PUBLISHED
MAY 18, 1943.
BY A. P. C.

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PRESSURE LUBRICATING SYSTEM

Filed Jan. 4, 1941

Serial No.
373,101

Fig. 1

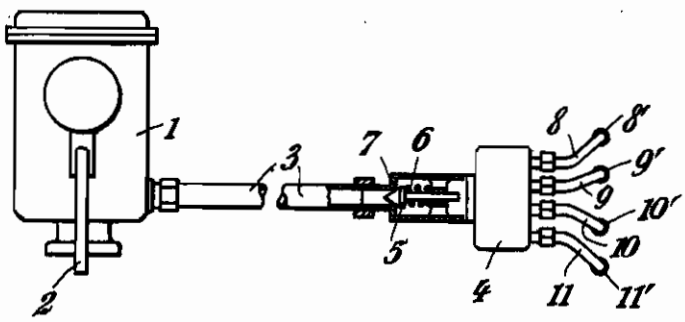
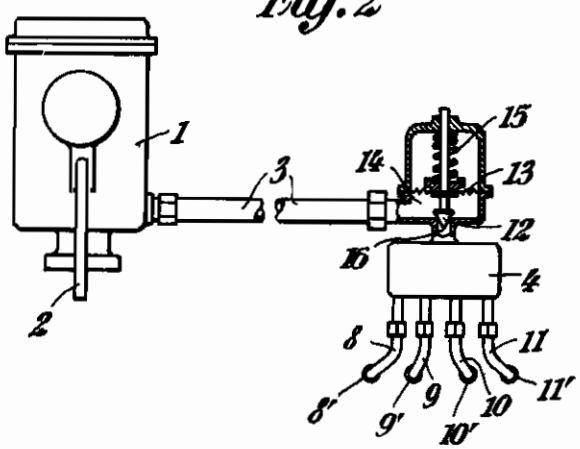


Fig. 2



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Published May 18, 1943

Serial No. 373,101

ALIEN PROPERTY CUSTODIAN

PRESSURE LUBRICATING SYSTEM

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Application filed January 4, 1941

The present invention relates to pressure lubricating systems in which the lubricant supplied by a source of pressure is distributed by means of a divisional feeder to a plurality of points of lubrication all of which are under an equal pressure. Divisional feeders of the kind referred to are for example disclosed in U. S. Patents No. 2,027,171 or No. 2,007,797. In such systems, a conduit connects the source of pressure with the divisional feeder which is located in proximity to the points of lubrication in order to reduce the length of conduits required. In each conduit leading from the divisional feeder to a point of lubrication, preferably directly at the latter, is inserted a check valve opening toward the point of lubrication. The purpose of the said check valves is to seal the conduits against any reaction from the points of lubrication. In a lubricating system of this kind having e. g. four points of lubrication it is, therefore, necessary to provide four check valves whereby the initial outlay and the cost of maintenance for the system are increased.

The object of the present invention is to simplify and cheapen lubricating systems of this kind and, above all, to save the supervision of numerous check valves without impairing the safety of operation.

The accompanying drawing shows in Figs. 1 and 2 by way of example diagrammatic views partly in section of embodiments of the invention.

In the system according to Fig. 1 the lubricant is supplied by a pump 1 of the usual kind which is operated in a known manner by a suitable source of power by means of an oscillating lever 2. A conduit 3 connects the pump 1 with a divisional feeder 4 the construction of which, as mentioned above, corresponds e. g. to that disclosed in U. S. Patent No. 2,027,171 or No. 2,007,797, so that a detailed description may be dispensed with. In the conduit 3 immediately before the divisional feeder 4 is arranged a check valve which is adapted to open in the direction of the divisional feeder, thus allowing the lubricant supplied by the source of pressure to pass whereas it seals the passage toward the source of pressure. In the example shown in Fig. 1, the check valve consists of a back-pressure valve of a design known per se, the valve cone 5 of which is pressed against its seat 7 by the power of a helical spring 6. Conduits 9, 9, 10, 11 lead from the divisional feeder to the points of lubrication 8', 9', 10', 11'.

During operation, the conduit 3 is always completely filled with lubricant. The amount of lubricant supplied by the pump enters the divisional feeder 4 after passing the check valve. The source of pressure is, therefore, positively protected by the check valve in the conduit 3 from any detrimental actions of the medium at the points of lubrication, such as compressed air or steam.

In Fig. 2 is shown a similar embodiment of the invention comprising, however, a known diaphragm type overflow valve as an oil check valve. Said diaphragm type overflow valve consists of a valve cone 12 fastened to a diaphragm 13. The diaphragm 13 seals the space 14 within the valve casing to which the lubricant is supplied under pressure by the pump 1. The valve cone 12 is loaded over the diaphragm 13 from the outside by a spring 15 tending to keep said cone in the closed position. When the lubricant is forced into the space 14 underneath the diaphragm, the valve cone 12 is lifted off its seat against the action of the spring, the lubricant flowing through the opening 18 directly into the divisional feeder 4 by which it is distributed to the points of lubrications 8', 9', 10', 11' which are under a uniform pressure.

If, in addition, the known check valves were arranged between each point of lubrication and the divisional feeder, the former would, in fact, also protect the distributing pistons of the divisional feeder from the action of the counter-pressures prevailing at the points of lubrication. This, however, is not necessary with a system embodying the invention according to Figs. 1 or 2. The known check valves are omitted since, as is presupposed with a lubricating system according to the invention, a uniform pressure prevails at all the points of lubrication such as at the points of lubrication located on the circumference of a section of a working cylinder, and the divisional feeder may be safely exposed to the counter-pressure of the points of lubrication without the least danger of the accurate and proper operation being in any way interfered with. In accordance with the present invention, a single check valve, therefore, suffices to ensure a perfect operation of the pressure lubricating system.

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