June 3, 1930. H. W. WULF 1,761,699

AUTOMATIC OILER

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Fig. 1.

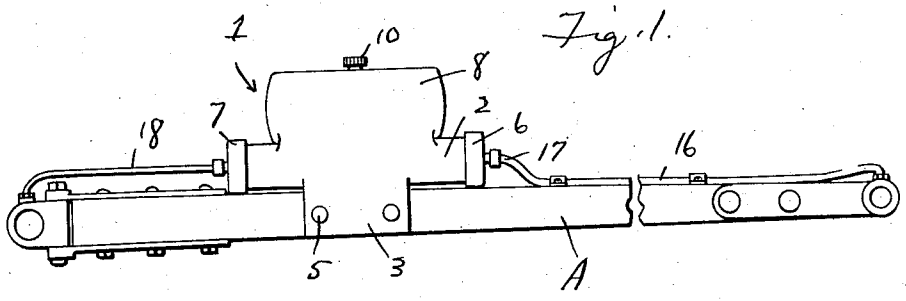
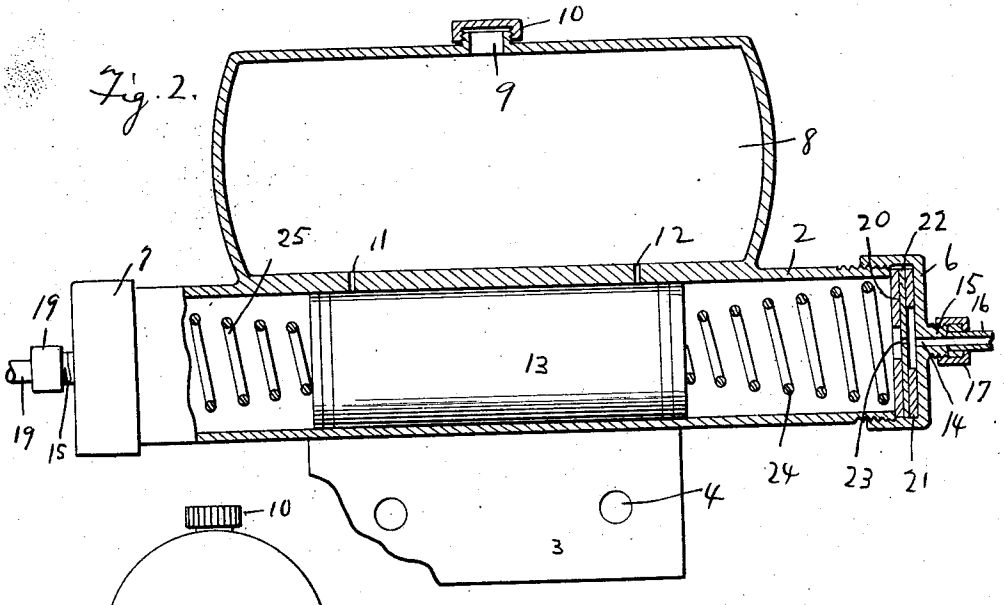


Fig. 2.



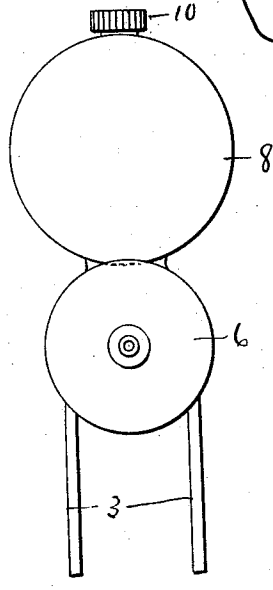


Fig. 3

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AUTOMATIC OILER

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Fig. 4

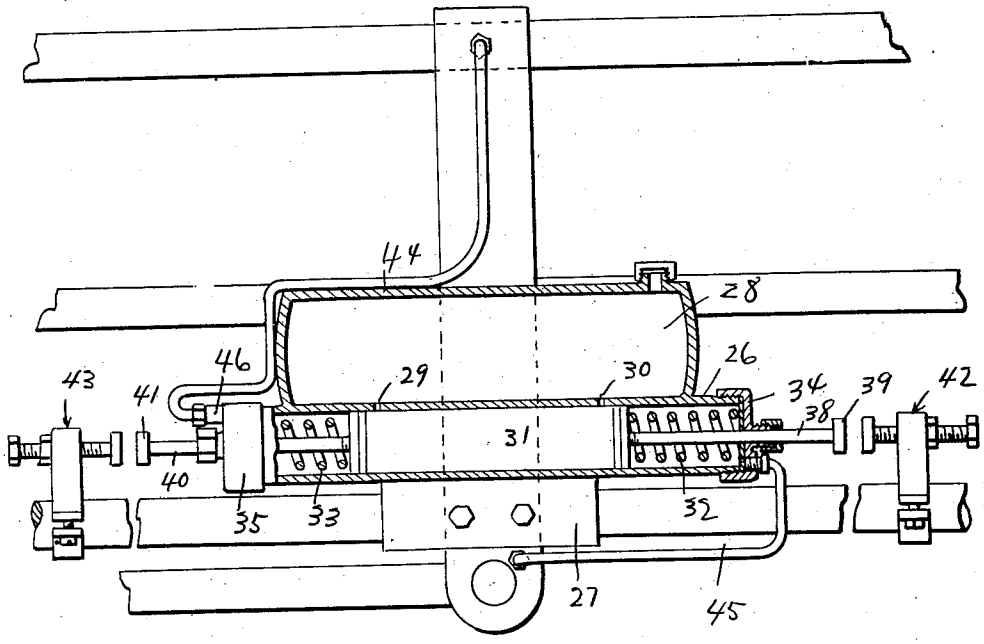
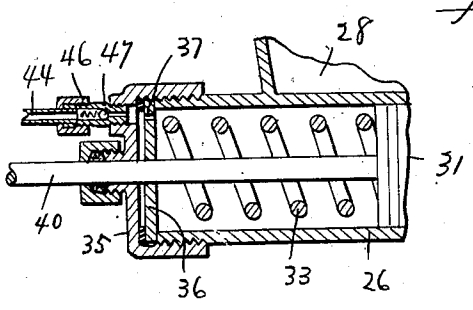


Fig. 5.



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UNITED STATES PATENT OFFICE

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AUTOMATIC OILER

Application filed February 24, 1928. Serial No. 256,746.

The present invention relates to improvements in lubricating devices, and has reference more particularly to an oiler that is automatic in its operation.

One of the important objects of the present invention is to provide an automatic oiling device that can be associated with machinery, such as a thresher, corn sheller and other like devices having revolving elements, the device being equally adapted for use upon pitmans of mowing machines.

One of the important objects of the present invention is to provide an automatic oiler that will at all times be positive and efficient in its operation, the parts of the device being of such construction as to enable the same to be readily and easily assembled on the member to be lubricated without necessitating any material alterations of the parts of the machine on which the oiler is attached.

A still further object is to provide an automatic oiler of the above mentioned character which is simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawings.

In the accompanying drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a side elevation of one form of the automatic oiler showing the same mounted on a pitman.

Figure 2 is an enlarged sectional view through the cylinder and the oil tank showing the piston in its normal position in the cylinder.

Figure 3 is an end elevation of the oiler disclosed in Figure 1.

Figure 4 is a view partly in elevation and partly in section of another form of automatic oiler that is adapted for association with a different type of machine, and

Figure 5 is a fragmentary detail of one end of the cylinder showing the cap secured thereon, and the outlet pipe with the check valve arranged therein.

In the drawings with reference more particularly to Figures 1 to 3, inclusive, the numeral 1 designates generally the automatic oiler, the same comprising an elongated cylinder 2 that is arranged horizontally for disposition on top of the pitman A and secured in position thereon by means of the attaching brackets 3, that depend from the opposite sides of the intermediate portion of the cylinder and are adapted to be secured to the respective sides of the pitman by appropriate fastening means that extend through openings 4 formed in said bracket, said fastening means in the present instance being illlustrated at 5.

The respective ends of the cylinder 2 are open and are furthermore externally threaded and secured thereon are the forward and rear threaded caps 6 and 7, respectively, and the specific construction of each of these caps will be hereinafter more fully described.

An oil tank 8 is arranged on the top of the intermediate portion of the cylinder 2 and this tank is provided with a filling neck in the top thereof as at 9, the same being normally closed by means of the closure cap 10. A pair of oil discharge ducts or passages 11 and 12 are formed in the bottom of the tank for communication with the cylinder 2 at the intermediate portion thereof as clearly shown in Figure 2.

Adapted for reciprocatory movement within the cylinder 2 is the piston 13 the same being of such length as to extend beyond the oil ducts or passages 11 and 12 when said piston is directly in the center of the cylinder, thereby cutting off communication between the tank and the cylinder. In other words the piston 10 is of a length slightly greater than the distance between the spaced oil ducts as clearly illustrated in Figure 2 of the drawings.

Each cap is formed with a central oil discharge opening 14 and a threaded neck 15 is formed on the outer face of each cap, the bore of which communicates with the respective outlet opening as also clearly shown in

Figure 2. An oil delivery pipe 16 is secured on the forward end portion of the pitman A and is connected at its rear end with the neck 15 formed on the forward cap 6 by means of a suitable coupling 17, the forward end of said delivery pipe extending to the forward end of the pitman.

A similar oil delivery pipe 18 is connected at one end to the threaded neck formed on the outer face of the rear closure cap 7 by a coupling 19 and the opposite end of this delivery pipe communicates with the rear end of the pitman in the manner as clearly shown in Figure 1.

A ring 20 is disposed against each end of the cylinder 2 for disposition within the respective cap. An additional ring 21 is arranged against the inner face of each cap and interposed between these ring members is the washer 22, the same being formed with a restricted oil outlet opening 23 which is in registration with the bore 14 of each cap for regulating the flow of oil from the cylinder to the respective oil delivery pipes.

A heavy expansible coil spring 24 is arranged in the forward end portion of the cylinder 2 for disposition between the forward end of the piston and the ring 20 in the cap 6. A similar spring 25 being arranged in the rear end of the cylinder for disposition between the rear end of the piston and the adjacent cap 7. These springs 24 and 25 cooperate to normally maintain the pistons in the central portion of the cylinder whereby to cut off communication between the oil tank and the cylinder.

It is obvious that when the pitman A is in operation, the piston 13 on its own inertia will move forwardly and rearwardly in the cylinder whereby to uncover the ducts or passages 11 and 12 respectively so that oil from the tank 8 will flow into the cylinder 2 and the piston will in turn force the oil out through the respective ends of the cylinder for oiling the parts connected to the respective ends of the pitman.

In Figures 4 and 5 of the drawings there is shown another form of an automatic oiler wherein the same is to be associated with different character of machinery. In this instance, the oiler is to be used in conjunction with threshers, corn shellers, and the like.

A horizontally disposed cylinder 26 is supported on the machinery by the brackets 27 that depend from the bottom of the cylinder and arranged on the top of the intermediate portion of the cylinder is the oil tank 28. This oil tank is formed with oil ducts or passages 29 and 30 in the bottom thereof for communication with the cylinder. A reciprocable cylinder 31 is operable within the cylinder 26 and the cylinder is normally cut off from communication with respect to the oil tank 8 by reason of the fact that the piston 31 is of greater length than the distance between the oil passages and expansible coil springs 33 and 32 are arranged in the respective ends of the cylinder for engagement with the respective ends of the piston, and the cap members 34 and 35 that provide closures for the open ends of the cylinder to maintain the piston in the position shown in Figure 4.

A washer 35 is arranged in each cap member against the respective end of the cylinder and each washer is formed with a restricted oil discharge opening shown at 37 in Figure 5. The opening is arranged adjacent the outer peripheral edge of the washer.

A piston rod 38 extends from the forward end of the piston through the forward cap 34 and carries on its outer end a head 39. A similar piston rod 40 is carried by the rear end of the piston 31 and extends through the rear cap 35 and carries on its outer end the head 41. These piston rods are adapted to cooperate with suitable bumper units 42 and 43 respectively in the manner readily obvious from the construction disclosed so that the sliding movement of the piston will be limited in either direction and when one of the piston rods has its head strike the adjacent bumper, the piston will automatically be returned or forced in the opposite direction. Manifestly, as the piston 31 reciprocates in the cylinder 26 the oil ducts will be intermittently uncovered, thereby permitting oil to enter the cylinder from the tank 28 and the oil is forced from the cylinder into the respective oil delivery pipes 44 and 45, the inner ends of said delivery pipes being associated with the respective caps, while the outer ends extend to the parts of the machine to be lubricated. A check valve 47 is associated with the coupling 46 that connects the inner end of the upper oil delivery pipe 44 with the rear cap 35 for the purpose of preventing the return of the oil from the pipe 44 to the cylinder.

It will thus be seen from the foregoing description that I have provided an oiling device that will be entirely automatic in its operation and will therefore save considerable time and labor, and furthermore due to its simplicity, the parts can be readily and easily assembled or disassembled, and also placed on the machinery to be lubricated without necessitating any material alterations of the parts of the machinery on which said oiler is mounted.

While I have shown the preferred embodiment of my invention it is to be understood that minor changes may be resorted to in the size, shape and arrangement of parts without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what

I claim as new and desire to secure by Letters Patent is:—

1. In an automatic oiling device of the class described, a horizontally disposed cylinder open at its respective ends, caps providing closures for the ends of the cylinder, oil delivery pipes extending from the caps and communicating with the cylinder, an oil tank arranged on the top of the cylinder, the bottom of said tank being provided with a pair of spaced oil outlet passages that communicate with the intermediate portion of the cylinder, a reciprocable piston mounted in the cylinder, said piston being of a length greater than the distance between the oil passages and adapted to normally close said passages, said passages being uncovered intermittently during the reciprocating movement of the piston in the cylinder from one end to the other whereby oil will enter the cylinder and be discharged into the respective delivery pipes, means for returning and normally holding the piston in a position to close the openings, said last mentioned means comprising a pair of expansible coil springs arranged in the ends of the cylinder for disposition between the ends of the piston and the respective cap members.

2. In an automatic oiling device of the class described, a horizontally disposed cylinder open at its respective ends, caps providing closures for the ends of the cylinder, oil delivery pipes extending from the caps and communicating with the cylinder, an oil tank arranged on top of the cylinder, the bottom of said tank being provided with a pair of spaced oil outlet openings that communicate with the intermediate portion of the cylinder, a reciprocable piston mounted in the cylinder and being of a length greater than the distance between the oil passages, said piston adapted to normally close said passages, said passages being uncovered intermittently during the reciprocatory movement of the piston in the cylinder from one end to the other whereby oil will enter the cylinder and be discharged into the respective delivery pipes, a piston rod extending from each end of the piston and operable through the respective cap, a head on the outer end of each piston rod, a bumper unit arranged on the support for the oiling device, and normally out of contact with the respective heads, a pair of expansible coil springs arranged in the ends of the cylinder for disposition between the respective ends of the piston and the adjacent cap members for normally holding the pistons in the intermediate portion of the cylinder to cover the distance passages, the bumper unit cooperating with the head on the outer end of each piston rod to return the piston to the opposite end of the cylinder.

In testimony whereof I affix my signature.

HERMAN WALTER WULF.