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REMOVABLE SPOUT FOR RECEPTACLE

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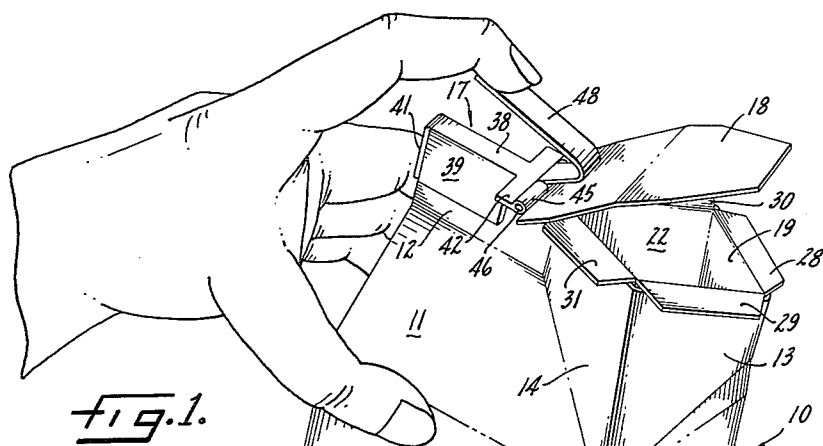


fig. 1.

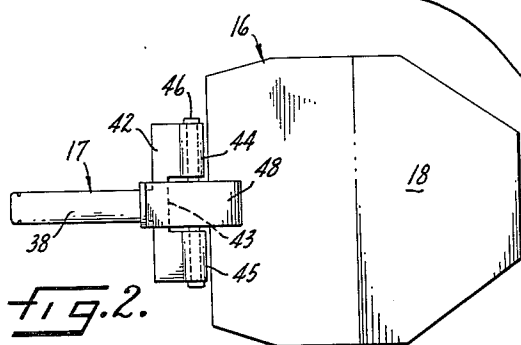


fig. 2.

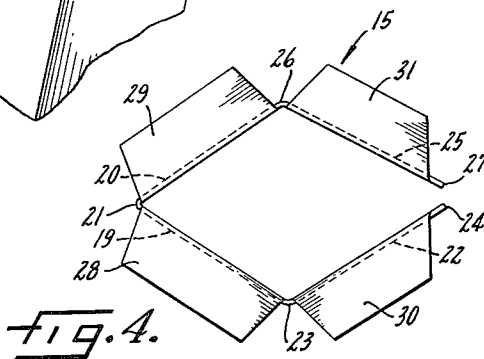


fig. 4.

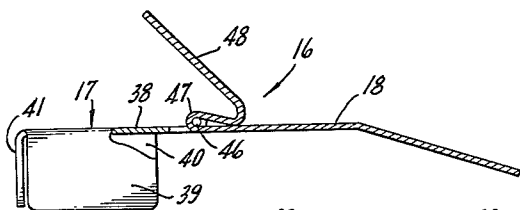


fig. 3.

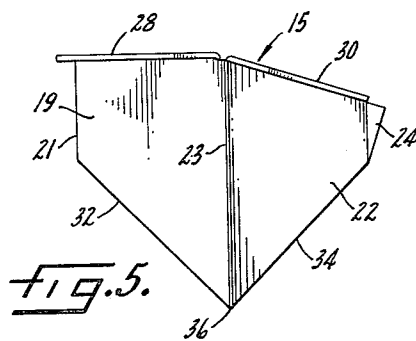


fig. 5.

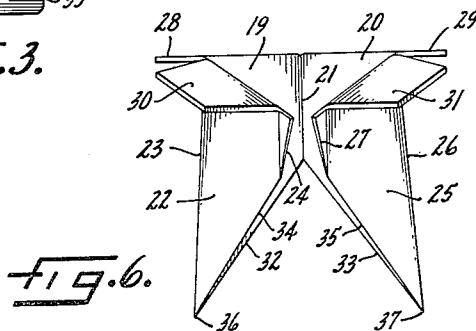


fig. 6.

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REMOVABLE SPOUT FOR RECEPTACLE

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5 Claims. (Cl. 222—556)

The present invention relates to a removable spout intended for association with one conventional type of paper receptacle; and the primary object of the invention is to provide a reinforcing spout adapted to be inserted in the pouring mouth of such a receptacle when the receptacle is first opened and to remain in place until the contents of the receptacle are exhausted, together with means particularly designed for ready, frictional mounting on a conventional part of such a receptacle to carry a hinged cover or closure plate for such spout.

One conventional type of paper container or receptacle which is widely used for milk, juices and other liquids comprises a waxed or otherwise-treated carton of square horizontal section terminating, at its upper end, in a roof comprising upwardly and inwardly inclined opposite side panels and triangularly in-folded end panels, the side panels terminating in an upstanding, overlapped ridge or rib which is sealed to close the upper end of the carton. Such a carton is designed to be opened by forcing apart the forward edges of the side panels, thereby breaking the forward portion of the overlapped rib, and then squeezing those panel edges toward each other to force the midportion of the forward end panel forwardly, whereby an open pouring mouth, quadrilateral and usually rhombic in horizontal section is produced. That pouring mouth is defined by a pair of front walls meeting in a vertical line of juncture at their forward edges and diverging rearwardly, and a pair of rear walls respectively joined at their forward edges to the rear edges of the forward walls and converging toward their own rear edges. When the mouth is open, the major diagonal of the rhombic section lies in the vertical plane of the unbroken, rearwardly extending portion of the above-mentioned rib.

For hygienic reasons it is, of course, undesirable to expose the remaining contents of such a carton to the open air during periods between uses, and therefore it is customary to reclose the open mouth of such a carton after each use. Each time the carton mouth is opened or closed, the lines of juncture among the several walls of the mouth must be reversely bent. Obviously, such repeated bending tends to crack and shatter the wax or other coating at those lines of juncture and flakes of such coating material frequently break away and fall into the contents of the carton. Additionally, such repeated folding or bending tends to weaken the carton material and, particularly after portions of the coating have sloughed away, that material tends to become scuffed, frayed and consequently highly absorbent.

Still further, although such cartons are so designed and constructed that the opening and closing steps can be performed by the application of digital pressure to the external surfaces only of the receptacle mouth walls, many people, and particularly children, find such manipulation to be difficult or even beyond their capacity and they will therefore insert their fingers into the mouth portions of the receptacles and into contact with the inner surfaces of the mouth walls. Since children (and, to some extent, other persons of abnormally low manual dexterity) are notoriously less likely to observe optimum rules of cleanliness, it is, of course, highly desirable to guard against the insertion of fingers into the pouring mouth of such a carton.

For all of these reasons, I propose to provide a de-

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vice including a removable spout designed and constructed to be readily inserted in the mouth of such a receptacle when that receptacle mouth is first opened, and to remain therein until the contents of the receptacle have been exhausted, together with means, also designed and constructed for ready application to the receptacle and providing a closure cooperable with the spout normally to protect the contents of the receptacle against exposure to the open air.

Further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, my invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific construction illustrated and described, so long as the scope of the appended claims is not violated.

FIG. 1 is a perspective view of a carton of the character here under consideration, showing my pouring spout and closure assembly in operative association therewith and showing the manner in which the carton and the equipment of the present invention may be manipulated;

FIG. 2 is an enlarged plan view of the closure assembly forming a part of the present invention;

FIG. 3 is a central section, partly in elevation, through the assembly of FIG. 2.

FIG. 4 is an enlarged top plan view of the pouring spout;

FIG. 5 is a side elevation thereof; and

FIG. 6 is a rear elevation thereof.

Referring more particularly to the drawing, it will be seen that the reference numeral 10 indicates generally a carton of the character here under consideration formed to provide side roof panels only one of which is illustrated at 11 and an upstanding rib 12 of the character above-described. When the mouth of such a carton is opened, as shown, it will be defined by rearwardly diverging front walls, only one of which is illustrated at 13 and rearwardly converging rear walls only one of which is illustrated at 14; and it will be seen that the front-to-rear diagonal of the pouring mouth lies in the vertical plane which includes the upstanding rib 12.

The pouring spout of the present invention is indicated generally by the reference numeral 15 and the closure assembly is indicated generally by the reference numeral 16, such closure assembly comprising a clip 17 hingedly carrying a cover or lid element 18.

The spout 15 is integrally formed from resilient sheet material which may be a light gauge sheet metal or synthetic material having a suitable degree of resiliency for a purpose which will appear. A strip of such material is bent to define a pair of front walls 19 and 20 integrally joined in a line indicated by the reference numeral 21, said front walls diverging toward their rearward edges at an included angle which, when the spout is in equilibrium condition, is slightly greater than the angle included between the front walls 13 of the carton mouth.

Said strip is further bent to define a rear wall 22 which is integrally joined at its forward edge to the rearward edge of the wall 19 in a line of juncture indicated by the reference numeral 23. Similarly, a rear wall 25 is integrally joined at its forward edge to the rearward edge of the wall 20 in a line of juncture 26. As is most clearly illustrated in FIGS. 4 and 6, the rear walls 22 and 25 converge rearwardly, at an angle closely approximating the angle included between the rear walls 14 of the container mouth, but, when the spout 15 is in a condition of equilibrium, the rearward edges 24 and 27 of the walls 22 and 25 are slightly separated.

As is most clearly shown in FIG. 6, the lines of juncture 23 and 26 are disposed in a common, substantially vertical plane, but they diverge downwardly.

An outwardly extending flange 28 projects from the upper end of the wall 19 and a similar flange 29 similarly projects from the upper end of the wall 20. Flanges 30 and 31 similarly project from the upper ends of the walls 22 and 25, respectively. As is most clearly shown in FIG. 5, the flanges 28 and 29 are disposed in a common plane and the flanges 30 and 31 are disposed in a different common plane which inclines downwardly and rearwardly relative to the plane common to the flanges 28 and 29.

The lower ends 32 and 33 of the walls 19 and 20 incline downwardly and rearwardly and the lower ends 34 and 35 of the walls 22 and 25 incline downwardly and forwardly so that the wall ends 32 and 34 meet in a point 36 at the bottom of the line of juncture 23 and the wall ends 33 and 35 meet in a point 37 at the lower end of the line of juncture 26.

Thus, when the spout 15 is inserted in the open carton mouth, the juncture line 21 coincides with the line of juncture between the carton mouth front walls 13 and the entire spout must be flexed, thus bringing the wall edges 24 and 27 toward each other, as the tips 36 and 37 of the spout walls are inserted in the carton mouth. The spout is then pressed home until the flanges 28, 29, 30 and 31 bear upon the lips at the upper end of the carton mouth. The resiliency of the spout material, tending to reseparate the edges 24 and 27, exerts a camming effect upon the mouth walls 14, tending to urge the line 21 of the spout snugly into close-fitting engagement with the line of juncture between the forward walls 13 of the carton mouth. Additionally, the flaring juncture lines 23 and 26 frictionally tend to resist removal of the spout 15 from the carton mouth. It will be clear that the juncture line 21 and a median line between the wall edges 24 and 27 will thus be disposed in the above-mentioned vertical plane which includes the major diagonal of the rhombic cross section of the carton mouth.

The clip 17, which is also preferably formed of resilient, sheet material, is shaped to define a roof 38 having a longitudinal extent slightly less than the corresponding dimension of the unbroken portion of the rib 12, and having downturned, converging side tabs 39 and 40 which are adapted frictionally to embrace the lateral surfaces of said rib portion. Preferably, said clip is further formed with a downturned end wall 41 to limit the location of the clip upon the rib 12 so that the forward edge of a transverse extension 42 integral with the roof 38 will be disposed substantially in the transverse plane which includes the line of juncture between the rear walls 14 of the carton mouth. The clip is provided with hinge means which, in the illustrated form of the invention, comprises coaxial ears 44 and 45 rolled upwardly and rearwardly at opposite sides of a median notch 43 formed in said extension 42. Said ears support a hinge pin 46, as is most clearly shown in FIGS. 2 and 3; and the cover plate or lid 18 is formed with a rearwardly extending tongue rolled upwardly and forwardly as at 47 to receive said hinge pin. Said tongue is thence turned upwardly and rearwardly to provide a finger piece 48 whereby the cover 18 may be hingedly lifted by manual manipulation as suggested in FIG. 1.

It will be seen that the cover plate 18 is bent to conform to the planes in which the flanges 28 and 29 and the flanges 30 and 31 are respectively disposed. The cover is so proportioned and designed as to be held by gravity normally in closing engagement with the said flanges.

I claim as my invention:

1. For use with a receptacle formed to provide an upstanding, upwardly-open pouring mouth of quadrilateral

cross section and further formed to provide an upstanding, narrow rib disposed in a substantially vertical plane including a diagonal of the cross section of said mouth; the invention which comprises a self-sustaining, removable spout formed integrally of resilient, sheet material, said spout including two front walls integrally joined at their forward edges and diverging rearwardly, two rear walls integrally joined respectively to the rear edges of said front walls and converging rearwardly but spaced from each other at their rear edges, the lines of juncture between the respective front and rear walls diverging downwardly, and a substantially horizontal, outwardly-extending flange integrally projecting from the upper end of each wall, said spout being receivable in the pouring mouth of such a receptacle with the line of juncture between said front walls and a median line between the rear edges of said rear walls disposed in said vertical plane and with said flanges bearing against the lips of said mouth, a clip formed of resilient sheet material and proportioned and designed to be frictionally mounted in embracing relation on such a rib, hinge means supported at the forward end of said clip, and a cover hingedly mounted on said hinge means and proportioned and designed normally to rest upon said flanges in closing association with the upper end of said spout.

2. For use with a receptacle formed to provide an upstanding, upwardly-open pouring mouth of quadrilateral cross section defined by rearwardly-diverging front walls and rearwardly-converging rear walls and further formed to provide an upstanding, narrow rib disposed in a substantially vertical plane including the front-to-rear diagonal of the cross section of said mouth; the invention which comprises a self-sustaining, removable spout formed integrally of resilient, sheet material, said spout including two front walls integrally joined at their forward edges and diverging rearwardly at an included angle slightly exceeding the angle included between the front walls of such a pouring mouth, two rear walls integrally joined respectively to the rear edges of said spout front walls and converging rearwardly at an angle closely approximating the angle included between the rear walls of such a mouth but spaced from each other at their rear edges, the lines of juncture between the respective front and rear spout walls diverging downwardly, and a substantially horizontal, outwardly-extending flange integrally projecting from the upper end of each spout wall, said spout being receivable in the pouring mouth of such a receptacle with the line of juncture between said spout front walls and a median line between the rear edges of said spout rear walls disposed in said vertical plane and with said flanges bearing against the lips of said mouth, a clip formed of resilient sheet material and proportioned and designed to be frictionally mounted in embracing relation on such a rib, hinge means supported at the forward end of said clip, and a cover hingedly mounted on said hinge means and proportioned and designed normally to rest upon said flanges in closing association with the upper end of said spout.

3. For use with a receptacle formed to provide an upstanding, upwardly-open pouring mouth of rhombic cross section and further formed to provide an upstanding, narrow rib disposed in a substantially vertical plane including the major diagonal of the cross section of said mouth; the invention which comprises a self-sustaining, removable spout formed integrally of resilient, sheet material, said spout including two front walls integrally joined at their forward edges and diverging rearwardly, two rear walls integrally joined respectively to the rear edges of said front walls and converging rearwardly but spaced from each other at their rear edges, the lines of juncture between the respective front and rear walls diverging downwardly, and a substantially horizontal, outwardly-extending flange integrally projecting from the upper end of each wall, said spout being receivable in the pouring mouth of such a receptacle with the line of juncture be-

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tween said front walls and a median line between the rear edges of said rear walls disposed in said vertical plane and with said flanges bearing against the lips of said mouth, a clip formed of resilient sheet material and proportioned and designed to be frictionally mounted in embracing relation on such a rib, hinge means supported at the forward end of said clip, and a cover hingedly mounted on said hinge means and proportioned and designed normally to rest upon said flanges in closing association with the upper end of said spout.

4. For use with a receptacle formed to provide an upstanding, upwardly-open pouring mouth of quadrilateral cross section and further formed to provide an upstanding, narrow rib disposed in a substantially vertical plane including a diagonal of the cross section of said mouth; the invention which comprises a self-sustaining, removable spout formed integrally of resilient, sheet material, said spout including a first pair of substantially vertical walls integrally joined at their adjacent edges and diverging toward their opposite edges, a second pair of substantially vertical walls integrally joined respectively to said opposite edges of said first walls and converging as they recede from their lines of juncture with said first walls but spaced from each other at their edges remote from said first walls, and a substantially horizontal, outwardly-extending flange integrally projecting from the upper end of each wall, said spout being receivable in the pouring mouth of such a receptacle with the line of juncture between said first pair of walls and a median line between said edges of said second walls remote from said first wall disposed in said vertical plane and with said flanges bearing against the lips of said mouth, a clip formed of resilient sheet material and proportioned and designed to be frictionally mounted in embracing relation on such a rib, hinge means supported at the forward end of said clip, and a cover hingedly mounted on said hinge means and proportioned and designed normally to rest upon said flanges in closing association with the upper end of said spout.

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5. For use with a receptacle formed to provide an upstanding, upwardly-open pouring mouth of quadrilateral cross section and further formed to provide an upstanding, narrow rib disposed in a substantially vertical plane including a diagonal of the cross section of said mouth; the invention which comprises a self-sustaining, removable spout formed integrally of resilient, sheet material, said spout including two front walls integrally joined at their forward edges and diverging rearwardly, two rear walls integrally joined respectively to the rear edges of said front walls and converging rearwardly but spaced from each other at their rear edges, the lines of juncture between the respective front and rear walls diverging downwardly, and a substantially horizontal, outwardly-extending flange integrally projecting from the upper end of each wall, the lower end of each front wall inclining downwardly and rearwardly from the line of juncture between said front walls and the lower end of each rear wall inclining downwardly and forwardly from its rear edge, said spout being receivable in the pouring mouth of such a receptacle with the line of juncture between said front walls and a median line between the rear edges of said rear walls disposed in said vertical plane and with said flanges bearing against the lips of said mouth, a clip formed of resilient sheet material and proportioned and designed to be frictionally mounted in embracing relation on such a rib, hinge means supported at the forward end of said clip, and a cover hingedly mounted on said hinge means and proportioned and designed normally to rest upon said flanges in closing association with the upper end of said spout.

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