lubrication for the reversing valve.

It may be stated that difficulty has been experienced in many cases due to excessive wear of the valve seat of the reversing valve owing to lack of sufficient lubrication and while a separate lubricator might be provided for lubricating the reversing valve, this would involve additional expense as well as care and maintenance, which is avoided by my improvement.

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

1. A valve chamber, a steam controlling valve in said chamber, a vertical valve seat upon which said valve operates, a chamber supplied with steam carrying lubricating oil, and a passage leading from said supply chamber and opening to the valve seat at a point above said valve so that lubricating oil from the steam, collecting on the walls of said supply chamber will flow through said passage and trickle down the valve seat for lubricating same.

2. A reversing valve portion for a steam driven fluid compressor comprising a casing having a valve chamber, a vertically disposed valve seat in said chamber, a reversing valve operating on said seat, for controlling the flow of steam from said chamber, a steam supply chamber into which steam carrying lubricating oil is supplied, and a passage leading from said supply chamber through the valve seat to the valve chamber at a point above the valve, so that lubricating oil which collects on the walls of the steam supply chamber will flow through said passage and onto said valve seat for lubricating said valve seat and valve.

In testimony whereof I have hereunto set my hand.

CLYDE C. FARMER.