

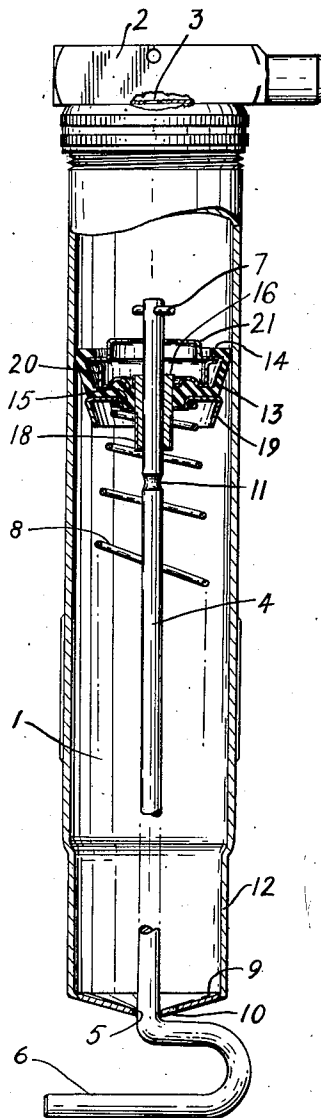
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GREASE GUNS

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GREASE GUNS

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1 Claim. (Cl. 309—33)

This invention relates to grease guns, i.e., devices for delivery of fluid or semi-fluid material (hereinafter referred to as "grease") under pressure.

There are described in my United Kingdom patents Nos. 714,147 and 744,314 grease guns of the general type in which there are means for ejecting grease under high pressure from a high pressure cylinder together with a cylindrical container acting as a low-pressure reservoir for grease which is fed from the low-pressure reservoir into the high-pressure ejection device by a plunger.

In such Patent No. 714,147 is shown such a grease gun which is loaded by grease, pre-packed in a replaceable carton, being fed into position in the low-pressure reservoir, such carton acting as a liner for the low-pressure reservoir-cylinder. In such Patent No. 744,314 is shown a construction in which the grease is fed directly into the low-pressure reservoir.

It is the object of this invention to provide a grease gun which can be loaded either by insertion of a replaceable carton or by direct filling of grease into the low-pressure reservoir, without modification.

It has been found that there is a considerable demand for a grease gun which can be used with the replaceable carton, but in case of difficulty being encountered in obtaining replaceable cartons at the time when they are required it is useful that such a gun should be capable of use by feeding grease directly into the reservoir without the use of a carton and it is believed, therefore, that a gun which will fulfill these functions will meet with a ready market.

A grease gun made in accordance with this invention is characterised by the provision of a low-pressure reservoir-cylinder capable of receiving a carton of pre-packed grease and capable of use without such a carton, together with a plunger working therein having an expandable diameter so that such plunger will automatically adapt itself to the diameter of the inserted carton or the diameter of the reservoir free from such carton, and operate in either condition.

The invention will be more readily understood by reference to the accompanying drawing which shows in section an example of such a grease gun.

In the example shown there is a main cylindrical reservoir for grease 1, a smaller compression cylinder 2, communicating with reservoir 1 by port 3. The high-pressure cylinder 2 is for the purpose of ejecting grease under pressure by means of a piston (not shown) operated by a handle (not shown).

Within the container 1 is a plunger mounted upon a plunger rod 4. The plunger rod extends through the aperture 5 at the end of the container 1 and terminates in a handle 6. The plunger rod 4 has a stop pin 7 at its upper end and the plunger next hereinafter described is a loose fit upon the plunger rod 4. The plunger is spring-pressed by spring 8 towards the high-pressure cylinder 2, the far end of the spring 8 bearing against the end 9 of the container 1. This end 9 of the container 1 has a key-hole slot 10 which in conjunction with the parallel grooves 11 in the plunger rod 4 enables the plunger rod

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to be withdrawn and there held locked, so that the stop 7 bears against the plunger and compresses the spring 8, withdrawing the plunger axially into the cylindrical port 12 of the container 1 near to the end 9.

5 The diameter of the cylindrical container 1 is larger throughout the major or main portion of its length than it is throughout the minor portion of its length at part 12. The difference in radii between the major portion of cylinder 1 is equivalent to the thickness of the wall of a suitable pre-packed tubular carton for grease. In use, therefore, when an endless tubular carton (i.e., a carton from which the circular top and bottom have been removed) is inserted as a liner in the container 1, the internal diameter of the carton and the internal diameter of the cylindrical part 12 are identical, thus forming a smooth passage for the plunger. The carton will abut the annular shoulder defined at the juncture of part 12 with the part of larger diameter of cylinder 1.

15 If, however, a carton be not inserted, then the full internal diameter of the reservoir is used. This is larger over most of its length as compared with the smaller diameter of part 12 as above noted. In order to accommodate this increase in diameter when necessary, the plunger which is slidably mounted upon the plunger rod 4 is formed of a comparatively large cup-washer 13 preferably of synthetic rubber. This cup-washer 13 has a conical outer skirt and an inwardly turned flange 14. It is held at its base on to a sliding metal sleeve 16 internally bushed at 18 to form a seal. It is supported at its base by a metal cup-washer housing 19 which also serves as an anchorage for the spring 8 hereinbefore described, and its depending skirt serves to prevent undue deformation of the cup-washer 13.

20 The flange 14 is supported by a metal support 20 so that sliding movement is permitted between the flange 14 and the part 20, and this part 20 together with part 21 also acts as a handle stop housing to co-act with the stop pin 7 so as to withdraw the plunger against the action of the spring 8 when the handle 6 is pulled out.

40 It will be seen that by this construction a plunger is provided with an outer wall capable of radial and circumferential inward compression and outward expansion so as to accommodate to either the smaller diameter of part 12 or the larger diameter of the major length of container 1, but which will be grease-tight in all positions in the container.

By this means a universal grease gun is obtained which can be used either with an inserted pre-packed tubular grease carton or without, and no modification is needed in order that the plunger 13 may serve with either use.

What I claim is:

50 In a grease gun including a cylinder having linear portions of different diameters, a plunger reciprocable therein; said plunger comprising a rod, a cup washer 55 mounted on said rod and having a frusto-conical skirt bearing against the inner wall of said cylinder to form a seal therewith and having an inturned annular flange extending radially inwardly from the free edge thereof, a rigid support for said washer affixed to said rod and having an outwardly directed annular flange in abutting relation to the inner face of said inturned flange.

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