Feb. 8, 1944. F. E. NEEF, JR 2,340,896

ADJUSTABLE GREASE PAIL HEAD

Filed Dec. 3, 1941

Fig. 1

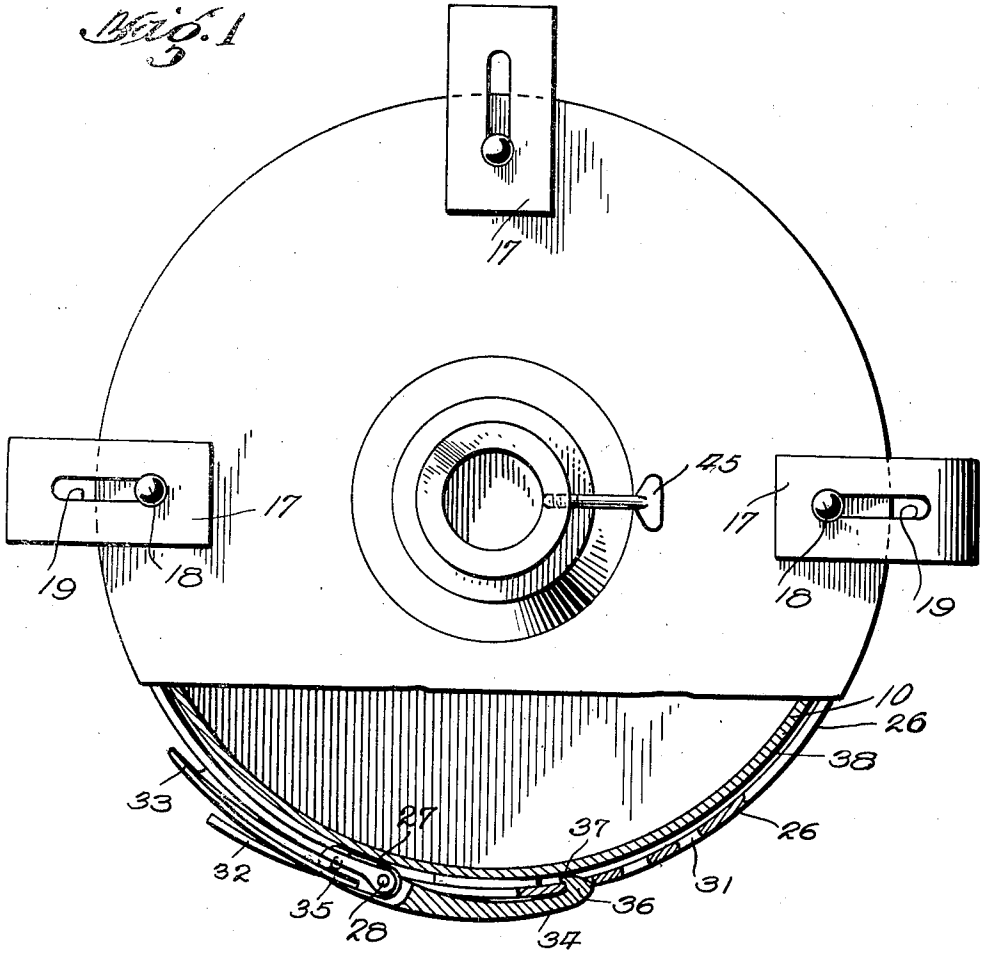
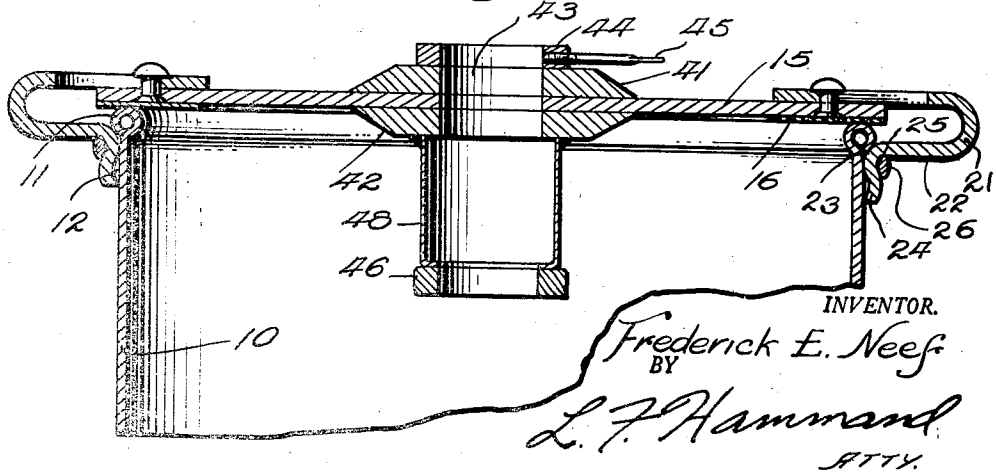


Fig. 2



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ADJUSTABLE GREASE PAIL HEAD

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3 Claims. (Cl. 220—61)

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The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The present invention relates to head structures for grease pails and more particularly to an adjustable grease pail head adapted to be clamped in position on grease pails of various diameters and to support a conventional type of grease dispensing pump.

The prime object of the invention is to provide a grease pail head including adjustable clamping means so that a single standard form of head may be clamped to any one of a number of types of commercial grease pails in order to support a standard pump for dispensing the grease. In this connection it will be understood that standard commercial forms of grease pails vary in size and shape so that a pail of given capacity as manufactured by one producer may be relatively high and of small diameter, while a pail of similar capacity manufactured by other producers will be of comparatively large diameter and small height.

In the United States Army it is considered preferable to be able to purchase supplies of the nature of lubricants such as grease from any one of the several producers, but at the same time it is believed impracticable to provide dispensing equipment so designed so that it can be used with only one type of container. The inherent difficulties of this situation are overcome by the provision of an adjustable type of grease pail head so arranged that it is capable of being interchangeably clamped to the top of any of the standard grease pails of the standard and usual capacity in which such lubricants are purchased.

A survey of the more prominent manufacturers indicates that the diameters of the different forms of pails vary from a minimum of 10 inches to a maximum of 12 inches in diameter and that the heights of the pails vary accordingly, the maximum depth being 12 inches and the minimum 10 inches. Except for the matter of dimensions, the construction of commercial lubricant pails is quite standardized, although in certain instances the single chime structure is replaced by a structure including a second chime immediately therebelow. In view of this situation, it will be readily apparent that it is highly desirable that military grease dispensing apparatus be of such design and construction that a grease dispensing pump may be interchangeably attached to either the maximum or minimum diameter pails and that the pump column be correspondingly adjusted so that it will reach the bottom of the pail in order to dispense the entire amount of grease contained therein.

Referring now more particularly to the drawing,

Fig. 1 is a plan view, partly in section, of a present preferred embodiment of the present invention.

Fig. 2 is a central sectional elevation thereof.

In the structure illustrated in the drawing, the numeral 10 indicates a conventional type of grease pail, ordinarily provided with a single or double chime at the points 11 and 12, respectively. The upper surface of the grease pail 10 is closed by a flat head plate 15 provided with a flat annular gasket 16 on the marginal edges of its lower surface. It will be noted that the diameter of the head plate 15 is sufficiently large to cover even the maximum diameter of grease pails, while the width of the gasket 16 is such that it extends inwardly so that its inner diameter will not be greater than the minimum diameter of pails for which the device is adapted. A plurality of adjustable clamping slides 17 are provided on the upper surface of the head plate 15 and each is anchored to the head plate 15 by a headed rivet 18 which penetrates the elongatd slot 19 of the clamping bracket to permit each of the clamping brackets to slide outwardly to the maximum position illustrated in the drawing or to slide inwardly in order to accommodate grease pails having smaller diameters.

Each of the clamping brackets 17 includes a reverse loop 21 and an inwardly extending lower portion 22 so that the entire bracket is of U-shape, having an upper portion and a lower portion joined by the intermediate portion 21. The inner ends of the lower portion 22 are curved downwardly to form a cam surface 23 adapted to engage and clamp against the upper chime 11 of the grease pail 10 and the clamping members extend on downwardly in an outwardly extending curve 24 of such dimensions as to give clearance to any of the standard forms of lower chimes of the grease pail such as are sometimes positioned at the point 12 hereinbefore described. It will be noted that the configuration of the clamping members 17 is such that each of them includes an inwardly inclined recess 25 which serves to receive a retainer strap 26 which extends completely around the container and serves to clamp all of the clamping members 17 into engagement with the chime of the pail.

The retainer strap 26 consists of a relatively long circular band of metal having a head por-

tion 27 provided with a hinge pin 28 and a retainer strap 26 that extends around the head plate. This strap 26 is of somewhat elliptical cross-section, so that it will fit closely into the recess 25 and draw the clamping members 17 in firm engagement with the chime 11 of the grease pail.

The retainer strap 26 is provided with a number of openings 31 spaced apart at intervals along the strap.

The arrangement is such that the retaining strap may be clamped against the outer surfaces of the recesses 25 to draw each of the clamping slides 17 inwardly into firm engagement with the chime of the grease pail. To this end, the clamping lever 33 is pivoted on the pivot pin 28 and a latch hook 34 is pivoted on the pin 35 at a point spaced apart from the pivot 28. The outer end of the clamping hook 34 is provided with a dog portion 36 adapted to penetrate one of the openings 31 and a lip 37 is provided on the inner end of the dog 36 to prevent accidental release of the retaining strap 26 when under high tension.

As hereinbefore pointed out, the head plate is provided for the purpose of mounting a conventional type of grease dispensing pump in the grease pail. To this end a pair of central reinforcing flanges 41 and 42 are welded to the upper and lower surfaces respectively of the center of the grease pail cover. A central aperture 43 is provided in the plate 15 and the flanges 41 and 42 and a locking collar 44 including a threaded set screw 45 is welded to the upper surface of the flange 41 in order to receive the supporting column of a conventional type of grease pump (not shown). The column of the grease pump will extend downwardly to the bottom of grease pail and is given additional support by the lower collar 46 supported at a point substantially below the lower flange 42 by the tubular extension 48.

The operation of the mechanism is as follows:

The operator will position the entire cover structure on the top of any conventional form of grease pail, sliding the clamping bracket 17 inwardly until the cam surfaces 23 contact the curved portion of the chime 11 of the pail and will then wrap the retaining strap 26 around the clamping elements through the recesses 25 of the clamps. The clamping lever 33 will be pivoted in a counterclockwise direction around the pivot 28 so that the dog portion 36 of the clamping hook 34 may be positioned in one of the openings 31 in the retaining strap 26 and thereafter the operator will manually force the lever 33 in a clockwise direction into the operating position illustrated in Fig. 1 of the drawing wherein it will remain until the grease dispenser pail is completely exhausted.

It will be noted that as the clamping lever 33 reaches the position shown in the drawing, the pivot 35, on which the clamping hook 34 is mounted, will pass the dead center established by the projection of a line from the dog portion 36 of the hook through the pivot 28 on which the handle is mounted. Thus, the hook structure is self-maintaining and the tension-retaining strap 26 will only serve to urge the handle inwardly so that the pivot 35 will contact the surface of the strap 26 and limit the movement. The operator may then insert the column of a conventional grease pump through the aperture 45, force it downwardly until it strikes the bottom of the pail, tighten the set screw 45 and operate the grease-dispensing apparatus in the conventional manner. By the use of this device, all sizes of grease pails between the maximum and minimum for which the device is adapted can be accommodated, notwithstanding that the sizes may vary into an infinite number of different diameters.

This is accomplished by the resilient characteristics of the retainer strap 26 which is of spring metal and, while it will not stretch longitudinally any appreciable amount, it has resilient characteristics whereby it will not be limited to specific sizes of containers corresponding to the spacing of the openings 31, but will automatically compensate for intermediate diameters. To fully appreciate this action, it should be pointed out that the chime 11 of the grease pail is circular, but that when the clamps 17 are positioned on the outside of the chime the strap 26 will be spaced away from the chime a distance equivalent to the thickness of the clamps at all points throughout the circumference of the pail when the strap 26 lies in a true circular position. In the event, however, that the notches 31 do not exactly conform to the size of the pail to be clamped in position, the hook 36 may be positioned in the notch arranged to accommodate the next smaller size pail and when the handle 33 is operated the tension developed in the retaining strap 26 will tend to draw the strap inwardly toward the pail at the intermediate points between the four clamping elements 17 as indicated by the point 38 on the drawing. In this case, the resiliency of the strap tends to compensate for the differences in the length as between adjacent openings 31 so that the entire clamping structure will be under resilient tension although no separate spring structures are provided.

Having thus described my invention, what is claimed as new and desired to secure by Letters Patent is:

1. In a grease pail head, a flat, circular metallic closure disk of a diameter not less than the maximum diameter of grease pails adapted for use with the device, a resilient, annular sealing gasket affixed to the lower surface of said closure plate and extending around its marginal edge, a plurality of extension clamps slidably mounted with respect to the closure plate, each of said clamps including a straight, flat upper portion provided with a slot, said slot being radially disposed relative to the closure plate and adapted to receive a pin extending from said closure plate so as to form a slot connection with the closure plate whereby said clamps are adapted to slide radially of said closure plate, a reverse loop at the outer extremity of said straight portions, an inwardly extending flat portion arranged to extend inwardly below the closure plate and within its marginal limits, a downwardly curved clamping portion at the inner extremity of said return portion and including on its inner face a curved cam surface adapted to engage the chime of a grease pail, a recess on its outer face at the inner end of the lower flat portion adjacent the cam surface, means to simultaneously force each of said clamps toward the center of the closure plate, said means comprising a strap encircling the closure plate and positioned in the recesses of each of the clamps, a latching hook to engage said strap near one end, and a clamping handle interconnecting the said latching hook with the opposite end of the clamping strap, said clamping handle including means to lock the clamping strap in clamping position and maintain linear tension on the strap.

2. In a grease pail head, a closure disk of a diameter not less than the maximum diameter of grease pails adapted for use with the device, a plurality of clamps slidably mounted with respect to the closure plate, said clamps being provided with a slot radially disposed relative to the closure plate, and adapted to receive means extending from said closure plate whereby said clamps are adapted to slide radially of said closure plate, an inwardly extending flat portion arranged to extend inwardly below the closure plate, a downwardly curved clamping portion at the inner extremity of said inwardly extending portion and including on its inner face a curved cam surface adapted to engage the chime of a grease pail, a recess on its outer face at the inner end of the lower flat portion adjacent the cam surface, means to simultaneously force each of said clamps toward the center of the closure plate, said means comprising a perforated strap encircling the closure plate and positioned in the recess of each of the clamps, a latching hook adapted to engage one of the perforations on said strap member, and a clamping handle interconnecting the latching hook and the opposite end of the clamping strap, said clamping handle including a pair of pivots spaced from the outer end of said latching hook and adapted to move across dead center position and thus lock the clamping strap in clamping position and maintain linear tension on the strap.

3. In a grease pail head, a closure disk of a diameter not less than the maximum diameter of grease pails adapted for use with the device, a plurality of clamps slidably mounted with respect to the closure plate, said clamps being provided with a slot radially disposed relative to the closure plate, and adapted to receive means extending from said closure plate whereby said clamps are adapted to move radially of said closure plate and including a slide portion, a reverse loop at the outer end of the slide, a return portion extending inwardly from the reverse loop, and a clamping portion at the inner extremity of said return portion and including on its inner face a curved cam surface adapted to engage the chime of a grease pail, and a clamping strap engaging the clamps to urge the clamps into engagement, said clamping strap comprising a strap member, a latching hook, and a clamping handle interconnecting the latching hook and the clamping strap, said clamping handle including a pivotal connection spaced from the outer end of said latching hook and adapted to move across dead center position and thus lock the clamping strap in clamping position and maintain linear tension on the strap.

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