

March 7, 1939.

L. M. BELL

2,149,906

BARREL SPUT

Filed Oct. 29, 1937

2 Sheets-Sheet 1

Fig. 1.

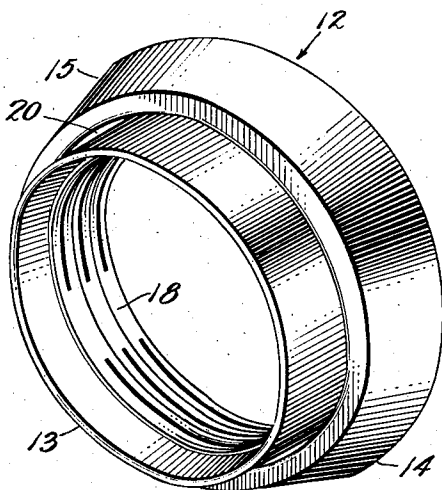
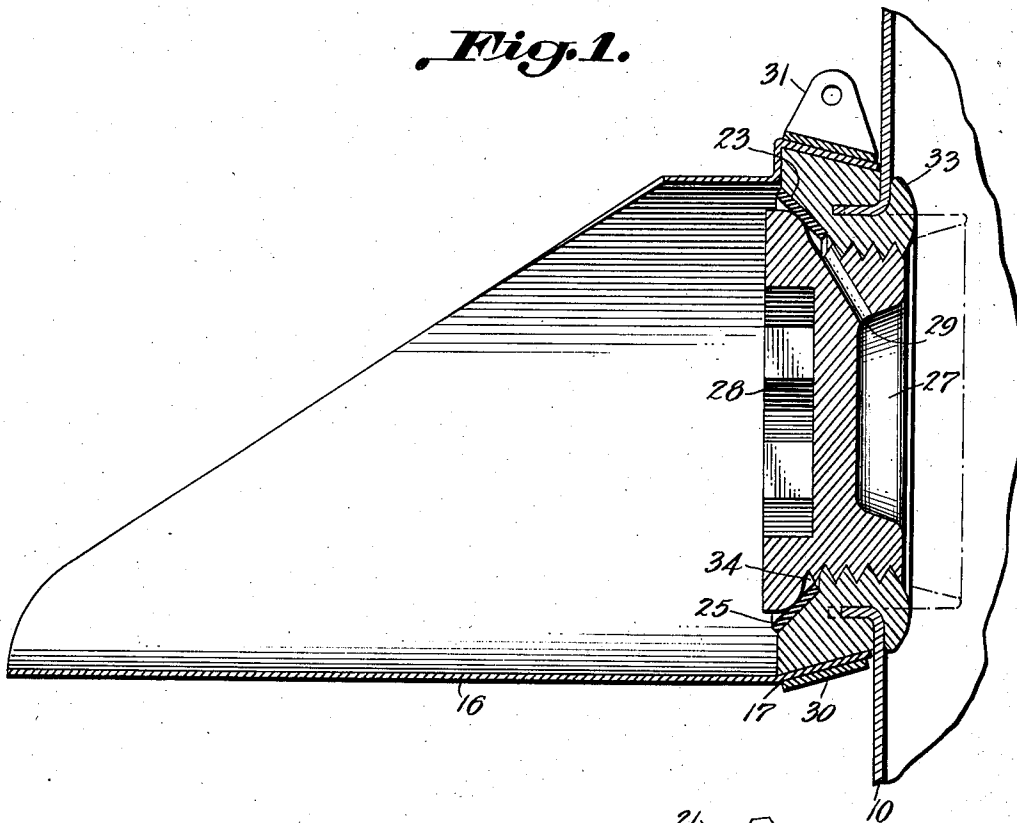


Fig. 2.

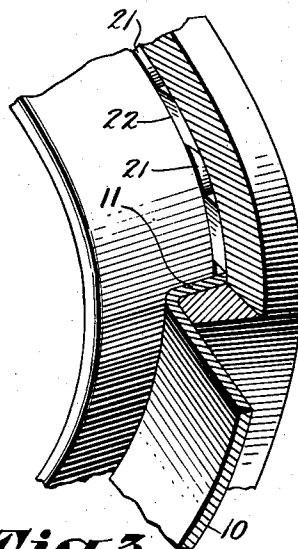


Fig. 3.

Leon M. Bell.

Inventor

By Nelson Moore.

Attorney

March 7, 1939.

L. M. BELL

2,149,906

BARREL SPUT

Filed Oct. 29, 1937

2 Sheets-Sheet 2

Fig. 4.

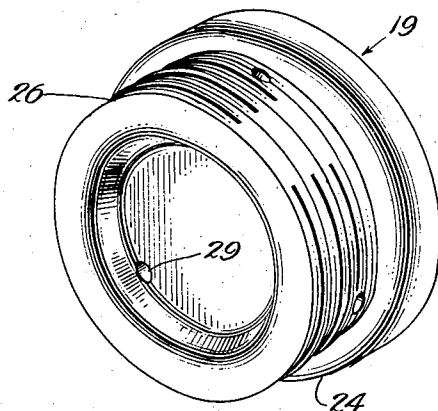


Fig. 5.

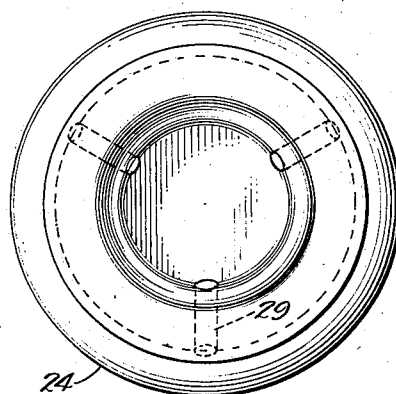


Fig. 6.

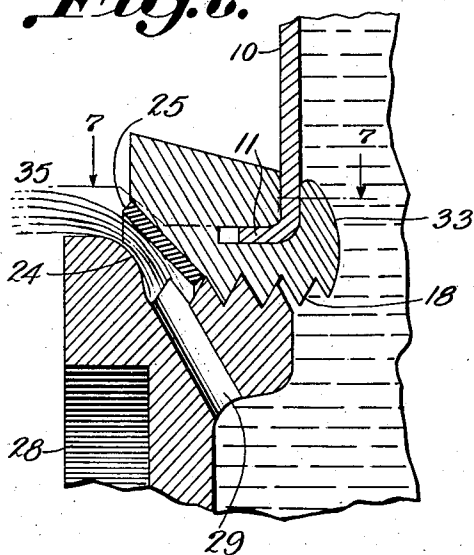


Fig. 7.

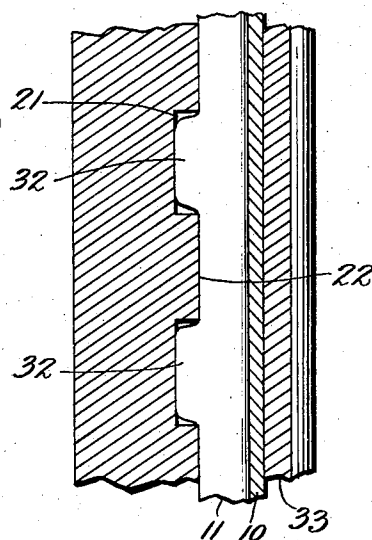
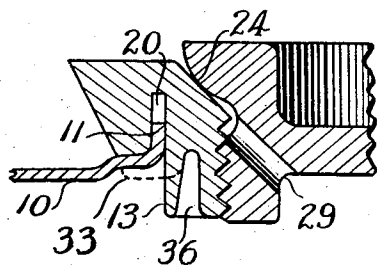


Fig. 8.



Inventor

Leon M. Bell.

By Nelson Moore.

Attorney

UNITED STATES PATENT OFFICE

2,149,906

BARREL SPUT

Leon M. Bell, Portsmouth, Ohio

Application October 29, 1937, Serial No. 171,791

3 Claims. (Cl. 285—49)

The present invention concerns a new and improved sput, plug and spout assembly for metal barrels and drums.

It is an object of the invention to provide a cheap, strong, sturdy device which is readily assembled.

It is an object of the invention to provide a sput for barrels which may be readily turned or cast and which has a novel means for maintaining itself in a fixed relationship with the metal barrel.

It is an object of the invention to provide a sput having recesses into which the metal of a barrel may be forced so that a rigid connection may be made between the barrel and the sput.

It is an object of the invention to provide a device upon which a spout may be mounted and placed in a dispensing arrangement with a minimum of labor.

It is an object of the invention to provide a plug and sput combination by means of which controlled dispensing may be obtained. The plug and sput are so formed as to present the essential elements of a valve whereby the flow from the container may be regulated.

Further objects and purposes will appear as the present embodiment of the invention is described and discussed.

In the drawings which form a part of the specification, Fig. 1 is a sectional view of the entire assembly.

Fig. 2 is a perspective view of the barrel sput alone.

Fig. 3 is a fragmentary perspective view somewhat enlarged so that novel means by which the rigid connection between the barrel and sput is obtained may be clearly shown.

Fig. 4 is a perspective view of the plug.

Fig. 5 is a bottom view of the plug.

Fig. 6 is a fragmentary sectional view of the plug and sput assembly with the plug in dispensing position.

Fig. 7 is a sectional view along the line 7—7 in Fig. 6 clearly showing the arrangement by which the rigid mounting of the sput with respect to the metal of the barrel or drum is obtained.

Fig. 8 is a fragmentary sectional view of a modified form of sput.

Referring now more specifically to the drawings, like numbers thereon indicate like parts throughout.

The metal 10 of a barrel or drum is open flanged as at 11 to receive a sput 12. Sput 12 is an annular member having an upstanding portion 13 and a body member 14 of greater diameter. Body

member 14 has a tapered or conical outer surface 15 to provide a firm seat for spout 16 which is correspondingly tapered as at 17.

The inner part of sput 12 is threaded as at 18 to receive a plug such as 19. Between parts of body 14 and upstanding portion 13 is an annular recess 20. This annular recess 20 receives the open flanged lip 11 of metal 10. The bottom of recess 20 is recessed as best shown in Figs. 3 and 7. This is accomplished by means of removing additional portions of metal from certain parts of the bottom of the recess as at 21 and leaving other portions as at 22. The inner portion of the body member 14 of the sput is provided with a conical bearing surface 23 which will serve as a seat for rounded portion 24 of plug 19. A gasket 25 may be provided if desired. However, the plug 19 and sput 12 may be so accurately made that the seal between rounded portion 24 and the conical surface 23 is complete with a metal to metal contact.

Plug 19 is provided with a portion 26 which is of a smaller diameter than rounded portion 24. This portion 26 is threaded and meets with threads 18 of sput 12. Portion 26 is recessed as at 27 in order to lighten the plug and save metal. The opposite side of plug 19 is recessed at 28 to provide a socket for a conventional barrel wrench. This socket 28 is made up of two equal square holes having the same center but rotated forty-five degrees with respect to each other. This arrangement permits the wrench to fit at every forty-five degree angle interval.

As previously mentioned above the rounded portion 24 bears against the conical surface 23 to form the seal between the plug and the sput. The threads 18 and 26 are not relied upon to form this seal. Passages 29 are provided in plug 19 which communicates with the recess 27 and so to the inner portion of the container and at their other end with the outer portion of the plug beyond the threads 18, 26 but within the seal formed by the contact of rounded portion 24 and conical surface 23. These passages 29 may roughly be of any size desired and it is their purpose to conduct the fluid within the container around the threads 18 and 26.

Spout 16 is fastened to sput 12 by means of a strip or split ring 30 which is provided with upstanding lugs 31 which permit its being tightened by means of a bolt or the like whereby spout 16 is firmly fastened to the sput 12.

In assembling, the sput 12 as shown in Fig. 2 is placed upon the open flange 11 in the metal 10 of the barrel so that lip 11 fits within recess 20. The head is then placed in a press which firmly

forces the metal of lip 11 into the bottom of recess 20 so that portions 32 of lip 11 are forced into recess 21 in the bottom of annular recess 20. As will be seen from an inspection of Fig. 7 this provides an extremely rigid and strong construction. Since the metal forming upstanding portion 13 of sput 12 is at the same time upset and forced over as at 33, it will be seen that the lip 11 is locked into annular recess 20. The upset portion 33 of sput 12 firmly holds the barrel metal 10 and sput 12 together while the extrusion of the portions 32 of flanged lip 11 into the portions 21 of annular recess 20 insures a rigid strong seal between metal 10 and sput 12 in such a manner that they cannot rotate with respect to each other. The metal of flange 11 is deformed and caused to flow into recesses 21. The flange 11 however resists the deformation and when clamped in place under the action of upset lip 33 it acts as a compressed spring and yields a very tight joint. The flange 11 thus performs the double function of preventing rotation of the sput and making a very tight compression joint. This spring action of the distorted flange 11 maintains firm sealing contact between the inner wall of barrel 10 and lip 33 even if the body of the sput and the outer wall of the barrel 10 are no longer tightly sealed due to rough handling having a tendency to pry the sput loose.

When it is desired to dispense from the barrel or drum in relatively small controlled quantities the spout 16 is placed in position on sput 12 by means of strap 30 and plug 19 is rotated by fitting a wrench in socket 28 and turning. This breaks the seal between rounded portions 24 and conical surface 23. If a gasket is used the seal between it and rounded portion 24 is broken.

By means of channels 29 the fluid within the barrel has constant access to the annular space 34 between plug 19 and sput 12. The channels 29 are preferably three in number and may be circular, elliptical or rectangular in cross section. They are diagonal with respect to the axis of the plug and are so placed as to weaken it least. By this arrangement the threads are not interrupted in any way which insures longer life for them. This is important in heavy barrels which are intended for reshipment. The fluid is of course outside the threads 18. As soon as the seal between portion 24 and surface 23 is broken the fluid will flow from the container as shown at 35 in Fig. 6. The fluid by-passes the threads 18; thus a controlled dispensing of the fluid within the barrel is obtained.

The barrel may be vented by means of the filling opening on the side. If a more rapid dispensing is desired it is merely necessary to unscrew the plug a revolution or two more. As stated, the opening 29 may be made of such size as desirable so as to facilitate dispensing. Of course if very rapid dispensing is desired the plug 19 may be removed entirely. The present arrangement however removes any necessity of threading a faucet or the like into the sput. By this means a very considerable economy in dispensing is obtained because leaks and the like are avoided as a tight fit is assured at the factory for shipping purposes.

Fig. 8 differs from Figs. 1, 2, 3 and 6 solely in the location of upstanding portion 13. An annular channel 36 is provided and forms portion 13 from the outer wall of the sput. This construction greatly decreases the height of the sput and keeps the assembled sput and plug well below the rolling hoops in the drum. The threaded por-

tion of the sput may be recessed to provide drainage if desired.

In the conventional type of sput and plug now in use the sealing surfaces are perpendicular to the threads. In practice it is difficult and costly to machine the surfaces of the sput and plug at true right angles to the threads. If the tolerance is exceeded it is impossible to get a tight seal even with a gasket. On the present device using a plug having a round surface 24 and a sput having a level surface 23, the standard barrel thread tolerance between these two threads will provide a sufficient allowance so that the round portion of the plug will find a correct sealing position around the complete circumference. The action here is that of the plug grinding a seat in the bevel surface 23 of the sput. As the contact between the two surfaces gives a sliding wedge effect the mechanical advantage yields a great bearing pressure at the sealing line as the plug is tightened. This combination has been tested without a gasket and the seal did not leak under 90 pounds per square inch air pressure.

It may readily appear that the above combination may be rapidly assembled and very easily operated.

The above embodiment of the invention is intended as illustrative and not as limiting. Many modifications may be employed without departing from the spirit of the invention.

The following combinations are claimed and desired to be covered by Letters Patent:

1. In a barrel sput, an annular body member, an annular recess in said body member, a deformable projection on said body member adjacent said annular recess, projections within said recess so arranged as to arrest the movement of the upstanding portion of an open flanging of a barrel into said recess, whereby said flanging may be forced into said recess and against said projections and into the spaces between projections where it is held firmly in place under compression by said deformable projection, said flanging exerting a strong force against said deformable projection because of its inherent resiliency, said projections within said recess holding said sput against rotation.

2. In a barrel sput, an annular body member, an annular recess in said body member, a deformable lip on said body member adjacent said annular recess, smaller recesses axially arranged within said annular recess whereby the flanging of a barrel may be forced into said annular recess and into said smaller recesses where it is held firmly in place under compression by said deformable lip, said flange exerting a strong force against said deformable lip because of its inherent resiliency.

3. In a barrel sput, an annular body member, an annular recess in said body member, a deformable projection on said body member adjacent said annular recess, means forming an integral part of said body member and associated with said annular recess in such a manner as to arrest the movement of the projecting portion of an open flanging of a barrel into said annular recess, whereby said flanging may be forced into said recess and deformed against said means where it is held firmly in place under compression by said deformable projection, said flanging exerting a strong force against said deformable projection because of its inherent resiliency and being held against rotation by said means.