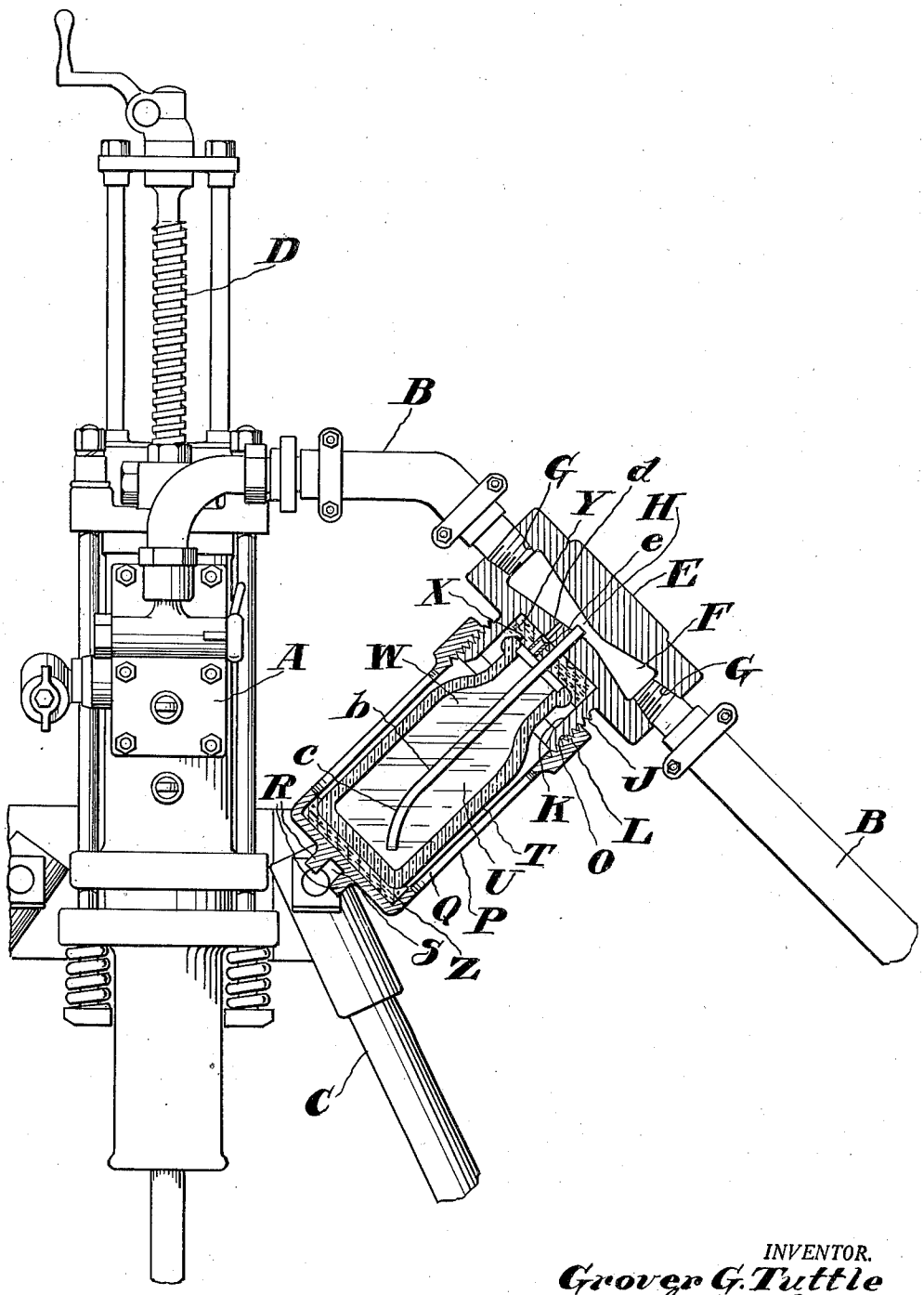
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AIR LINE OILER

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AIR-LINE OILER

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This invention relates to oiling devices, but more particularly to an air line oiler of the type adapted to be attached to a hose line conveying pressure fluid from a source of supply to a machine or machines intended to be actuated thereby, such as rock drills, air motors, or other reciprocating machines which cause pulsations in the pressure fluid due to the admission and cut-off of pressure fluid to the machine.

The objects of the invention are to supply lubricant in adequate quantities and in a suitable form to fluid actuated machines through the agency of the pressure fluid utilized for actuating such machines; to prevent delays in the drilling operation for the purpose of replenishing the supply of lubricant; and to enable practically the entire supply of lubricant to be exhausted from the container after each filling thereof.

Other objects will be in part obvious and in part pointed out hereinafter.

The figure in the drawing is a vertical section of the oiler applied to a hose line of a rock drill.

Referring more particularly to the drawing, A designates a rock drill having connected thereto a hose line B which may lead from a suitable source of pressure fluid supply (not shown). The rock drill A may be of any conventional type. For purposes of illustration a drill of the drifter type is shown mounted on a tripod C with respect to which it may be actuated to and from the work by means of a feed screw D in a well known manner.

The present invention comprises a connection E having a passageway F therethrough to afford communication between adjacent sections of the hose line B threaded into suitably threaded apertures G at the ends of the passageway F. Preferably the passageway F is provided with a restricted or throat portion H in the form of a Venturi tube intermediate its ends so that the velocity of the pressure fluid flowing through the passageway F will be somewhat accelerated during its passage through the connection.

On one side of the connection E is formed a projection J having a recess K opening from the free end of the projection. The projection J in this instance is provided with exterior threads L for cooperation with corresponding threads O formed in the end of a guard P screwed on the projection J. The guard P is preferably of cup-like shape and may be provided with longitudinal slots Q, or their equivalent, to enable the attendant to view the interior of the guard P.

Any convenient means may be provided on the guard for cooperation with a wrench or other suitable tool for manipulating the guard P. Such means in the present instance consists of a pair of lugs R on the closed end of the guard spaced to form a slot S for the reception of a bar or wrench whereby the guard may be screwed on and off the projection J.

Disposed within the guard P is a container T, the interior U of which forms a reservoir for oil W. The container T in this instance consists of a bottle, the open end or neck X of which extends into the recess K of the projection J and abuts a pad Y in the recess K whereby the edge of the neck X is sealed and the container is cushioned against the effects of the jars set up by the rock drill during its operation. The pad Y may be of any suitable material but preferably consists of cork which possesses the desirable quality of compressibility and is also impervious to oil. Preferably, a cup-shaped pad Z is disposed between the bottoms of the guard P and the container T to centralize the outer end of the container with respect to the guard P and thus prevent injury to the container during the assembling of the device or such injuries as may occur due to the jars set up by the rock drill.

Suitable means are provided for conveying the oil W from the reservoir U into the passageway F from whence it may be conveyed by the pressure fluid flowing therethrough to the rock drill A. To that end a tube *b* is disposed in the wall of the connection E to extend with its outermost free end to a point near the bottom of the reservoir U and with its opposite end partly into the passageway F. The tube is preferably curved at its free end *c* so that the inlet opening of the tube may lie near the lowermost

point of the reservoir to enable substantially all of the oil in the reservoir to be utilized after each filling.

With respect to the passageway F, the tube *b* is preferably located on that side of the restricted portion H nearest the outlet opening of the said passageway F, so that the full effect of the increased velocity of the pressure fluid flowing through the passageway may be obtained for the purpose of drawing the oil through the tube *b*.

In order that an adequate pressure may be maintained on the surface of the oil W, and, further, that the pulsations in the hose line may be transmitted to the oil W for the purpose of elevating the oil in the tube *b*, a passage *d* is formed through the connection E and the pad Y. Due to the compressible quality of the pad Y, however, a tube *e* is disposed in said pad to insure constant communication between the reservoir U and the passageway F. This is merely a precautionary measure to prevent accidental closing of the passage *d* and may be omitted in the event that material of greater resistance is substituted for that of the cork pad Y.

From the foregoing description, the operation of the device should be obvious. Briefly described, however, the operation is as follows:—After the oiler has been assembled, it may be attached to the hose line B, preferably in such position with respect to the hose line that the container depends therefrom. The rock drill may then be set in operation and a portion of the pressure fluid flowing through the passageway F will then flow into the reservoir to act on the surface of the oil. The pressure fluid thus admitted to the reservoir will tend to elevate the oil in the tube *b* and this, together with the suction created by the pressure fluid flowing over the outlet opening of the tube *b*, will draw a constant supply of oil into the restricted portion E of the passageway F. Such oil mingling with the pressure fluid flowing to the rock drill will be conveyed thereby to the cooperating surfaces of the movable and stationary elements of the drill. In this way an adequate supply of lubricant may at all times be provided for the drill during its operation.

Whenever the supply of pressure fluid to the rock drill is cut off, the supply of lubricant will, of course, also be cut off. It will therefore be readily seen that the present invention precludes the possibility of flooding the rock drill or other machine with oil during the inoperative period as frequently happens in machines of this type where the attendant may neglect shutting off communication between the oil reservoir and the machine.

I claim:

An air line oiler comprising a connection adapted to be attached to an air line, said connection having a passageway affording communication between adjacent sections of the air line, said passageway having a restricted portion, a threaded projection on one side of the connection having a recess, a bottle forming a reservoir for oil and extending with its open end into the recess, a guard surrounding the container and cooperating with the threaded projection to hold the container in assembled position, a tube in the bottle extending with one end into the passageway and with its other end to a point near the bottom of the bottle for conveying oil into the passageway, means in the recess to seal and cushion the open end of the container, a passage through the connection and said means for constantly admitting pressure fluid into the container to act on the surface of the oil in the container for transmitting the pulsations in the hose line to the oil and thus force oil through the tube into the passageway, and yieldable means between the bottom of the container and the guard to centralize the container with respect to the guard and to prevent contact between said container and the guard.

In testimony whereof I have signed this specification.

GROVER G. TUTTLE.