Dec. 16, 1947. W. J. TAYLOR ET AL 2,432,835

HOOK SEAM CONTAINER AND CLOSURE JOINT

Filed July 18, 1944

Fig. 2

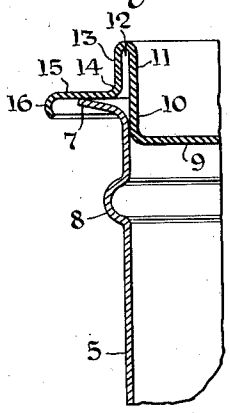


Fig. 1

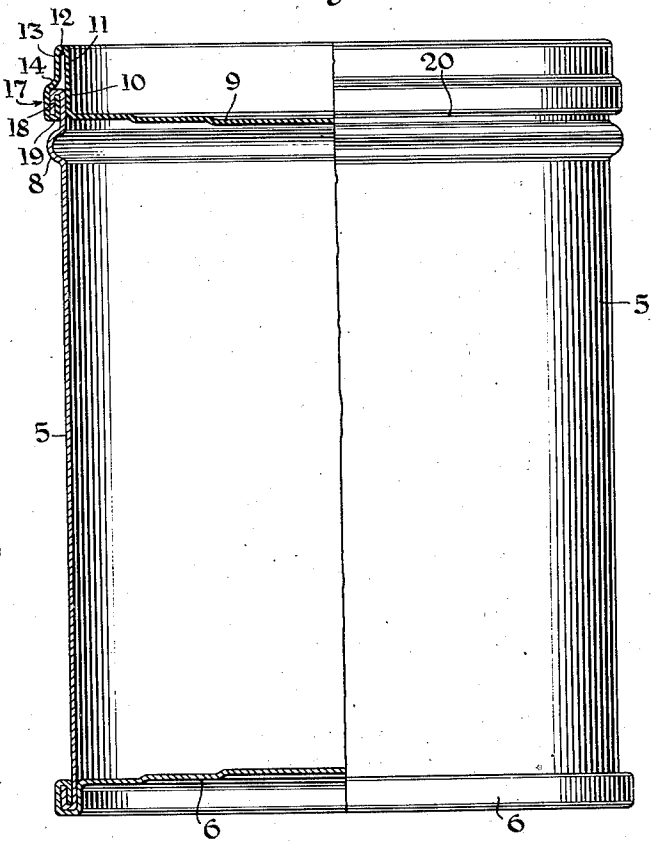


Fig. 5

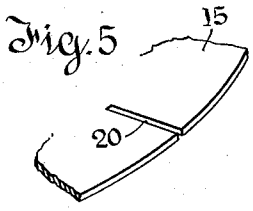
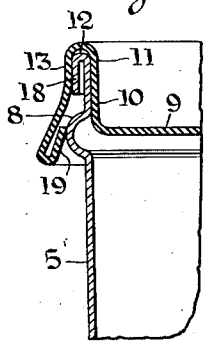


Fig. 3



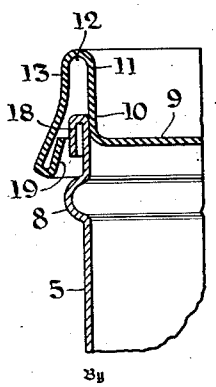
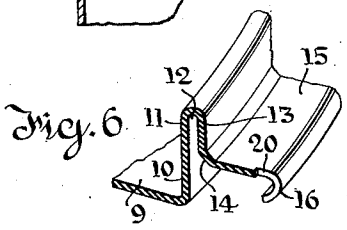


Fig. 4

Fig. 6



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HOOK SEAM CONTAINER AND CLOSURE JOINT

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3 Claims. (Cl. 220—24)

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The invention relates generally to metallic receptacles and primarily seeks to provide a novel container closure which is effective to efficiently seal the container and yet is so constructed that it can be freed by a downwardly applied pressure and then readily lifted off the container on which it was applied.

In conventional can closures the can body is provided with an outwardly turned flange at its open end, and the closure has a centrally depressed portion providing a heel insertible into the open end of the body and said closure also includes an outwardly directed flange which rests upon and extends beyond the peripheral edge of the flange and is provided with a downwardly and inwardly turned edge curl. In attaching such closures to the can bodies, the closure flange and the body flange are turned together into a seam in which the can body flange turns downwardly in parallel spaced relation to the can body in the form of a downwardly open hook, and the closure flange tightly embraces said hook with its edge portion extending upwardly and tightly clamped in said hook. In its more detailed nature, the present invention resides in providing an improved closure having a channel extending upwardly above the top extremity of the can body and its hook and so placed as to be adaptable to receive said top extremity and its hook upon application of pressure applied in a downward direction on the applied closure and sufficient to force the closure and can body hooks out of interengaging contact, thereby to open the seam by which the closure is attached to the can body.

Another object of the invention is to provide in a container closure structure of the character stated, means on the can body engageable by the closure hook as it is pressed down over the upper end portion of the can body in a manner for expanding said hook or enlarging the diameter thereof to an extent sufficient to permit the closure to be readily lifted off the container body with the closure hook passing freely over the container body hook, and as readily replaced on said body as a reclosure element.

Another object of the invention is to provide a container closure structure of the character stated in which the closure hook expanding means is in the form of an outwardly projecting bead provided on the can body below the body hook.

Another object of the invention is to provide a container closure structure of the character stated in which the closure hook is transversely slitted at intervals to facilitate expansion thereof as a result of the downward pressure applied to the closure and the resulting contact of said hook with the container body borne hook expanding means.

Another object of the invention is to provide a container structure of the character stated in

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which the closure is provided with a wedge portion at the juncture of the hook thereof and the upwardly extended channel and which is engageable with the can body hook when the closure is pressed downwardly so as to facilitate spreading of said channel and entry of said can body hook thereinto.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawing:

Figure 1 is a part side elevation and part vertical cross section of a container embodying the invention, the improved closure being attached to the container body.

Figure 2 is an enlarged fragmentary sectional view illustrating the improved closure loosely assembled on but not attached to the container body.

Figure 3 is an enlarged fragmentary sectional view illustrating the container in the closure released, closure hook expanded condition effected by application of downward pressure on the closure attached in the manner illustrated in Figure 1.

Figure 4 is a view similar to Figure 3 illustrating the manner in which the closure can be withdrawn upwardly from the container body after the closure hook has been expanded in the manner illustrated in Figure 3.

Figure 5 is a fragmentary perspective view illustrating the transverse slitting of the closure flange prior to the edge curling thereof.

Figure 6 is a fragmentary sectional perspective view taken through one of the slits in the improved closure.

In this disclosure the invention is illustrated as embodied in a container structure including a conventional body 5 equipped with the usual bottom closure 6. The body is provided with the usual outwardly directed flange 7 at its open upper end, and also with an outwardly directed bead 8 spaced a short distance below said flange.

The improved closure unit is shown as loosely applied on the container body prior to attachment thereof in Figure 2, and this unit includes a centrally depressed main body portion 9 and an upstanding peripheral flange providing a heel 10 insertible into the open upper end of the can body in the manner illustrated in Figures 1 and 2. The flange is extended above the heel portion as at 11 to form the inner wall of a channel 12 which is defined outwardly by a relatively short wall 13 which merges at its lower end in a downwardly and outwardly directed wedge portion 14 which in turn merges into an outwardly directed horizontal flange 15. The flange 15 is downwardly

and inwardly curled at its peripheral edge as at 16.

In effecting attachment of the improved closure to the can body, the body and closure flanges 7 and 15 are turned together into a hook seam generally designated 17, and which is formed by the downwardly open body hook 18 and the upwardly open closure hook 19 which interengage in the manner clearly illustrated in Figure 1 to form said hook seam. It will be observed by reference to Figure 1 of the drawing that the wedge portion 14 closely overlies the body hook 18 so as to secure the container seal.

Prior to curling of the closure flange 15 as at 16 said flange is transversely slit at a plurality of places as at 20. It has been found that three or four such slits will suffice, and the purpose of this slitting will become apparent as this disclosure progresses.

When the closure is applied in the manner illustrated in Figure 1 to effect a tight sealing of the container, the wall 13 and flange 15 of the closure form a closure unit flange which is offset at the position of the wedging surface 14, and this flange, forming part of the closure hook 19, tightly embraces the body hook 18, and the closure hook 19 is tightly clamped within said body hook 18 in the manner clearly illustrated in Figure 1.

When it is desired to open the container, it is only necessary to apply pressure downwardly on the closure sufficient to force the closure hook 19 downwardly out of the body hook 18. As this downward pressure is applied the wedging surface 14 will facilitate entry of the body hook 18 into the channel 12, effecting a spreading of the wall 13, 15 in the manner illustrated in Figure 3. Downward movement of the closure unit also causes the closure 19 to engage the container body bead 8, and this contact serves to expand the hook 19 in the manner clearly illustrated in Figure 3 so that the closure unit can be readily withdrawn upwardly from the container body without interference of the body hook 18 in the manner clearly illustrated in Figure 4. The slitting 20 serves to relieve tension in the closure unit hook 19 incident to the above mentioned expansion thereof, and thus tendency of said hook to spring back inwardly into position for objectionably engaging the container body hook 18 during removal of the closure unit is avoided.

It will be obvious by reference to Figures 3 and 4 of the drawing that after the channel 12 has been spread in the manner described for permitting free removal of the closure, said closure can be removed and reapplied as often as is desired, said spread channel providing a resilient reclosure feature in the container structure.

While one form of the invention has been shown for purposes of illustration, it is to be clearly understood that various changes in the details of construction and arrangement of parts may be made without departing from the spirit and scope of the invention as defined in the appended claims.

We claim:

1. In a container, a can body, and a closure attached to said body by a hook seam formed by a body flange turned downwardly in parallel spaced relation to the can body in the form of a downwardly open hook and a cover flange tightly embracing said hook and having an edge portion forming an upwardly open hook tightly clamped in the downwardly open hook, said closure including a heel connected with its hook and nested in the body opposite the closure hook and extending above the seam a distance sufficient to cooperate with the cover flange in forming a body hook receiving channel of a depth at least as great as the depth of the closure hook, whereby upon application of pressure downward on said closure the closure hook will be forced out of the body hook and the body hook will be received in said channel, and means on the body engageable by the closure hook as it is forced downwardly for expanding the closure hook so that the closure can be lifted off the body without interference of the body hook.

2. In a container, a can body, and a closure attached to said body by a hook seam formed by a body flange turned downwardly in parallel spaced relation to the can body in the form of a downwardly open hook and a cover flange tightly embracing said hook and having an edge portion forming an upwardly open hook tightly clamped in the downwardly open hook, said closure including a heel connected with its hook and nested in the body opposite the closure hook and extending above the seam a distance sufficient to cooperate with the cover flange in forming a body hook receiving channel of a depth at least as great as the depth of the closure hook, whereby upon application of pressure downward on said closure the closure hook will be forced out of the body hook and the body hook will be received in said channel, and an outwardly projecting bead on the body engageable by the closure hook as it is forced downwardly for expanding the closure hook so that the closure can be lifted off the body without interference of the body hook.

3. In a container, a can body, and a closure attached to said body by a hook seam formed by a body flange turned downwardly in parallel spaced relation to the can body in the form of a downwardly open hook and a cover flange tightly embracing said hook and having an edge portion forming an upwardly open hook tightly clamped in the downwardly open hook, said closure including a heel connected with its hook and nested in the body opposite the closure hook and extending above the seam a distance sufficient to cooperate with the cover flange in forming a body hook receiving channel of a depth at least as great as the depth of the closure hook, whereby upon application of pressure downward on said closure the closure hook will be forced out of the body hook and the body hook will be received in said channel, and means on the body engageable by the closure hook as it is forced downwardly for expanding the closure hook so that the closure can be lifted off the body without interference of the body hook, said closure hook having slits therein effective to relieve tension incident to the expansion of the closure hook.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,666,221	Sebell	Apr. 17, 1928
2,277,066	Bogner	Mar. 24, 1942
2,004,535	Noblitt	June 11, 1935
1,078,245	Bowman	Nov. 11, 1913
2,298,311	Reese	Oct. 13, 1942
2,006,045	Hopkins	June 25, 1935
651,070	Enoch	June 5, 1900
1,739,759	Hothersall	Dec. 17, 1929