

March 22, 1927.

1,621,771

D. J. EGAN

AUTOMATIC OILER
Filed June 3, 1925

Fig. 1.

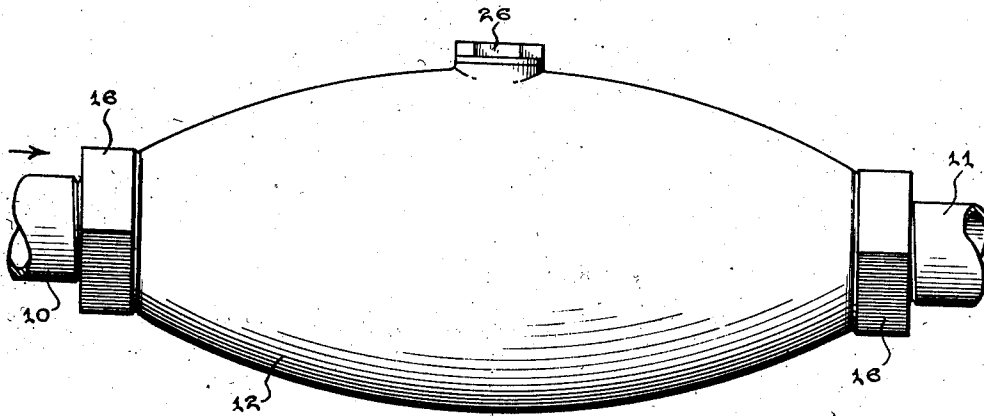


Fig. 2.

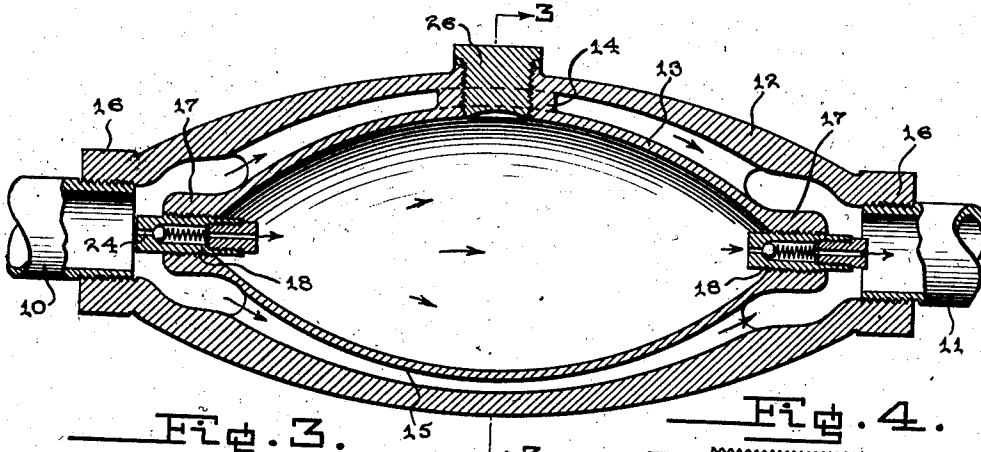


Fig. 3.

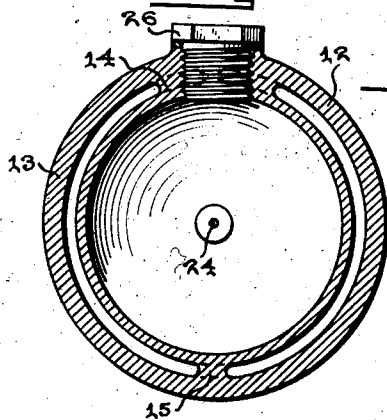


Fig. 4.

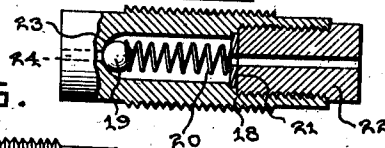
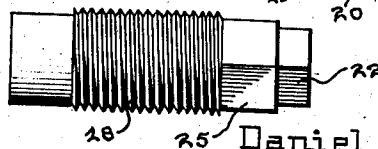


Fig. 5.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC OILER.

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The present invention relates to automatic oilers, particularly for use in rock drilling and other machines wherein it is desired to feed the oil with the motive fluid for operating the machines or tools.

An object of the present invention is to provide an automatic oiler which insures the positive and direct feeding of the oil by the fluid under pressure and without creating any appreciable back pressure or suction in the feed line.

Another object of the invention is to provide an automatic oiler of this character which is of such construction that it may be shaped to conform to the general pipe line and used in confined places and be efficiently operated therein.

A further object of the invention is to provide an automatic oiler which is capable of carrying a sufficient quantity of oil to maintain a constant feed thereof through the fluid line for an entire day, or throughout the average working period of time to offset the necessity for interruption in the working of the machine or tool to replenish the oil supply.

A still further object of the invention is to provide a body having substantially coaxial motive fluid and oil chambers proportioned to provide a substantially uniform fluid passage therebetween of a cross sectional area substantially equal to the supply pipe to prevent back pressure and suction in the fluid line incident to the interpositioning of the oiler in the supply pipe.

The invention also provides an oil chamber in the direct path of the motive fluid and forwardly opening check valves for the oil chamber, arranged to receive direct impact of the fluid and yield therewith for admixing with and carrying off small portions of the oil into the oil pipe.

The above and various other objects and advantages of this invention will in part be described in and in part be understood from the following detailed description of the present preferred embodiment, the same being illustrated in the accompanying drawing, wherein:

Fig. 1 is a side elevation of an automatic oiler constructed according to this invention.

Fig. 2 is a longitudinal vertical section through the same.

Fig. 3 is a transverse section through the oiler taken on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged longitudinal section

through one of the check valves employed, and

Fig. 5 is an enlarged side elevation of the check valve.

Referring to the drawing 10 designates a pipe section from a source of motive fluid under pressure adapted to enter the improved oiler, and 11 designates another section of pipe leading from the oiler and indicating, together with the section 10 a fluid pipe line for supplying motive power to a rock drill or other suitable tool or machine.

The oiler comprises a pair of substantially elliptical chambered casings 12 and 13 arranged one within the other and spaced apart by suitable webs 14 and 15 which are relatively thin to leave an interposed fluid passage substantially unobstructed between the chambered casings 12 and 13.

The outer casing 12 is provided with a coupling portion 16 at each end and may have an exterior angular face to receive a tool to facilitate the threading of each coupling portion 16 to its adjacent pipe section 10 or 11. The inner casing 13 is provided at each end with a valve sleeve 17 preferably integral with the casing 13 and arranged coaxially with the casings and with the coupling portions 16. In each valve sleeve 17 is threaded or otherwise suitably secured, a check valve. Each check valve as shown in Figs. 4 and 5 comprises a casing 18 which may be exteriorly threaded to fit its sleeve 17 and being chambered to carry a ball valve 19, a spring 20 engaging at one end of the ball valve and at the other end against a controlling plate or washer 21 held in place by a centrally apertured screw plug 22 fitting in one end of the valve casing 18. The plug 22 may be adjusted to variably tension the spring 20 against the ball 19 and normally hold the latter to its seat 23 at the other end of the casing 18. The casing 18 has a central aperture 24 leading directly into the valve seat 23. The outer end of each valve casing 18 is provided with angular faces 25 adapted to receive a socket wrench or the like for positioning and adjusting the check valves in their sleeves 17. The outer ends of the screw plugs 22 are also given suitable configurations for interlocking engagement with a tool for adjusting the plugs in the valve casings.

The device is provided with a removable plug 26 in one side which closes an opening extending through the web 14 to the

chamber of casing 13, the plug being removable for filling the inner casing with the required quantity of oil.

Air or other fluid is admitted through the pipe section 10 to the outer casing 12 and is diverged into the annular passage between the casings 12 and 13 by the adjacent valve sleeve 17 and the protruding end of the adjacent valve casing 18. A small portion of the fluid enters the opening 24 of the valve casing and unseats the ball 19 and passes into the inner casing 13. The fluid in the inner casing admixes with the oil therein and builds up sufficient pressure to unseat the ball valve 19 at the other end of the oil casing 13, permitting a small quantity of oil to be ejected with the fluid into the pipe section 11 for passage to the drill or other machine to which the pipe section 11 may be connected.

It is thus seen that the major portion of the fluid passes without interruption through the passage between the casings and it will be noted that the walls of the casings 12 and 13 are so proportioned in thickness and curvature to prevent compression and expansion of the fluid passing through the oiler. As the check valves are disposed in the direct line of flow of the fluid there is but little or no friction caused by the small amount of pressure exerted upon the check valve to open it, for the force of impact is substantially sufficient for opening the valve and no back pressure is created at the inlet end of the oiler.

It is of course understood that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of the present invention, and that the same may be varied as requirements of manufacture and use demand within the scope of the following claims.

What is claimed is:

1. An automatic oiler comprising a pair of elliptical casings, one of said casings being positioned within the other of said casings and in spaced relation thereto, means for supplying oil to the inner casing, coupling means carried at each end of the outer casing, said inner casing terminating at opposite ends with threaded valve sleeves, and arranged coaxially with the couplings, valve casings carried by the sleeves, and automatically operated valve means mounted in the valve casings for controlling the intake and outlet of oil to and from the inner casing.

2. In an automatic oiler, the combination of a casing having a fluid chamber provided with oppositely disposed inlet and outlet openings to permit the passage of fluid therethru and a chamber in said casing adapted to contain a quantity of oil and having inlet and outlet openings adjacent, respectively, the openings of the fluid chamber; an inwardly opening check valve in the inlet opening of said oil chamber; and an outwardly opening check valve in the outlet opening of said oil chamber.

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