April 18, 1950 J. H. HARNLEY 2,504,683

GREASE GUN FILTER ATTACHMENT

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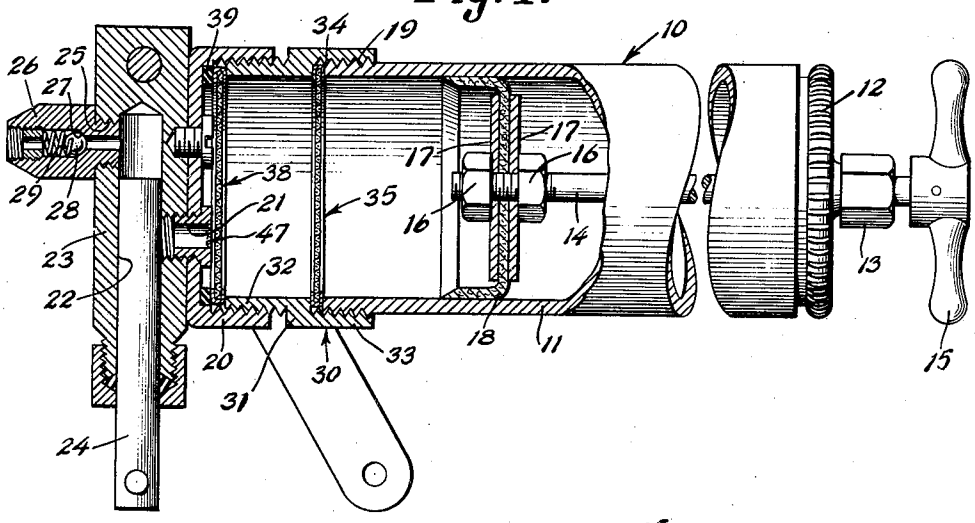
Fig. 1.



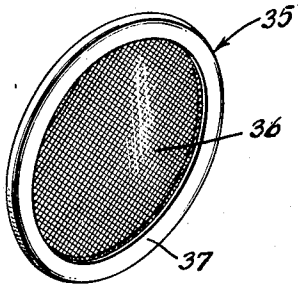


Fig. 3.

Fig. 2.

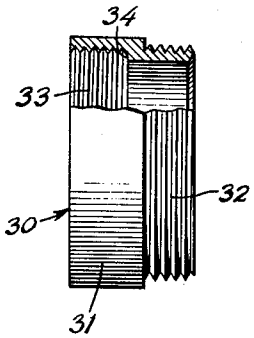
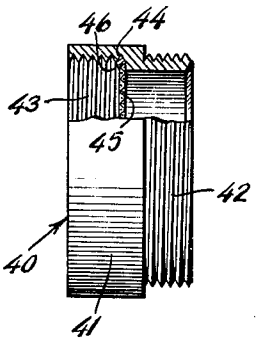


Fig. 4.



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GREASE GUN FILTER ATTACHMENT

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1 Claim. (Cl. 222—189)

1

This invention relates to a filter attachment for grease guns and the like and more particularly to hand operated grease guns of the type commonly employed for the purpose of forcing grease into the bearings of farm machinery.

Owing to the conditions under which the lubricants employed about a farm are stored they frequently become contaminated with straw, chaff and similar foreign matter which is drawn into the gun barrel during the filling of the latter. The result is that when the gun is employed in a greasing operation it is frequently rendered inoperative owing to the lodging of a fragment of foreign matter beneath the discharge valve so as to prevent the latter from performing the proper function. When such a mishap takes place it becomes necessary to return the gun to a place where the valve can be removed and repaired or a new valve substituted. When the mishap occurs far afield it is evident that much valuable time is lost not only because of the transportation of the gun to and from a service point but because the machinery must be kept out of service until it can be supplied with the lubricant.

The primary object of this invention is to conserve the time and energy absorbed in servicing the gun and to keep the machinery properly functioning.

Another object is to prevent the introduction of dirt, grit, chaff and like foreign matter into the bearings of farm machinery during the lubrication thereof.

Another object is to enable filter screens of different mesh to be employed in the same grease gun and also to facilitate the cleaning of a clogged filter screen.

The above and other objects may be attained by employing this invention which embodies among its features a bushing adapted detachably to be coupled to the discharge end of the barrel of a grease gun, an internal annular shoulder in the bushing, means to couple the discharge pump of the grease gun to the bushing and a filter screen abutting the shoulder in such a manner that grease being expelled from the gun barrel will have to flow through the filter screen before it can enter the pump.

Other features include clamping the filter screen between the pump and the shoulder so that it easily may be removed for cleansing or interchange with another filter screen of a different mesh.

2

In the drawings—

Figure 1 is a fragmentary side view of a grease gun equipped with this improved filter attachment, certain portions being shown in section,

Figure 2 is a side view of the bushing with parts shown in section more clearly to show certain details of construction,

Figure 3 is a perspective view of a filter screen, and

Figure 4 is a view similar to Figure 2 showing a modified form of the invention.

Referring to the drawings in detail, a conventional grease gun designated generally 10 comprises a barrel 11 of generally tubular form closed at one end by a head 12 equipped with an axial opening surrounded by a packing gland 13 through which a piston rod 14 enters the barrel. This piston rod carries at its outer end a handle 15 and its opposite or inner end is threaded to receive clamping nuts 16 and washers 17 between which a conventional cup-shaped leather washer 18 is clamped in a conventional manner to form a piston which seals against the wall of the barrel to prevent the escape of grease therearound during the expulsion of the grease from the barrel.

The end of the barrel 11 opposite the head 12 is externally screw-threaded as at 19 for entrance into the internally screw-threaded cap 20 closing the end of the grease gun opposite the head 12. This cap 20 is equipped with a conventional grease passage 21 which opens into the bore 22 of a conventional grease pump 23 carried by the cap 20 and mounted for reciprocal movement in the base 22 in a conventional piston 24. Opening radially into the bore 22 near its inner end is an internally screw-threaded bore 25 in which a valved discharge nipple 26 is threaded. This nipple 26 is equipped with an internal valve seat 27 upon which a ball valve 28 seats under the influence of a spring 29. The structure so far recited is all of conventional form.

My improved filter attachment designated generally 30 comprises a tubular body or bushing 31 formed at one end with an externally screw-threaded nipple 32 and at its opposite end with an internally screw-threaded socket 33. Formed intermediate the ends of the body 31 and at the inner end of the socket 33 is a shoulder 34 the purpose of which will more fully hereinafter appear. The threads in the threaded socket 33 of the body or bushing 31 are cut to match the threads 19 of the barrel 11 and the threads on the threaded nipple 32 are cut to match the threads in the cap 20. It will thus be seen that the attachment readily will fit a conventional grease

gun. Obviously when the barrel is internally threaded and the cap is externally threaded, the attachment need only be reversed when coupling it to the gun.

Seated against the shoulder 34 and extending transversely of the axis of the body 31 is a filter screen designated generally 35 which in its preferred form comprises a disk 36 of wire mesh having the desired degree of porosity about the peripheral edge of which is crimped a circular frame 37 having an external diameter easily to fit into the threaded socket 33. The filter screen 35 is clamped in the body 31 between the threaded end of the barrel 11 and the shoulder 34 and thus easily may be removed for cleansing or replacement. It will be understood that the size of the mesh of the screen fabric may vary to suit the type of service and that several different filter screens may be interchangeably employed in a single attachment.

In order to further exclude chaff, straw and like foreign matter from the pump 23 and valve 28 I find it advantageous to employ a filter screen designated generally 38 which is clamped between the end of the nipple 32 and a suitable spacing washer 39 fitted in the cap 20.

In the modified form of the invention illustrated in Figure 4, the attachment designated generally 40 like the attachment 30 comprises a tubular body 41 having at one end an externally screw-threaded nipple 42 and at its opposite end an internally screw-threaded socket 43 which like those previously described are adapted to be coupled to the grease gun barrel and the grease gun cap. Formed in the tubular body 41 intermediate its ends is a shoulder 44 against which a filter disk 45 is seated. Unlike the filter screen 35, the filter disk 45 has its peripheral edge soldered as at 46 to the wall of the body 41 so that the filter disk is permanently fixed in the body.

In use it will be understood that the spout or cap 20 is uncoupled from the grease gun barrel 11 and the gun is filled with lubricating grease in the conventional manner. Before replacing the cap on the barrel, however, a filter screen 35 of the desired mesh is inserted in the body 31 against the shoulder 34 and the threaded end of the barrel 11 is threaded into the socket 33 to clamp the frame 37 firmly against the shoulder 34. The threaded nipple 32 is then threaded into the cap 20 and the gun is ready for use. Obviously if so desired a second filter screen 38 may be clamped between the end of the nipple 32 and a spacing ring 39 seated in the cap 20 so as to be doubly sure that chaff and like foreign matter is excluded from the pump 23. By the simple expedient of unscrewing the cap 20 from the nipple 32 the filter screen 38 therein may be removed and another substituted therefor or by the unscrewing of the barrel 11 from the socket 33, the screen 35 may be removed. Hence it is possible to clean the filter screens without taking the gun out of service more than the few moments required to exchange screens. The modified form of the invention illustrated in Figure 4 is coupled to the grease gun in identically the same manner as the device previously described, but owing to the fact that the screen fabric disk 36 is soldered in the body 32, the rapid interchange of filter disks is sacrificed for the advantage of permanence of assembly.

In certan instances it may be desired to solder or otherwise fix a filter screen 47 in the passage 21. In any event a filter screen or a plurality of filter screens interposed between the discharge end of the barrel 11 and the pump 23 and valve 28 will serve to exclude foreign matter from the valve so that it cannot be held away from its seat 27 and its proper function interfered with. Thus great savings in time may be effected.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

In a grease gun of the type comprising a barrel having an open end, screw threads adjacent the open end of said barrel, a piston within the barrel for forcing grease through the open end thereof, a cap threaded on the open end of the barrel having passages through which grease leaving the open end of the barrel is discharged and a gasket in the cap for engaging the end of the barrel; a filter attachment for said grease gun comprising a substantially cylindrical body having a bore extending therethrough which corresponds in diameter substantially to the internal diameter of the barrel, internal screw threads on one end of the body for cooperation with the threads on the barrel in detachably securing the body to the barrel, external screw threads on the opposite end of the body for detachably securing the cap thereto, an internal annular shoulder within the body intermediate the ends thereof, a disk shaped filter screen within the body clamped between the threaded end of the barrel and the shoulder and a second disk shaped filter within the cap clamped between the end of the body remote from the barrel and the gasket in the cap.

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