Nov. 13, 1962 W. J. GEIST 3,063,612

DRUM COVER FASTENER MEANS

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Fig. 1.

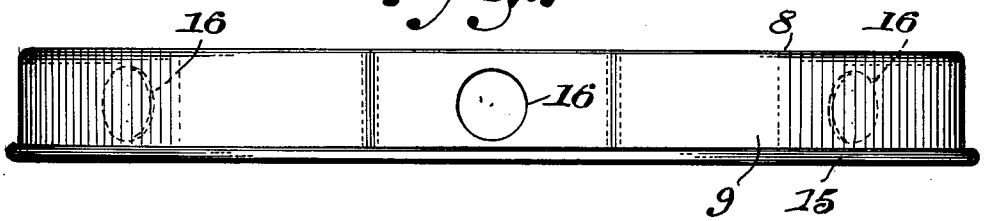


Fig. 2.

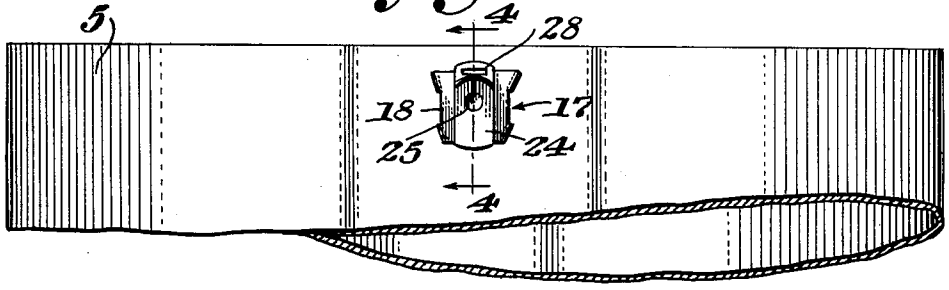


Fig. 3.

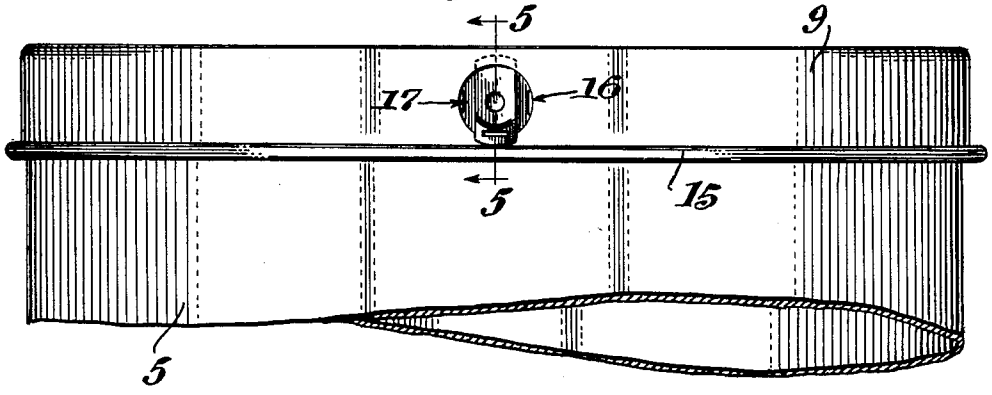
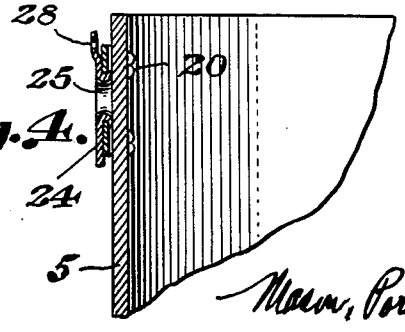


Fig. 4.



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Fig. 5.

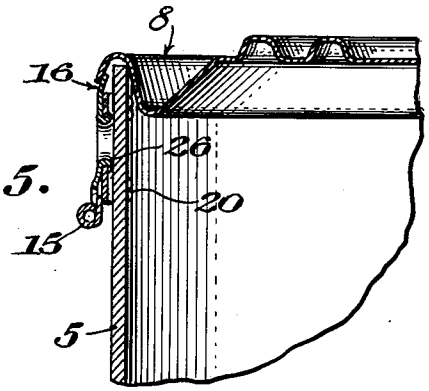


Fig. 6.

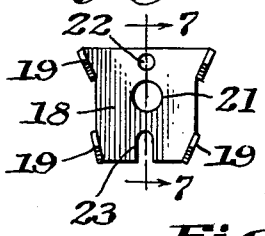


Fig. 7.

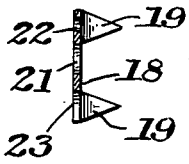


Fig. 8.

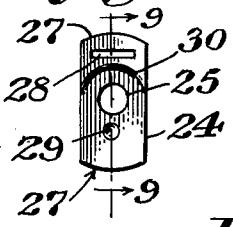


Fig. 9.

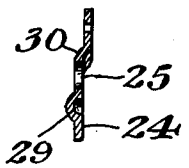


Fig. 10.

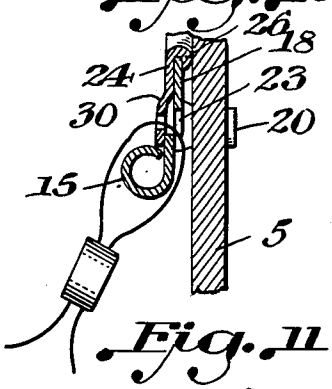


Fig. 11.

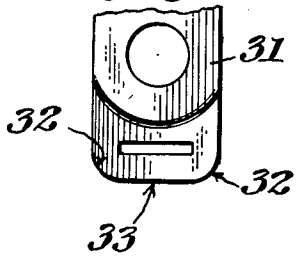
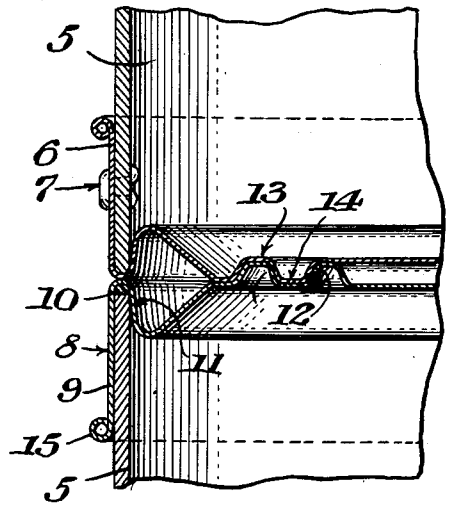


Fig. 12.



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Fig. 13.

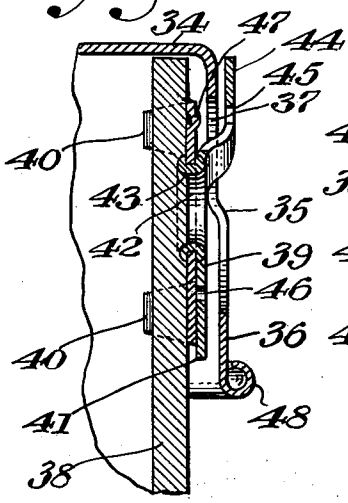


Fig. 14.

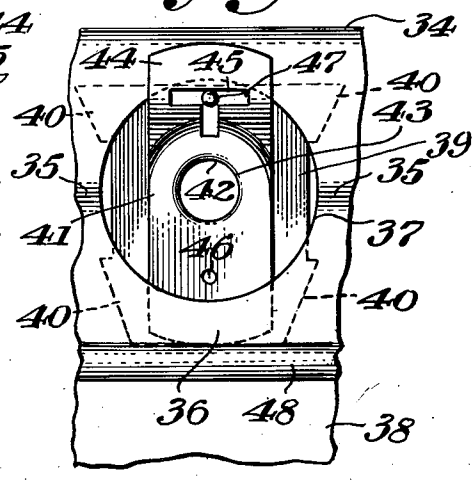


Fig. 15.

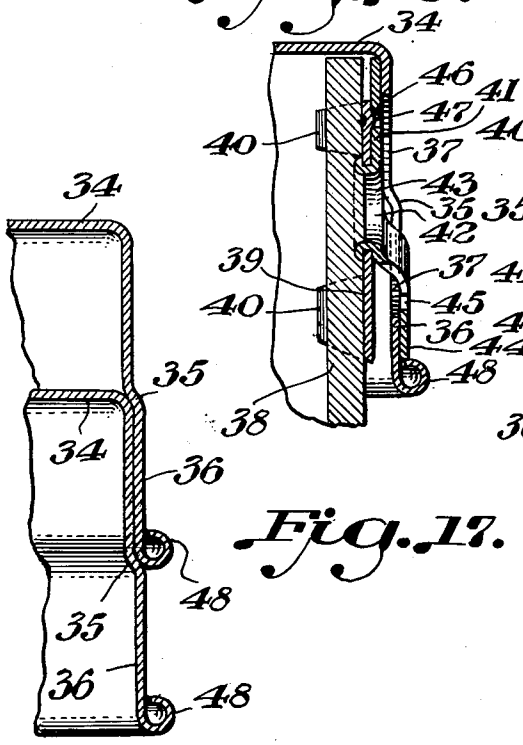


Fig. 16.

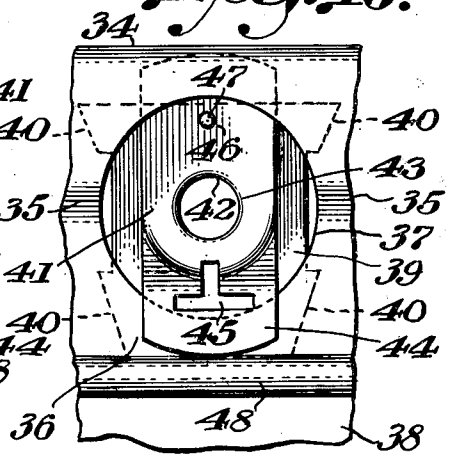


Fig. 17.

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3,063,612
DRUM COVER FASTENER MEANS

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Filed Feb. 3, 1958, Ser. No. 712,755
7 Claims. (Cl. 229—5.7)

The invention relates generally to closure fasteners, and more particularly to such fasteners of the swingable catch type, and it primarily seeks to provide a novel form of fastener for securing a sheet metal cover on a fiber drum.

It is known to provide a fiber drum with a slip over metal cover including a depending skirt portion for embracing and closing the open upper end of the drum, said skirt portion having openings therein through which to receive securing devices attached to the drum and engageable with skirt portions at said openings for securing the cover in place. An object of the invention is to provide an improved fastening means in which the catch members are receivable through the cover skirt openings when in upright position and are turnable downwardly over skirt edge portions defining the openings to secure the cover against removal.

Another object of the invention is to provide a fastening means of the character stated wherein the swingable catch is engageable in cam-like fashion with a strengthening projection on the cover to draw the cover tightly down on the drum.

Another object of the invention is to provide means for retaining the swingable catch against inadvertent movement from its cover securing position.

Another object of the invention is to provide a fastener of the character stated wherein the swingable catch has an opening therein to receive a turning tool and which is aligned with the respective cover skirt opening when the catch is turned to its securing position so that a tamper-proof wire and lead seal can be secured through the catch opening and the cover skirt opening.

Another object of the invention is to provide a closure fastener means of the character stated wherein the swingable catch includes an outwardly offset end portion facilitating entrance of said end through the cover opening when the cover is being applied.

Another object of the invention is to provide a closure fastener of the character stated wherein the cover skirt has an outward offset traversed by the catch receiving opening in a manner for facilitating entrance of the offset catch end through said opening when the cover is being applied.

Another object of the invention is to position the tamper-proof wire receiving opening in the catch so that it extends into the catch offset and facilitates insertion of the wire between the offset catch end and the opposing portion of the catch supporting plate.

A further object of the invention is to provide a closure fastener of the character stated wherein a camming action of the catch against the cover projection serves to draw a gasket means in the cover into tight sealing contact with the drum end.

A still further object of the invention is to provide an arrangement of the character stated wherein the cover on one drum and a similar bottom reinforcement on another drum have interfitting annular concentric rib and groove means providing for stable stacking of drums one upon another.

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 drawings.

In the drawings:

FIGURE 1 is a side elevation of the cover or closure for the container structure;

FIGURE 2 is a fragmentary side elevation illustrating the upper or open end portion of the container body;

FIGURE 3 is a fragmentary side elevation illustrating the cover applied to the body and the fastening means in the cover securing position;

FIGURE 4 is an enlarged vertical cross section taken on the line 4—4 of FIGURE 2;

FIGURE 5 is an enlarged vertical cross section on the line 5—5 of FIGURE 3;

FIGURE 6 is a face view illustrating a modified form of the supporting plate forming a part of the cover fastening means;

FIGURE 7 is a vertical cross section on the line 7—7 of FIGURE 6;

FIGURE 8 is a face view of a modified form of catch member forming a part of the fastening means;

FIGURE 9 is a vertical cross section on the line 9—9 of FIGURE 8;

FIGURE 10 is an enlarged fragmentary vertical cross section illustrating a fastening means in the condition shown in FIGURE 5 and constructed in accordance with FIGURES 6 to 9 and with a tamper-proofing wire seal applied thereto;

FIGURE 11 is an enlarged fragmentary face view illustrating a modified shaping of the offset camming end portion of the catch member forming a part of the fastening means;

FIGURE 12 is a fragmentary sectional view showing the container cover equipped with gasket means which will be held in tight sealing contact with the container body when the fastening means is adjusted to the position shown in FIGURE 3, an arrangement providing for very stable nesting of containers with the bottom of one container secured against side sliding on the top of another container also being shown;

FIGURE 13 is an enlarged fragmentary vertical cross section through the position of one of the cover fastening devices, a modified arrangement being shown;

FIGURE 14 is a fragmentary face view illustrating the parts shown in FIGURE 13, the swingable catch being shown in the cover release position as in FIGURE 13;

FIGURES 15 and 16 are enlarged fragmentary views similar to FIGURES 13 and 14, respectively, the swingable catch being shown in the cover securing or locking position;

FIGURE 17 is an enlarged fragmentary sectional view illustrating two covers of the form shown in FIGURES 13 through 16 in nested relation.

In the container or drum structure herein disclosed as an illustration of the embodiment of the invention there are included the usual fiber drum body **5** having the bottom **6** secured thereon in any approved manner, as at **7**, and the top closure **8**. The top closure **8**, like the bottom closure has a skirt **9** dimensioned to snugly embrace the open top portion of the body as illustrated in FIGURES 3, 5 and 12. If desired, the cover may include a sealing gasket means **10** in the channel **11** thereof, the same being illustrated in FIGURE 12.

The cover preferably has two upstanding annular ribs **12**, and each container bottom preferably has a downwardly opening annular groove **13** to receive the outer cover rib **12**, and a downwardly projecting annular rib **14** to be received snugly in the groove provided between the two cover ribs **12**, as clearly illustrated in FIGURE 12. This arrangement of interfitting annular rib and groove means serves to provide for very stable stacking of drums one upon another.

The cover skirt **9** is provided at its lower edge with

an outwardly turned reenforcing curl **15**, and a plurality of circular openings **16** are provided in the skirt immediately above the curl. In the preferred arrangement, three such openings are provided in the skirt as indicated in FIGURE 1.

At the outer surface and near the top of the drum body **5** and in position to register with the cover skirt openings **16** when the cover is applied as in FIGURE 3, fastening means generally designated **17** are mounted in the manner clearly illustrated in FIGURES 2 and 4. Each such fastening means comprises a body plate **18** having prongs **19** projecting therefrom and impaling the body and clinched over internally of the body as at **20** to firmly anchor the plate. Each plate has a central aperture **21**, and in the modified form shown in FIGURES 6 and 7 may include a detent receiving aperture **22** above said central aperture, and a lower edge cutout **23**, the purpose for which will be described hereinafter.

Each fastening means also includes a generally rectangular catch **24** having the metal surrounding its central aperture **25** upset or flanged through the plate aperture **21**, as at **26**, to pivotally or swingably mount the catch on the plate in the manner clearly illustrated in FIGURES 2 and 4. Each catch has end portions **27** bearing a concentric relation to the pivot center, and one end portion is equipped with a slot **28** in which to receive a screw-driver or other turning tool. If desired, the other end of the catch may be provided with a dimple or protuberance **29** as indicated in the modified showing in FIGS. 8 and 9 and for yieldable engagement in the receiving aperture **22** in the supporting plate of FIGURE 6. When provided, the yieldable engagement of the dimple **29** in the receiving aperture **22** serves to retain the catch against accidental displacement.

It will be apparent by reference to FIGURE 3 of the drawing that each catch **24** is of greater length than the diameter of the skirt openings **16**, and when the cover is properly applied as in FIGURE 3 the center of each cover skirt opening **16** will be directly centered over the pivot of the catch. It will also be apparent by reference to FIGURES 2, 3 and 4 that the end portion of each catch equipped with the tool receiving slot **28** is offset outwardly as at **30**. Thus, when the catches are positioned as shown in FIGURES 2 and 4 the cover can be placed over the open end of the body **5**, and with the cover skirt opening **16** properly aligned with the several fastening means **17**, the outwardly extending offset upper ends of the catches will be readily received through the cover skirt openings, the offset ends **30** of the catches extending outside the skirt and the other ends of the catches being disposed inside the skirt. It will be apparent that the outwardly turned curl **15** will serve as guiding means facilitating the slipping of the cover onto the body **5** and over the several fastening means.

When the cover is thus mounted, the catches are turned 180 degrees from the upright position illustrated in FIGURES 2 and 4 to the position illustrated in FIGURES 3 and 5, and in this process the offset ends of the catches will engage the cover curl **15** and draw the cover tightly down on the drum. It will be obvious that when the sealing gasket means **10** is employed, as shown in FIGURE 12, the same will thus be drawn tightly against the top edge of the body **5** and a very efficient seal will be provided. When such gasket means is employed the fastener units will be placed nearer the top edge of the body **5** than would otherwise be the case in order to compensate for the thickness of the sealing gasket means.

In FIGURE 11, there is illustrated another modified form of catch **31**. In this modification the offset or camming end of the catch is provided with well rounded corners **32**, and said catch end has a straight edge **33** between the corners **32** and which will serve to stabilize the camming or cover securing contact with the body curl **15**, or in other words, secure the catch against accidental turning away from the cover securing position.

In FIGURES 13 through 17, an additionally modified part structure and arrangement is illustrated. In the modified form of the invention illustrated in FIGURES 13 through 17, the cover **34** has an outward offset **35** in its skirt **36**, and the locking catch receiving openings **37** are positioned to traverse the offset, being centered thereon in the specific disclosure made herein, as will be apparent by reference to FIGURES 14 and 16. This provision of a skirt having an intermediate offset as shown results in the provision of a smaller diameter of the skirt above the center of the catch receiving opening **37** and a larger diameter of skirt below the center of said opening.

The drum body **38** has the catch supporting plates **39** secured thereto at **40** with the catch **41** of each particular fastening means pivoted to the respective supporting plate at **42**, the upset pivots preferably being embedded in the drum body as indicated at **43** in FIGURES 13 and 15.

In this form of the invention, the offset locking end **44** of each catch **41** is equipped with a T-shaped opening **45** extending into the catch offset in the manner clearly illustrated in FIGURES 13 through 16. At its end opposite the offset locking end each catch is equipped with an aperture **46** to engage over a dimple **47** projecting from the supporting plate **39** to yieldably secure the catch in position when it has been turned to the cover locking position illustrated in FIGURE 16 wherein it engages in the manner previously described with the reinforcing curl **48** at the lower extremity of the cover skirt.

In this arrangement of the parts, the provision of the offset **35** intermediately of the cover skirt **36** serves not only to permit nesting of the covers when they are not applied to container bodies, but this offset also serves the purpose of providing the smaller diameter of skirt above the offset and in a position for facilitating insertion of the offset catch end portions when the catches are turned uprightly as in FIGURES 13 and 14 and the cover is being applied over the open upper end of the drum in the manner illustrated in FIGURE 14. The larger diameter provided at the lower portion of the skirt by the intermediate offset **35** will be firmly engaged at its outer face by the inner faces of the offset portions of the catches as they are turned downwardly to engage the reinforcing projection or curl **48** to firmly lock the cover in position on the drum in the manner illustrated in FIGURES 16 and 17.

By reason of the provision of the T-shaped openings **45** in the catches, and the extension of said openings into the offset of each catch, the insertion of a tamper-proof seal wire through the catch opening, the cover skirt opening and about the skirt reinforcing projection or curl **48** is greatly facilitated.

While the cover skirt openings **16** and **37** referred to herein are circular in form by preference, it is to be understood that any other shape of opening which will properly receive the cover locking catches **24** and **41** and provide for the cover locking function described herein, may be used.

While preferred example disclosures of the container and fastening means structures are disclosed herein, it is to be understood that variations of these structures may be made without departing from the scope of the invention as defined in the appended claims.

I claim:

1. In a container structure, a body having an open top portion, a cover for said body including a continuous depending skirt surrounding said top portion with said cover sealing said open top, said skirt having an outward reinforcing projection and said skirt having an opening therein spaced above said projection, and fastening means carried by said container body for releasably securing said cover to said container body, said fastening means including a catch member and means carried by said container body mounting said catch member on the ex-

terior of said container body for swinging movement, said catch member including a pivot center and a projecting end portion offset outwardly from said container body, said catch member being pivotal from a position wherein said end portion is directed towards said container body open end and said end portion is movable through the skirt opening as the cover is positioned on the container body to a depending position disposed in face-to-face relation with the outer surface of said skirt and with the extreme end of the end portion in camming engagement with said skirt projection to hold said cover securely in place on said container body, and said cover skirt having an outward offset at its lower portion providing a smaller diameter of skirt above the center of the catch receiving opening and disposed to facilitate entrance of the offset end of the catch through the skirt opening when the cover is being applied and a larger diameter of skirt below the center of the catch receiving opening and disposed to be firmly engaged at its outer face by the inner face of the offset catch end portion as it is turned down to engage the reinforcing projection and lock the cover on the body.

2. In a container structure, a body having an open top portion, a cover for said body including a continuous depending skirt surrounding said top portion with said cover sealing said open top, said skirt having an outward reinforcing projection and said skirt having an opening therein spaced above said projection, and fastening means carried by said container body for releasably securing said cover to said container body, said fastening means including a catch member and means carried by said container body mounting said catch member on the exterior of said container body for swinging movement, said catch member including a pivot center and a projecting end portion offset outwardly from said container body, said catch member being pivotal from a position wherein said end portion is directed towards said container body open end and said end portion is movable through the skirt opening as the cover is positioned on the container body to a depending position disposed in face-to-face relation with the outer surface of said skirt and with the extreme end of the end portion in camming engagement with said skirt projection to hold said cover securely in place on said container body.

3. Container structure as defined in claim 2 wherein said container is in the form of a drum having a fiber body and said catch member mounting means includes a supporting plate having fastener elements securing the same to the exterior of said fiber body.

4. Container structure as defined in claim 3 wherein the swingably mounted catch has a turning tool receiving slot therein and the catch supporting plate has an edge recess therein disposed to register with the catch slot when the catch is swung to its cover securing position so that a tamper-proofing wire seal can be inserted through the cover skirt opening, the catch slot and the plate edge recess and about the reinforcing projection on the cover skirt to secure the catch against turning.

5. Container structure as defined in claim 3 wherein the swingably mounted catch has a turning tool receiving slot therein, and the catch and the supporting plate have cooperatively engageable means thereon yieldably engageable when the catch is swung to its cover securing position to hold the catch against inadvertent turning movement.

6. Container structure as defined in claim 2 wherein said catch member has a shoulder at the intersection of said offset end portion and said pivot, and the spacing of said shoulder from the center of swinging of said catch member being less than the spacing of any portion of the boundary of the skirt opening from said catch member swinging center whereby said offset end portion forms the sole cover retaining portion of said catch member.

7. Container structure as defined in claim 2 wherein said catch member extreme end includes a central straight portion disposed perpendicular to the general longitudinal axis of the catch member and merging into well rounded corners.

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