Oct. 28, 1969

E. P. SUNDBOLM

NON-DRIP FAUCET FOR OIL BARREL PUMP

Filed Aug. 16, 1967

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

INVENTOR:

EDWIN P. SUNDHOLM

BY

Dawson, Oitto, Fallons & Greggs

ATTYS
NON-DROP FAUCET FOR OIL BARREL PUMP

Edwin P. Sundholm, Albert City, Iowa, assignor to Superior Manufacturing Co., Albert City, Iowa, a corporation of Iowa

Filed Aug. 16, 1967, Ser. No. 661,001

Invent. Cl. B67D 3/00, 5/06

U.S. Cl. 222—536

5 Claims

ABSTRACT OF THE DISCLOSURE

A non-drip faucet comprising a spout and a nozzle which is especially adapted for use with an oil barrel pump. The spout terminates in an externally threaded portion and is provided with an O-ring adjacent the threaded portion. The nozzle includes a connecting portion which is internally threaded for part of its length and which terminates in a non-threaded sealing portion. The nozzle is threadedly engaged with the spout, and the sealing portion contacts the O-ring to maintain a fluid-tight seal between the spout and nozzle. The pouring portion of the nozzle extends angularly from the connecting portion, and the nozzle is rotatable with respect to the spout to selectively position the pouring portion angularly downwardly in pouring position or angularly upwardly in non-drip position. The spout also includes a dust cap which extends over the pouring portion when the nozzle is in the non-drip position.

DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a barrel pump equipped with the inventive faucet;

FIG. 2 is an enlarged sectional view of the faucet;

FIG. 3 is an exploded top view showing the components of the faucet;

FIG. 4 is an exploded elevational view of the components of FIG. 3;

FIG. 5 is a top view of the spout with the sealing element removed.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1, the numeral 10 designates generally a barrel pump mounted in a barrel 11 filled with the oil or other fluid that is to be pumped. The pump is seen to include a pump cylinder 10a, a handle 10b, and a faucet generally designated 13. A container 12 may be positioned on the barrel top below the faucet 13 for receiving the pumped liquid.

Referring now to FIG. 2, the faucet 13 is seen to include a nozzle 14 and a spout 15, which is secured to pump cylinder 10a by welding or other suitable means. Although the faucet has been described in conjunction with a barrel pump, it is to be understood that the use of the faucet is not so limited. The faucet may be attached to many other fluid sources and used with many kinds of fluid.

The nozzle 14 is rotatable with respect to the spout 15, and is shown in the non-drip position in FIG. 2. The nozzle may be rotated into the position shown in phantom in FIG. 2 when it is desired to pump fluid through the faucet.

As can be seen best in FIGS. 4 and 5, the spout 15 is generally tubular or cylindrical and terminates in an outwardly flared portion 16. The end of the flared portion 16 is externally threaded as at 17 and is provided with an annular groove 18 axially inwardly of the threaded portion 17. Positioned within groove 18 is O-ring 19, which acts as a gasket or sealing element between the spout and the nozzle, and is preferably constructed of oil and grease resistant material.

The nozzle 14 includes a connecting portion 20 and a pouring portion 21 which extends angularly from the connecting portion 20. In the specific embodiment illustrated, the pouring portion extends at approximately right angles from the connecting portion, giving the nozzle an L-shaped appearance. The connecting portion 20 is generally cylindrical and is provided with a central bore 22 which communicates with bore 23 provided through the pouring portion. The connecting portion 20 includes a sealing portion 24 having a smooth internal surface 25 and a threaded portion 26 having internal threads 27. The internal diameter of the sealing portion 24 is no less than the maximum outside diameter of the threaded portion 17 of the spout 13 so that the threaded portion 17 may be received by the sealing portion 24. The threaded portion 26 is adapted to threadedly engage the threaded portion 17 of the spout, and the threads 27 are thus seen to extend radially inwardly of the inner surface 25 of the sealing portion.

In the particular embodiment illustrated, the pouring portion 21 is seen to be generally rectangular in transverse cross section (FIG. 3) and is provided with an...
It has been found that the rectangular configuration provides a good gripping surface if the nozzle is grasped by the pouring portion, but it is to be understood that other configurations may also be used. Extending outwardly from the side of pouring portion 21 opposite the connecting portion 20 is handle 28. Referring to FIG. 4, handle 28 is shaped to be generally T-shaped with a cylindrical stem 29 and an elongated cross bar 30 provided with two pairs of spaced-apart longitudinal ribs 31. When the nozzle is in the non-drip position shown in FIG. 2 the opening 21a of the pouring portion is covered by dust cap 32. Dust cap 32 includes an arcuate base or saddle 33 which is secured to the spout 15 as by spot welding, a stem 34 extending from the spout and angularly inclined with respect to the axis of the spout, and a generally rectangular cover 35 which extends over nozzle opening 21a. A strengthening rib 36 extending from base 33 to cover 35 may be formed in the dust cap to provide additional strength.

The faucet is assembled by slipping the sealing portion 24 over the threaded portion 17 of the spout. Advantageously, the axial length of the sealing portion is less than the axial length of the threaded portion 17 so that the threaded portion before the sealing portion contacts O-ring 19. The nozzle is then rotated to engage the threads thereof with the threads of the spout, and the nozzle may be gripped by the handle 28 or the pouring portion 21. As the nozzle is rotated, the sealing portion 24 is advanced toward the O-ring 19 and eventually passes over it. The O-ring 19 preferably extends radially outwardly beyond the maximum outside diameter of the threaded portion 17 so that it is compressed by the sealing portion, thereby effecting a fluid-tight seal between the nozzle and the spout.

The nozzle may continue to be rotated to bring the pouring portion 21 into the desired position—i.e., if the pump is to be operated, the pouring portion would be positioned downwardly as illustrated in phantom in FIG. 2 and if the pump is not to be operated immediately the pouring portion is positioned upwardly as illustrated in solid in FIG. 2. Both the sealing portion 24 and the cover 35 of the dust cap are seen to have a substantial length in the axial direction so that the nozzle may be rotated several turns after the sealing portion first contacts the O-ring 19 without affecting either the seal between the spout and the nozzle or the covering relationship of the dust cap with the nozzle opening 21a. Thus, after the nozzle is positioned on the spout, the operator need not be too concerned which way he rotates the nozzle in order to reposition the pouring spout. If the nozzle is rotated, say, clockwise from the non-drip position to the pouring position and after use is again rotated clockwise to reposition the nozzle in the nondrip position, the proper seal and protective covering will be maintained.

O-ring 19 is preferably made of rubber or some other relatively compressible material, and the force exerted by the compressed O-ring against the sealing portion creates frictional resistance to the rotation of the nozzle. Therefore, not only does the O-ring provide a seal but it frictionally locks the nozzle in any desired position and prevents free rotation of the nozzle in the absence of an externally applied force. The frictional resistance is not so great, however, that the nozzle may not readily be rotated by the operator. If the O-ring should happen to become damaged or worn so that it no longer effectively performs its function, it may be readily replaced merely by unscrewing the nozzle from the spout to expose the O-ring. The ready removability of the nozzle from the spout and the ordinary hose to be connected to the spout if the fluid is desired to be pumped to an area that is remote from the barrel or other fluid source. Advantageously, the threads of the spout may be sized to permit connection with an ordinary garden or water hose.

In the preferred embodiment the dust cap 32 is positioned so that the nozzle will contact the stem 34 before the threaded portions of the nozzle and the spout are tightened to the point where further rotation would damage the threads. The stem 34 also prevents the threads of the nozzle from contacting the O-ring 19 and possibly damaging it.

The handle 28 provides a good gripping surface for rotating the nozzle even if the nozzle becomes covered with the fluid that is being pumped. If some of the fluid happens to contact the cross bar 28 of the handle, it tends to flow into the grooves 36 between the ribs 31, thereby maintaining the ribs relatively dry. The ribs may also be rounded slightly to facilitate the tendency of the fluid to flow into the grooves. Further, the operator's hands may become covered with the fluid and the ribbed configuration of the cross bar 28 provides a good gripping surface.

The nozzle 14 may advantageously be formed integrally by casting. The connecting portion 20 as cast may either have a uniform wall thickness or its axial length or may be proportioned with a thickened portion corresponding to the threaded portion 27 in the completed nozzle. In the former case, the sealing portion may be milled to the desired internal diameter after which the threads of the threaded portion may be cut. In the latter case, the only finishing operation necessary is the threading operation.

In one specific embodiment the axial length of the threaded portion 27 was 0.500", and the axial length of the sealing portion 24 was 0.375". Both the internal diameter of the sealing portion and the maximum internal diameter of threaded portion 27 was 1.000", while the outside diameter of the connecting portion was 1.200". The minimum internal diameter of the threaded portion 27 was 0.967". The threaded portion 17 of the spout had correspondingly similar dimensions as those of the threaded portion of the nozzle. The generally rectangular bore 23 was 0.750" x 0.5625", and the walls of the pouring portion were 0.062" thick.

The length of the relatively flat cover 35 of the dust cap 32 in the axial direction was 1.167" and was positioned 1.010" above the outer surface of the spout 15 to which it was attached. The generally cylindrical stem 29 of the handle 28 had a radius of 0.343" and a length of 0.392". The cross bar 30 had a length of 1.180", the ribs 31 had a height of 0.156", a thickness of 0.072", and were spaced 0.074" apart.

Although in the specific embodiment illustrated, there is a slight spacing between the nozzle and the dust cap 32 when the nozzle is in the non-drip position, a more perfect covering relationship can be obtained if desired by providing the cover of the dust cap with a perimeter depending flexible skirt or closure member or the like which could be resiliently deformed by, and enclose, the end of the pouring portion. Referring to FIGS. 6 and 7, closure 37 is attached to the dust cap by means of a generally perimetric flange 38 which receives and grips the cover 35. The closure 37 includes a generally rectangular bottom 39 which has an area slightly larger than that of the nozzle opening 21a. The closure bottom 39 is deformed upwardly by the pouring portion 21 as it is rotated to the non-drip position (FIG. 7) and presses downwardly around opening 21a to provide an effective seal against dust, water, and the like. The closure 37 is preferably made of oil-and-grease-resistant rubber or other flexible material.

Alternatively, both the end of the pouring portion and the cover 35 could be curved with a radius of curvature corresponding to the arc that the end of the pouring portion defines as it is rotated. The space between the cover and the pouring portion could then be reduced to an inconsequential amount.
While in the foregoing specification, a detailed description of specific embodiments of my invention were set forth for the purpose of explanation, it is to be understood that many of the details hereinafter may be varied considerably by those skilled in the art without departing from the spirit and scope of my invention.

I claim:

1. A faucet comprising a spout having an end terminating in a generally cylindrical externally threaded portion, a nozzle received on said spout end, said nozzle including a connecting portion and a pouring portion, gasket means on said spout adjacent said threaded portion for providing a seal between the spout and nozzle, said gasket means extending radially outwardly beyond said threaded portion, said connecting portion having a central bore of generally circular cross section and including a sealing portion extending from one end thereof and an internally threaded portion axially inwardly of the sealing portion, said sealing portion having an internal diameter of no less than the maximum outside diameter of said spout threaded portion, said nozzle threaded portion being threadedly engaged with said spout threaded portion, said sealing portion being sealingly and frictionally engaged with said gasket means, said pouring portion extending angularly from said connecting portion and having a central bore communicating with said connecting portion, and a dust cap including a cover and a stem, said stem being attached to said spout and extending therefrom, said cover extending over said pouring portion when the pouring portion is positioned angularly upwardly.

2. The structure of claim 1 including a flexible closure member depending from said cover, said pouring portion engaging said closure member when said pouring portion is positioned angularly upwardly.

3. The structure of claim 1 wherein the cover and the end of the pouring portion are generally arcuately shaped in transverse cross section, the curvature of the cover and pouring portion end having a radius approximately the same as the radius of the arc defined by the end of the pouring portion as the connecting portion rotates about its axis, the distance between the cover and the axis of the connecting portion being approximately the same as said radius.

4. A faucet comprising a spout having an end terminating in a generally cylindrical externally threaded portion, a nozzle received on said spout end, said nozzle including a connecting portion and a pouring portion, gasket means on said spout adjacent said threaded portion for providing a seal between the spout and nozzle, said gasket means extending radially outwardly beyond said threaded portion, said connecting portion having a central bore of generally circular cross section and including a sealing portion extending from one end thereof and an internally threaded portion axially inwardly of the sealing portion, said sealing portion having an internal diameter of no less than the maximum outside diameter of said spout threaded portion, said nozzle threaded portion being threadedly engaged with said spout threaded portion, said sealing portion being sealingly and frictionally engaged with said gasket means, said pouring portion extending angularly from said connecting portion and having a central bore communicating with said connecting portion, and a dust cap including a cover and a stem, said stem being attached to said spout and extending therefrom, said cover extending over said pouring portion when the pouring portion is positioned angularly upwardly.

5. The structure of claim 4 including a flexible closure member depending from said cover, said pouring portion engaging said closure member when said pouring portion is positioned angularly upwardly.

References Cited

UNITED STATES PATENTS

521,491 6/1894 Arder 222—568 X
547,048 10/1895 True 222—533 X
2,868,419 1/1959 Casey 222—402.12
3,206,083 9/1965 Nishina 222—568 X
3,376,053 4/1968 Novakovich et al. 283—92

FOREIGN PATENTS


ROBERT B. REEVES, Primary Examiner
F. R. HANDREW, Assistant Examiner

U.S. Cl. X.R.

222—538, 542, 568