

May 2, 1944.

A. MOELLER

2,347,835

BOTTLE STOPPER

Filed Jan. 23, 1942

Fig. 1.

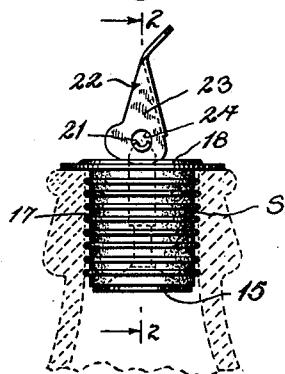


Fig. 2.

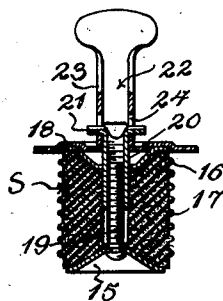


Fig. 3.

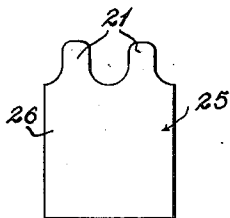


Fig. 5.

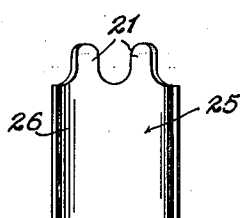


Fig. 7.

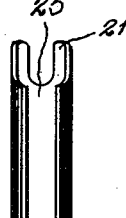


Fig. 4.



Fig. 6.



Fig. 8.



Fig. 9.

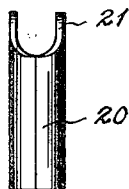


Fig. 11.

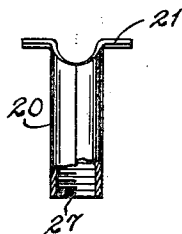


Fig. 12.

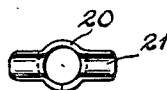
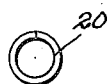


Fig. 10.



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2,347,835

BOTTLE STOPPER

Axel Moeller, Racine, Wis.

Application January 23, 1942, Serial No. 427,873

2 Claims. (Cl. 215-53)

This invention appertains to bottle stoppers of the type shown in my pending applications Serial Nos. 283,524 and 407,270, filed July 10, 1939, and August 18, 1941, respectively, now Patent No. 2,292,149, dated August 4, 1942, and Patent No. 2,315,538, dated April 6, 1943, respectively.

These stoppers are of the expansible character and include upper and lower cone members having confined therebetween a rubber compressible body. The lower cone member has fixed centrally thereto a threaded stem on which is adjustably mounted a brass sleeve. This sleeve extends slidably through the top cone member and has rockably connected thereto, by means of a rivet, a cam lever. Initial adjustment of the stopper is had by turning the sleeve up or down on the stem, and final adjustment is had by swinging the cam lever down to a locked position. The internally threaded sleeves and the rivets are expensive and assembly is somewhat difficult. At the present time, the internally threaded sleeves and even the rivets are hard or impossible to obtain.

It is, therefore, one of the primary objects of my invention to provide an economical means for forming the sleeves and for connecting the same to the cam levers, whereby not only will an inexpensive structure be had, but also an efficient one.

Another salient object of my invention is to provide novel means for forming the sleeves from flat scrap metal stock, which consists in, first, stamping the flat metal into the desired shape, and then bending the same into a tube, and, finally, internally threading the same.

A further object of my invention is the provision of means for forming ears or pintles on the flat metal stock and then bending the ears or pintles at right angles to the formed sleeve for providing the pivotal support for the cam lever.

A further important object of my invention is the provision of means for slightly rounding the ears or pintles after the bending thereof, so that the same will provide a rounded bearing face for the walls of the openings in the cam lever, so that the lever will have the desired true locking action.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawing, in which drawing:

Figure 1 is a side elevational view showing my complete stopper constructed in accordance with the present invention.

Figure 2 is a central, longitudinal, sectional view through the stopper, taken on the line 2-2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a top plan view showing the first step in forming the sleeve, the view showing the blank cut from the flat piece of scrap metal.

Figure 4 is an edge view thereof.

Figure 5 is a view similar to Figure 3, and illustrating the first step in bending the blank to form the sleeve.

Figure 6 is an end elevational view showing the blank after the first bending operation.

Figure 7 is a view similar to Figure 5, and illustrating the second step in bending the blank to form the sleeve.

Figure 8 is an end elevational view showing the blank after the second bending operation.

Figure 9 is an elevational view showing the last and final step of bending the blank to form the sleeve.

Figure 10 is an end elevational view of the formed sleeve.

Figure 11 is an elevational view, partly in section, showing the sleeve after the final steps of bending and forming the ears or pintles and internally threading the sleeve.

Figure 12 is a top plan view of the completed sleeve, showing the bent ears or pintles and the form thereof.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter S generally indicates my improved stopper, and the same includes a bottom cone plate 15 and a top cone plate 16. Confined between the cone plates 15 and 16 is the compressible body member 17, which can be formed from rubber or similar material. Fitted on the top cone plate 16 is a pressure plate 18. The lower cone plate 15 has fixed centrally thereto a threaded stem 19, which extends into the compressible body 17, and has threaded thereon an adjustable sleeve 20. This sleeve slidably extends through the top cone member 16 and the pressure plate 18. Formed on the opposite sides of the sleeve 20 are laterally extending bearing ears 21, and these ears or pintles form means for rockably connecting the cam lever 22 to the sleeve. The cam lever 22 is also preferably stamped from a single piece of metal and includes side flanges 23. These side flanges 23 have formed therein transversely aligned bearing openings 24, which receive the pivot ears or pintles 21.

As explained in the objects of the invention,

the salient feature of the invention is the provision of the novel means for forming the sleeve 20 and for connecting the sleeve with the cam lever.

In accordance with this invention, the sleeve is formed from a flat blank of sheet metal 25 of the desired gauge. This blank 25 can be cut or stamped from small pieces of scrap metal, and the blank includes a substantially rectangular-shaped body portion 26 having formed on one end thereof the ears 21. These ears 21 are arranged in parallel relation before the blank is bent.

After the blank has been stamped into the desired form, as shown in Figure 3, the same is initially bent into an arcuate shape in cross section, as is clearly shown in Figures 5 and 6. After the initial bending, the blank is then further rolled or bent into a further arcuate form, as is clearly shown in Figures 7 and 8. As illustrated in these two figures, the blank, in end elevation, then takes the form of substantially three-fourths of a circle. After this bending operation, the blank is then further bent and rolled, so as to bring the longitudinal edges of the body portion 26 into intimate contact, as is clearly shown in Figures 9 and 10. An elongated tube or sleeve is thus formed, and the ears 21 lie on opposite sides of the sleeve.

These sleeves are then placed in a suitable jig, and the ears 21 are bent downwardly at right angles to the body portion of the sleeve, so that the ears will project laterally from the opposite sides of the sleeve. This is clearly shown in Figure 11. After the ears are bent, the jig is turned over, and the sleeves are tapped to provide internal threads 27.

It is highly desirable that the ears 21 be formed so that they will be of an arcuate shape in cross section, and that the arc be scribed the same as the walls of the openings 24 in the cam

lever. Thus, in accordance with my invention, the ears 21 are struck by a suitable die, so as to bend the same transversely into an arc of a circle.

5 In assembling the stopper, the side flanges 23 of the cam lever 22 are disposed in diverging relation, so that the ears 21 can be readily slipped into the openings 24, after which the flanges 23 are brought toward one another into parallel relation, as is clearly shown in Figures 1 and 2.

10 From the foregoing, it can be seen that I have provided an efficient means for forming the sleeve 20 and the pivot means for the cam lever out of a single piece of flat sheet metal.

15 If desired, the sleeve can be slightly increased in diameter toward the ears 21, so as to facilitate the removal of the threading tool from the sleeve.

While I lay great stress on the fact that the pivot means for the cam lever 22 is formed directly on the sleeve, I can, where necessary, connect the cam lever and the sleeve together by means of a rivet, such as is shown in my mentioned pending applications.

20 Changes in details may be made without departing from the spirit or the scope of my invention, but what I claim as new is:

25 1. As a new article of manufacture, a combined nut and pivot for expansible bottle stoppers comprising an elongated internally threaded sheet metal sleeve and laterally extending pivot pintles formed on one end of the sleeve arranged at right angles to the opposite sides thereof.

30 2. As a new article of manufacture, a combined nut and pivot for expansible bottle stoppers comprising an elongated internally threaded sheet metal sleeve and laterally extending pivot pintles formed on one end of the sleeve arranged at right angles to the opposite sides thereof, said pivot pintles being curved transversely.

AXEL MOELLER.