Aug. 3, 1926. 1,594,944

C. C. HANSEN

AIR LINE LUBRICATOR

Filed March 26, 1925 2 Sheets-Sheet 1

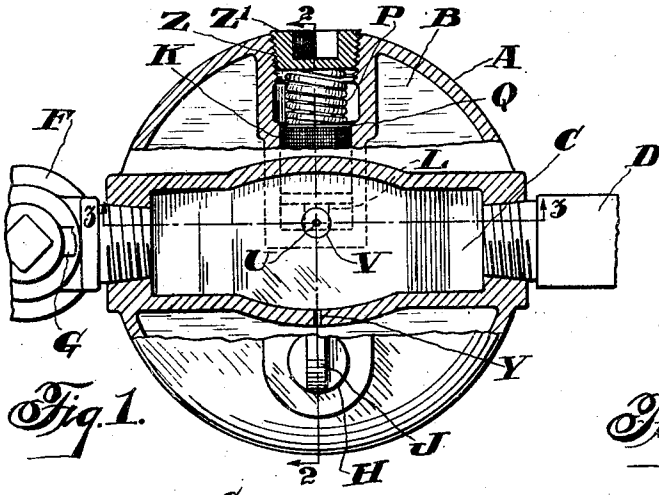


Fig. 1.

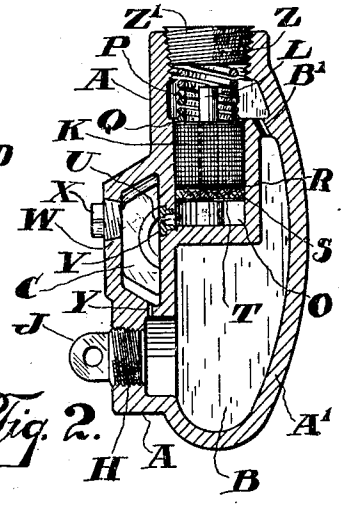


Fig. 2.

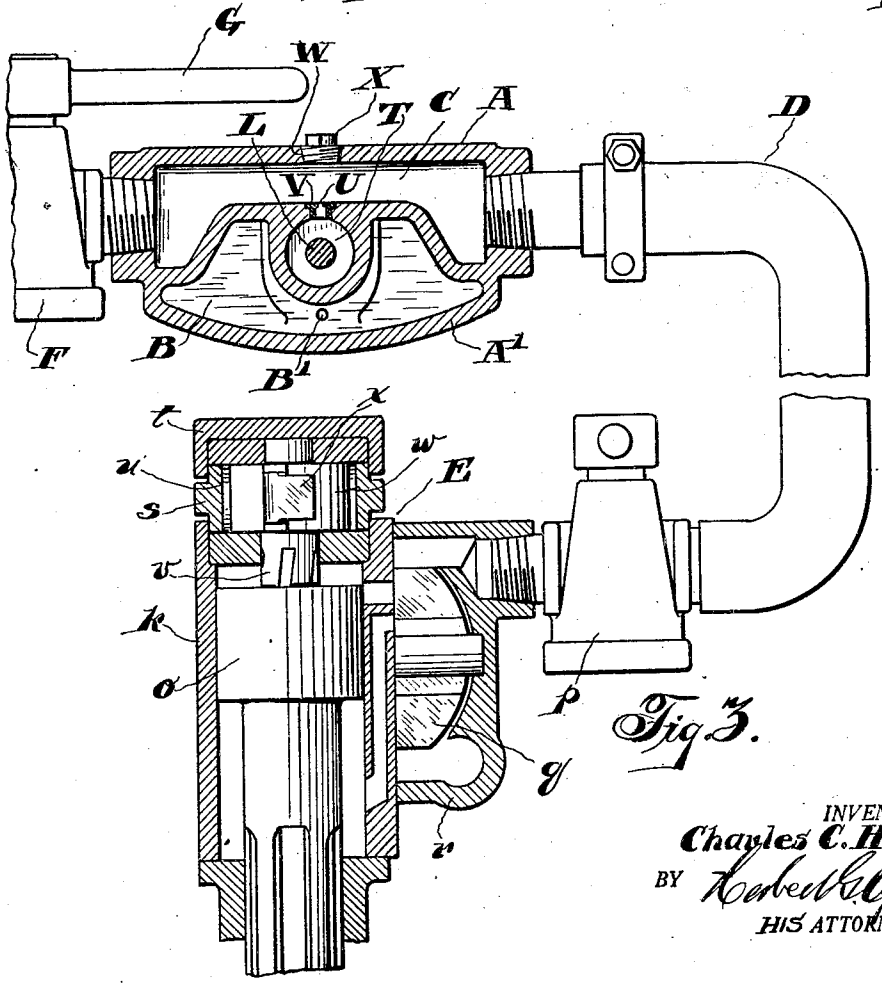


Fig. 3.

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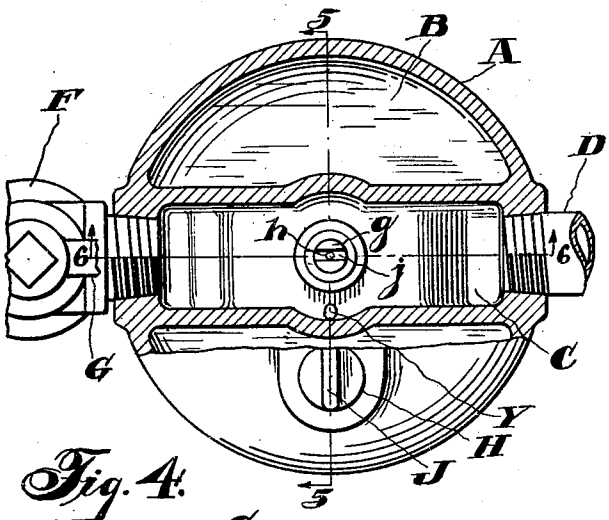


Fig. 4.

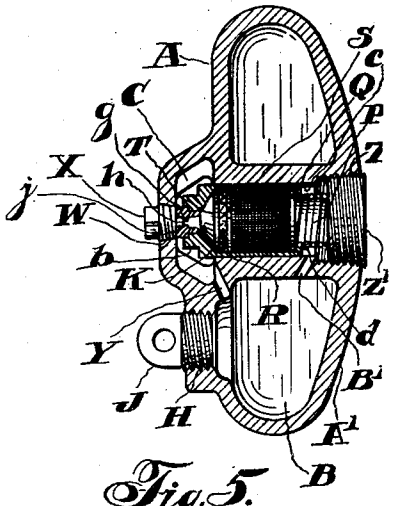
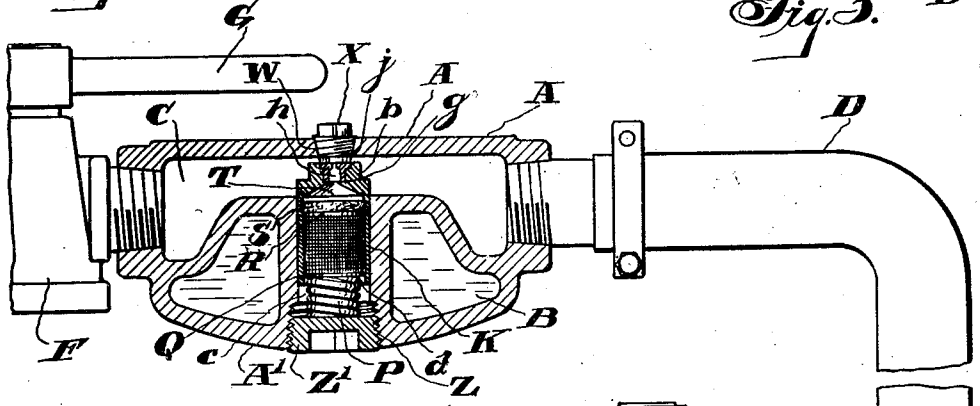


Fig. 5.



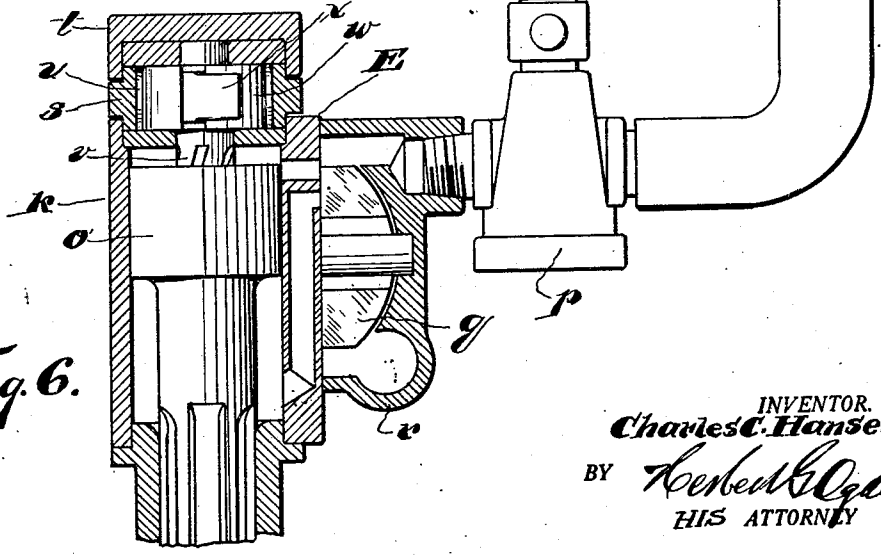


Fig. 6.

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Patented Aug. 3, 1926. 1,594,944

UNITED STATES PATENT OFFICE.

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AIR-LINE LUBRICATOR.

Application filed March 26, 1925. Serial No. 18,376.

This invention relates to oiling devices, but more particularly to devices which are adapted to be attached to pressure fluid supply lines for lubricating the working parts of fluid actuated machines.

One object of the invention is to introduce oil in an atomized state into the air current and thereby carry oil to the bearing surfaces of the working parts of the machine. Other objects will be pointed out hereinafter.

In the drawings forming part of the specification and in which similar reference characters refer to similar parts,

Figure 1 is a plan view partly in section of an air line lubricator,

Figure 2 is a vertical sectional view taken through Figure 1 on the line 2—2, looking in the direction of the arrows,

Figure 3 is a vertical sectional view taken through Figure 1 on the line 3—3, looking in the direction of the arrows, and showing the lubricator connected to a rock drill,

Figure 4 is a plan view partly in section of a modified form of an air line lubricator,

Figure 5 is a vertical sectional view taken through Figure 4 on the line 5—5 looking in the direction of the arrows, and

Figure 6 is a vertical sectional view taken through Figure 4 on the line 6—6 looking in the direction of the arrows.

Referring to the drawings, A is the casing of an air line lubricator containing a reservoir B and a pressure fluid passage C. In this instance, the lubricator A is shown connected to an air line D for supplying lubricant to a rock drill E, a portion of which is shown for illustrative purposes only. It is to be understood that the lubricator is applicable to any air line for delivering lubricant in an atomized state to the air current passing therethrough.

The flow of pressure fluid through the passage C is controlled by a throttle valve F having a throttle lever G. The throttle valve is preferably interposed between the source of pressure fluid supply and the lubricator so that the pressure fluid may be shut off while oil is being introduced into the reservoir B. In this instance, the oil is introduced into the reservoir B through an opening H normally sealed by a plug J.

Suitable means, preferably of the type disclosed in my U. S. Patent No. 1,105,135, dated July 28th, 1914, for oiler, are provided for converting the oil into a form more readily carried by the air current. To this end an absorbent cartridge K mounted on a rod L is inserted into a chamber O lying transversely of the casing and held in position by a spring P. The body of the cartridge K is preferably constructed of a layer of absorbent fabric and a layer of wire gauze which are spiralled about the rod L to form alternate layers of fabric and gauze. The end faces of the cartridge K are reinforced with perforated metal discs Q and R. A suitable quantity of absorbent material S is arranged between the disc R and a similar disc T for the purpose of retaining the oil in the cartridge and preventing leakage into the line. The oil passes through the outer perforated disc R to the cartridge K and the pulsations of pressure fluid in the main passage C pass through the port U and through the absorbent material S into and out of the cartridge carrying the oil in an atomized state to the machine to be oiled. The port U is preferably formed in a removable plug V of malleable material so that the port U may be either reamed or contracted to a size suitable for either heavy or light oils as desired. Access to the plug V may be had through a suitable opening W in the upper wall of the passage C, said opening being normally kept closed by a plug X.

A port Y in this instance admits pressure fluid from the main passage C into the reservoir B and creates a pressure on the oil to force the oil from the reservoir through a passage B′ to the outer face of the cartridge K, thus insuring a constant supply of oil to the cartridge. The bottom wall or base A′ of the casing is preferably formed convex to prevent catching on irregularities on the floor or other surface over which the casing may be moved.

In assembling the device, the cartridge K and the spring P are inserted into the chamber O through an aperture Z. A plug Z′ seals the aperture Z and also serves as a bearing for one end of the spring P.

In the modification shown in Figures 4 to 6 inclusive, a holder *b* is arranged in an axial chamber *c* in the casing and is provided with a recess *d* to receive the cartridge K. The holder *b* preferably projects into the main

passage C and together with the cartridge K is held against endwise movement in one direction by the spring P and the plug Z'.

Arranged in the end of the holder *b* is a plug *g* provided with a port *h* and a slot *j* to permit the pulsation of pressure fluid from the main passage C into the interior of the holder. The plug *g* preferably extends beyond the end of the holder *b* and abuts against the plug X to limit the upward movement of the holder *b*. In this modification the cartridge K is like that shown in Figures 1, 2 and 3 and the operation is the same.

In this instance, the air line lubricator is adapted to supply oil to the working parts of the rock drill E comprising a cylinder *k*, in which a hammer piston *o* reciprocates. A throttle valve *p* controls the supply of motive fluid to the machine and distribution of the motive fluid is effected by a suitable valve *q* mounted in a valve chest *r*.

A ratchet ring *s* is arranged between the cylinder *k* and a back head *t* and is provided with ratchet teeth *u*. A rifle bar *v* engages the piston *o* in the usual manner and is provided with a head *w* carrying a plurality of pawls *x*. The pawls *x* are so arranged that they will pass over the teeth *u* and permit the rifle bar to rock in one direction when the piston *o* moves on the forward stroke, but on the return stroke of the piston the pawls will engage the teeth *u* and hold the rifle bar stationary, thereby imparting a rotary movement to the piston. However, inasmuch that the above arrangement of parts forms no part of the present invention, further description thereof is considered unnecessary.

I claim:

1. An air line lubricator, comprising a casing containing an oil reservoir, a main pressure fluid passage extending through the casing, a port for admitting pressure fluid from the main passage into the reservoir, a cartridge chamber in said casing associated with the reservoir, an absorbent cartridge in said chamber, said cartridge being adapted to be saturated by oil from the reservoir, and deliver oil in an atomized state to the main passage due to pulsations of the pressure fluid into the chamber, a port between said main passage and the cartridge chamber through which pressure fluid may pulsate into the chamber, a rod projecting through the cartridge, a spring for holding said cartridge in position, and means associated with the inner end of the cartridge for preventing oil from flowing into the corresponding end of the cartridge chamber.

2. An air line lubricator, comprising a casing containing an oil reservoir, a main pressure fluid passage through the casing, a port for admitting pressure fluid into the reservoir, a cartridge chamber in said casing communicating with said oil reservoir, a port between the main passage and the cartridge chamber for permitting pressure fluid to pulsate into said chamber, and an absorbent cartridge in said chamber adapted to be saturated with oil from the reservoir and to deliver such oil to the pressure fluid pulsating into the chamber, a pair of perforated discs at the inner end of the cartridge, and absorbent material between the discs to prevent the free flow of oil through the cartridge into the inner end of the cartridge chamber.

In testimony whereof I have signed this specification.

CHARLES C. HANSEN.