Nov. 27, 1962 K. NEGORO 3,065,875

PLASTIC SNAP-ON RECLOSURE COVER

Filed Feb. 19, 1960 2 Sheets-Sheet 1

FIG. 1

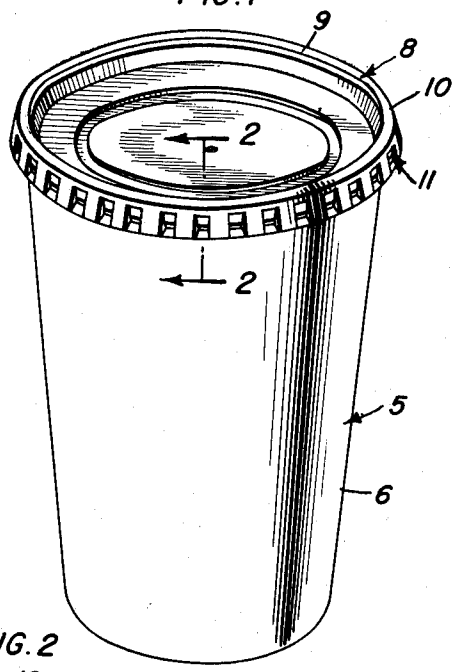



FIG. 3

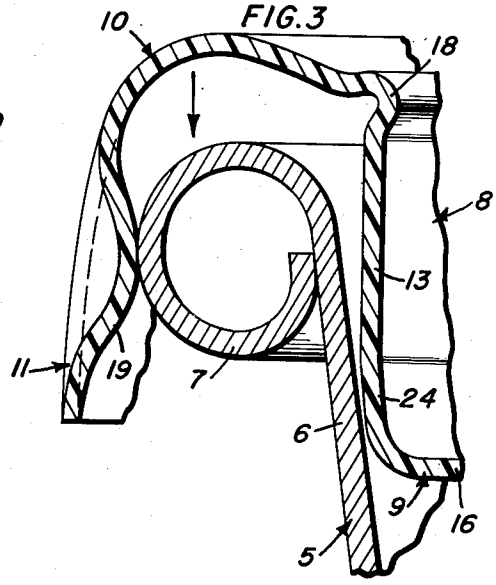



FIG. 2

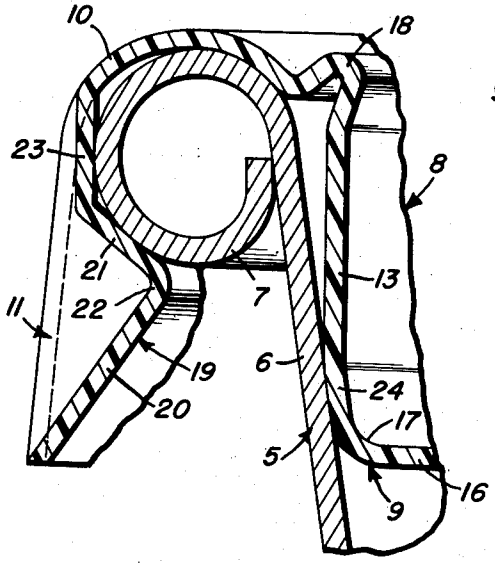
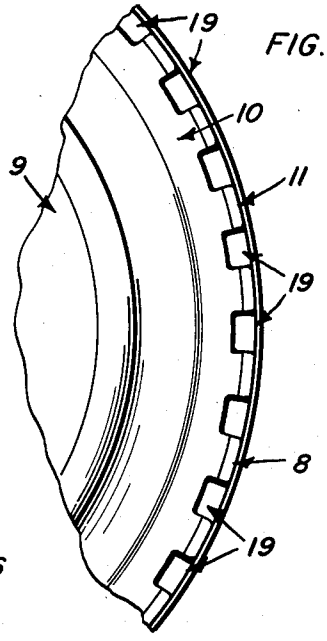



FIG. 4

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PLASTIC SNAP-ON RECLOSURE COVER

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FIG. 5

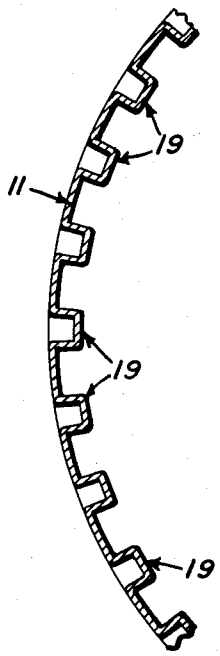



FIG. 7

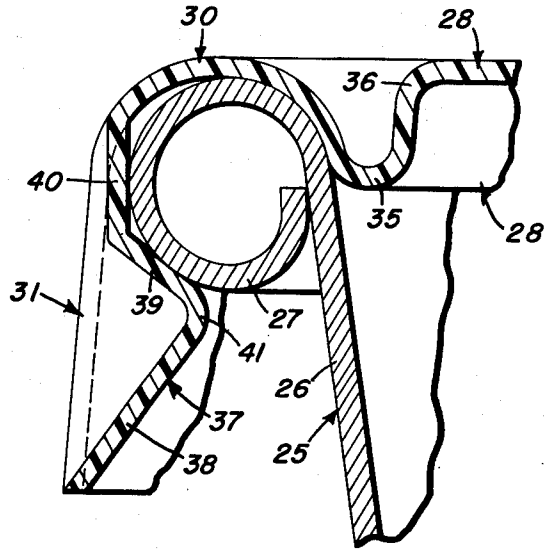



FIG. 6

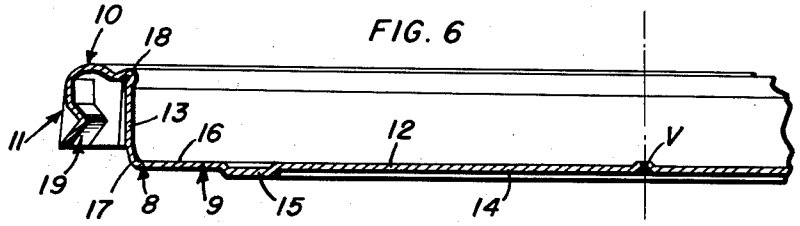
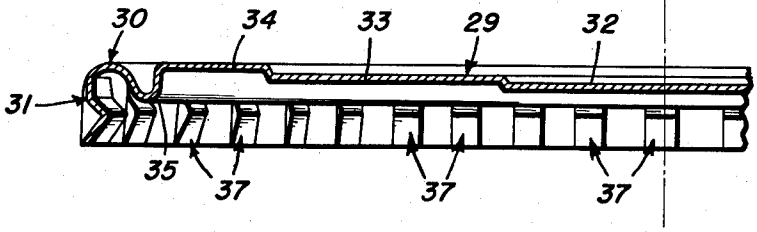



FIG. 8

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United States Patent Office 3,065,875 Patented Nov. 27, 1962



# 3,065,875
# PLASTIC SNAP-ON RECLOSURE COVER

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Filed Feb. 19, 1960, Ser. No. 9,831
5 Claims. (Cl. 220—60)

This invention relates in general to new and useful improvements in containers, and more particularly seeks to provide a novel plastic snap-on reclosure cover for paper drinking cups.

One of the primary objects of the invention is to provide a novel plastic cover that may be readily attached to and detached from the open end of a conventional paper drinking cup having a rolled or beaded edge.

Another object of the invention is to provide an improved plastic cover for paper drinking cups having a rolled or beaded edge, the cover structure being of a nature that may be molded from a paper thin and inexpensive plastic material, such as polystyrene sheet, without having the edge of the cover split when passing over the beaded open end of the paper cup while the cover is being attached to or detached from the paper cup.

Still another object of the invention is to provide a novel plastic cover structure which may be used with conventional "cold" or "hot" drink paper cups of the type having rolled or beaded edges.

A further object of the invention is to provide a novel plastic cover that may be molded from a low cost plastic sheet material lacking in elasticity, but having great flexibility, the structure of the plastic cover including deformations or indents adapted for utilizing and converting the flexible characteristics of the material to yieldability in order that the indents may pass over the beaded edge of a paper cup in assembling or disassembling the cover with the cup, and the indents may yieldably engage the beaded edge of the cup when assembled therewith for retaining the cover on the cup in the assembled relationship.

Still another object of the invention is to provide a novel plastic cover for drinking cups of the type having a beaded edge, the structure of the plastic cover utilizing the flexible quality of the material from which the cover is formed to provide yieldability of areas of the cover during assembly and engagement of the cover with the cup so that neither the cover nor the cup will be fractured during the assembly operation.

A still further object of the invention is to provide a novel cover for paper drinking cups, the cover including a central plug portion which, when the cover is in position on the cup, is disposed within the upper portion of the cup and wedgingly engages the internal surface of the cup to effectively seal the cup against the escape of liquids therefrom.

A still further object of the invention is to provide a plastic cover for paper drinking cups of the type having a beaded edge, the plastic cover including a top wall and a depending skirt, the depending skirt being provided with a plurality of inwardly directed indents or projections which are equally spaced about the circumference of the skirt to provide a garter-spring formation in the skirt, thus permitting the skirt to expand as it is moved downwardly over the beaded edge of a cup, and to retract after the indents have passed below the beaded edge to lockingly engage beneath the beaded edge and thus retain the cover on the drinking cup.

Yet another object of the invention is to provide a plastic cover for drinking cups, the plastic cover including a central plug portion adapted to extend into and sealingly engage the mouth of a drinking cup, the cover also including an inverted channel portion which is adapted



to engage over the lip of a drinking cup, the channel portion terminating in a skirt having locking means thereon for engaging beneath the beaded edge of the cup to retain the cover in place, the cover further having an upwardly projecting bead at the intersection of the inverted channel and an upstanding annular flange portion of the plug to facilitate the flexing of the plug as it wedgingly engages the interior surface of the cup to form a seal therewith.

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 perspective view of a paper drinking cup provided with a cover which is formed in accordance with this invention.

FIGURE 2 is an enlarged fragmentary vertical sectional view, taken substantially upon the plane indicated by the section line 2—2 of FIGURE 1, and shows the specific relationship between the cover and the upper portion of the drinking cup.

FIGURE 3 is an enlarged fragmentary vertical sectional view, similar to FIGURE 2, and shows the cover in the process of being positioned on the drinking cup.

FIGURE 4 is an enlarged fragmentary bottom plan view of a peripheral portion of the cover, and shows the specific arrangement of the indents or projections of the skirt to form the garter-spring assembly.

FIGURE 5 is an enlarged fragmentary horizontal sectional view taken through the skirt portion of the cover, and shows further the details of the garter-spring arrangement.

FIGURE 6 is an enlarged vertical sectional view taken through the central portion of the cover of FIGURE 1, the cover being removed from the drinking cup, and shows the general cross-section of the cover.

FIGURE 7 is an enlarged fragmentary vertical sectional view, similar to FIGURE 2, and shows the details of a modified form of cover.

FIGURE 8 is an enlarged vertical sectional view, similar to FIGURE 6, and showing the details of the cover of FIGURE 7.

The invention relates to plastic covers which are particularly adapted for use with paper drinking cups, an example of which is illustrated in FIGURE 1. The paper drinking cup is generally referred to by the numeral **5**, and includes an upwardly flared body **6** which terminates at the upper end thereof in a rolled or beaded edge **7**, as is best shown in FIGURE 2. The drinking cup **5** is of a conventional construction, and the present invention is in no way concerned with any of the details thereof, with the exception of those illustrated in FIGURE 2.

A first embodiment of the invention is illustrated in detail in FIGURES 1 through 6, inclusive. The plastic cover of these figures is generally referred to by the numeral **8** and is of a size to fit the specific paper drinking cup **5** for which it is intended. The plastic cover **8** is molded from a thin plastic sheet, such as a polystyrene sheet, and while the material from which the cover **8** is formed is relatively flexible, it is not relatively elastic.

The cover **8**, as is best illustrated in FIGURE 6, includes a relatively large central plug portion **9**, an inverted annular channel portion **10**, and a depending skirt **11**. The plug **9** is formed of a top wall **12** and an upstanding annular flange **13**. The top wall **12** includes a central circular panel **14**, a downwardly directed reinforcing bead **15**, and an outer annular panel **16**, the panel **16** being integrally connected to the upstanding flange **13** by a curved portion **17**. The central panel **14** is also provided with a centrally located air vent V.

The inverted annular channel 10 is of a size and configuration to generally fit over the lip of the paper cup 5, the lip being generally defined by the beaded edge 7. An annular upstanding bead 18 is disposed intermediate the upstanding flange 13 and the inverted channel portion 10 for a purpose to be described in detail hereinafter.

The skirt 11 is provided with a plurality of identical, circumferentially spaced indents or projections, each of which is generally referred to by the numeral 19. Each of the projections 19 includes a downwardly and outwardly flared lower portion 20 which is connected to a downwardly and inwardly tapered upper portion 21 by an intermediate bight portion 22. The upper portion 21 terminates in an upstanding, relatively shallow top portion 23. It is to be noted that the lower portion 20 terminates at substantially the lower edge of the skirt 11 and the top portion 23 terminates generally within the lower part of the channel portion 10.

It is to be noted that the lower part of the upstanding flange 13 is inwardly tapered, as at 24. It is also to be noted that the spacing between the lower part of the skirt 11 and the upstanding flange 13 is greater than the width of the beaded edge 7, and the internal diameter of the lower edge of the skirt 11 is greater than the external diameter of the beaded edge 7. Because of these dimensions, when the cover 8 is to be applied to the paper cup 5, the plug portion 9 will initially freely pass into the mouth of the cup 5 and the skirt portion 11 will pass around the beaded edge 7. As the cover 8 is moved downwardly relative to the cup 5, the lower portions 20 of the projections 19 will ride on the upper portion of the beaded edge 7 and will be cammed outwardly in the manner best illustrated in FIGURE 3. As the cover 8 is continued to be moved downwardly onto the cup 5, the projections 19 will pass beneath the beaded edge 7 with the result that the upper portions 21 of the projections 19 will engage beneath the beaded edge 7 and lock the cover 8 onto the cup 5.

Prior to the projections 19 moving into interlocking engagement with the underportion of the beaded edge 7, the tapered lower portion of the upstanding flange 13 will engage the interior surface of the mouth of the cup 5. As the cover 8 is moved downwardly after the initial engagement of the upstanding flange 13 with the cup 5, the lower portion 24 thereof will be continued to be flattened to follow the contour of the body 6 and thus form an effective seal. When the seal between the upstanding flange 13 and the body 6 at the mouth of the cup 5 is being formed, the upstanding flange 13 will be flexed inwardly, and at the same time, will attempt to move upwardly with respect to the remainder of the cover 8. At this time, the bead 18 is flexed and is slightly closed. In this manner, the bead 18 relieves undesired pressures within the internal construction of the cover 8 and permits the cover 8 to be positioned on the cup 5 without cracking or splitting of the cover 8.

Due to the flexibility of the projections 19 and the expansion of the skirt portion 11 due to the garter-spring construction thereof through the formation of the circumferentially spaced projections 19, as is best shown in FIGURES 4 and 5, neither the skirt portion 11 nor the beaded edge 7 is fractured during the telescoping of the cover 8 onto the cup 5. When the cover 8 is finally seated on the cup 5, the upper portions 21 of the projections 19 will underlie the beaded edge 7, in the manner previously described, to lock the cover 8 onto the cup 5. At the same time, the top portions 23 of the projections 19 will engage the outer portion of the beaded edge 7, as is best shown in FIGURE 2, and will resiliently engage the same to hold the cover 8 in position.

When it is desired to remove the cover 8 from the cup 5, the lower edge of the skirt portion 11 is gripped and moved upwardly. Due to the inwardly and downwardly tapering of the upper portions 21, when the cover



8 is moved upwardly, the projections 19 will be cammed outwardly and assume the relationship illustrated in FIGURE 3 as the cover 8 is being removed from the cup 5. Thus, the cover 8 may be removed from the cup 5 without fracturing either the cover 8 or any portion of the cup 5. Because of this, the cover 8 may be removed and replaced relative to the cup 5, as may be desired.

The cover 8 is primarily intended for use with "hot" drink cups. With such drinks, it is highly desirable that a seal be provided between the cover and the cup to prevent any spilling whatsoever of the contents of the cup. However, if desired, the cover 8 may also be utilized equally as well with "cold" drinks.

A second drink cup is illustrated in FIGURE 7, and is generally referred to by the numeral 25. The drink cup 25 is primarily designed for "cold" drinks as opposed to the cup 5 being primarily designed for "hot" drinks. Although the construction of the cup 25 may vary from that of the cup 5 due to its intended use, the cup 25, like the cup 5, will have an upwardly flared body 26 and a beaded or rolled edge 27 at the upper edge thereof. A cover, which is generally referred to by the numeral 28, is illustrated in FIGURE 7 as being associated with the cup 25. The cover 28 is primarily intended for use with cups containing "cold" drinks, as opposed to "hot" drinks, although, if desired, it may be utilized in conjunction with "hot" drinks.

The cover 28, as is best illustrated in FIGURE 8, includes a top wall, generally referred to by the numeral 29, an inverted channel portion 30, and a skirt portion 31. In order to increase the strength of the top wall 29, it is formed of a plurality of offset panels which include a lowermost inner circular panel 32, an intermediate annular panel 33, and an uppermost outer annular panel 34.

Referring now to FIGURE 7 in particular, it will be seen that the inverted channel portion 30 is of a shape and configuration to conform generally to the lip portion of the cup 25, as defined by the beaded edge 27. The inner edge of the channel portion 30 extends down into the mouth of the cup 25, and forms generally a seal therewith. The inner edge of the inverted channel portion 30 terminates in a downwardly directed bead 35. The opposite edge of the bead 35 is integrally connected to the panel 34 of the top wall 29 by a curved portion 36.

The skirt portion 31 is of an identical construction with the skirt portion 11 and is of a garter-spring construction due to the formation of a plurality of circumferentially spaced, inwardly directed indents or projections 37. Each of the projections 37 includes a downwardly and outwardly flared lower portion 38, an inwardly and downwardly tapered upper portion 39, and a generally upstanding top portion 40. The portions 38 and 39 are connected together by an intermediate bight portion 41.

The internal diameter of the lower edge of the skirt portion 31 is greater than the external diameter of the beaded edge 27. Thus, when the cover 28 is to be applied to the cup 25, the skirt portion 31 will readily telescope over the beaded edge 27. As the cover 28 is continued to be moved downwardly onto the cup 25, the lower portions 38 of the projections 37 will ride outwarly about the beaded edge 27 so that the projections 37 will assume the general configuration of the projections 19, as is illustrated in FIGURE 3. Further downward movement of the cover 28 onto the cup 25 will result in the bead 35 entering into the mouth of the cup 25, and finally, the upper portions 39 of the projections 37 will pass beneath the beaded edge 27 and snap therebeneath when the cover 28 is finally seated on the cup 25 in the position illustrated in FIGURE 7. At this time, the bead 35 has entered into the mouth of the cup 25 and has formed generally a seal with the lip of the cup 25. At the same time, the top portions 40 will resiliently en-

gage the outermost surface of the beaded edge 27 to resiliently retain the cover 28 in place.

Since the upper portions 39 slope downwardly and inwardly, as do the upper portions 21 of the projections 19, when the cover 28 is being removed, the projections 37 will again flex outwardly due to the engagement of the upper potrions 39 with the beaded edge 27 and the cover 28 may be removed from the cup 25 without fracturing either the skirt portion 31 or the beaded edge 27. Accordingly, the cover 28 may be readily removed and replaced on the cup 25 without damage to either the cover 28 or the cup 25.

From the foregoing, it will be seen that novel and advantageous provision has been made for carrying out the desired end. However, attention is again directed to the fact that variations may be made in the example structure disclosed herein without departing from the spirit and scope of the invention, as defined in the appended claims.

I claim:

1. A cover for containers having an external peripheral bead at the upper end thereof, said cover being formed of an easily flexed material and comprising a top wall, a depending peripheral skirt, and an inverted peripheral channel connecting said skirt to said top wall for receiving the bead of an associated container, an arcuate cross sectional bead intermediate said top wall and said channel, said skirt being provided with a plurality of peripherally spaced inwardly directed projections adapted to underlie the peripheral bead of a container to retain the cover therein, said skirt projections being offset from adjacent portions of the skirt when the skirt is telescoped over the bead formation, said cover bead being downwardly directed with portions of said cover bead and said channel being coextensive and at least a portion of said cover bead being disposed above a plane extending through the lower boundaries of said channel.

2. A cover for containers having an external peripheral bead formation at the upper end thereof, said cover being formed of an easily flexed material and comprising a top wall, a depending peripheral skirt, and an inverted peripheral channel connecting said skirt to said top wall for receiving the bead formation of an associated container, a plurality of peripherally spaced inwardly directed projections projecting inwardly from said skirt and portions of said channel and adapted to underlie and directly engage the peripheral bead formation of the container to retain the cover thereon, said projections being inwardly offset from adjacent portions of said skirt and flexible outwardly into the surface of said skirt when said skirt is telescoped over the bead formation, upper portions of said projections extending into said channel and being disposed generally normal to the plane of said top wall, each projection also having a downwardly and inwardly sloping intermediate portion and a downwardly and outwardly sloping lower portion with the intermediate portions of said projections being adapted to engage beneath the bead formation to yieldingly releasably retain the cover on a container.

3. The cover of claim 2 wherein said skirt is downwardly flared and the lower peripheral edge thereof has a greater internal diameter than the outside diameter of the peripheral bead of the container lid is intended, said lower peripheral edge being continuous and outermost.

4. A cover for containers having an external peripheral bead at the upper end thereof, said cover being formed of an easily flexed material and comprising a top wall, a depending peripheral skirt, and an inverted peripheral channel connecting said skirt to said top wall for receiving the bead of an associated container, an arcuate cross sectional bead intermediate said top wall and said channel, said skirt being provided with a plurality of peripherally spaced inwardly directed projections adapted to underlie the peripheral bead of a container to retain the cover thereon, said skirt projections being offset from adjacent portions of the skirt and flexible outwardly into the surface of said skirt when the skirt is telescoped over the bead formation, said top wall being disposed below the plane of said channel, and an inner upstanding wall connecting said top wall to said channel, said top wall and said inner upstanding wall defining a plug adapted to wedgingly telescope within and seal an upper portion of a container, said cover bead being disposed intermediate said upstanding wall and said channel and being directed upwardly for flexing said upstanding wall when wedgingly engaged with a container.

5. A cover for containers having an external peripheral bead formation at the upper end thereof, said cover being formed of an easily flexed material and comprising a top wall, a depending peripheral skirt, and an inverted peripheral channel connecting said skirt to said top wall for receiving the bead formation of an associated container, a plurality of peripherally spaced inwardly directed projections projecting inwardly from said skirt and portions of said channel and adapted to underlie and directly engage the peripheral bead formation of the container to retain the cover thereon, said projections being inwardly offset from adjacent portions of said skirt and flexible outwardly into the surface of said skirt when said skirt is telescoped over the bead formation, upper portions of said projections extending into said channel and being disposed generally normal to the plane of said top wall, each projection also having a downwardly and inwardly sloping intermediate portion and a downwardly and outwardly sloping lower portion with the intermediate portions of said projections being adapted to engage beneath the bead formation to yieldingly releasably retain the cover on a container, said top wall being disposed below the plane of said channel, an inner upstanding wall connected to said top wall, said top wall and said inner upstanding wall defining a plug adapted to wedgingly telescope within and seal an upper portion of a container, and a bead disposed intermediate said upstanding wall and said channel and being directed upwardly for flexing said upstanding wall when said plug is wedgingly engaged with a container.

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# UNITED STATES PATENT OFFICE
# CERTIFICATE OF CORRECTION

Patent No. 3,065,875

November 27, 1962

Kaiji Negoro

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 5, line 31, for "therein" read -- thereon --; line 32, after "skirt", first occurrence, insert -- and flexible outwardly into the surface of said skirt --.

Signed and sealed this 12th day of May 1964.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents