June 27, 1944. F. H. MÜLLER 2,352,587

POURING SPOUT FOR CONTAINERS

Filed May 12, 1942

Fig. 1.

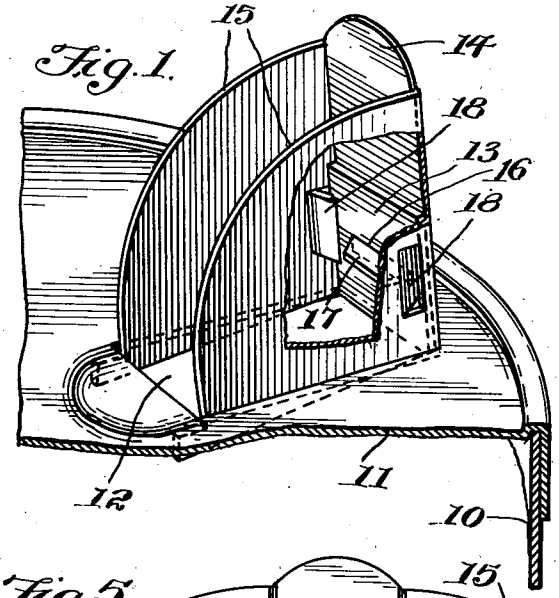


Fig. 2.

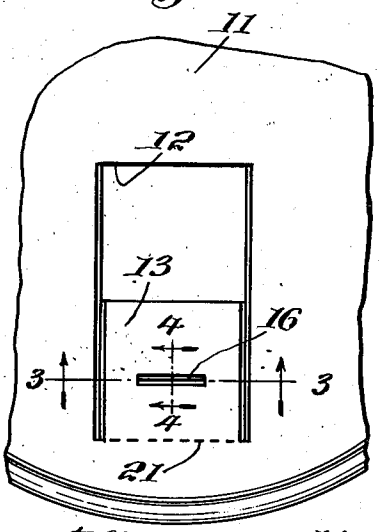


Fig. 5.

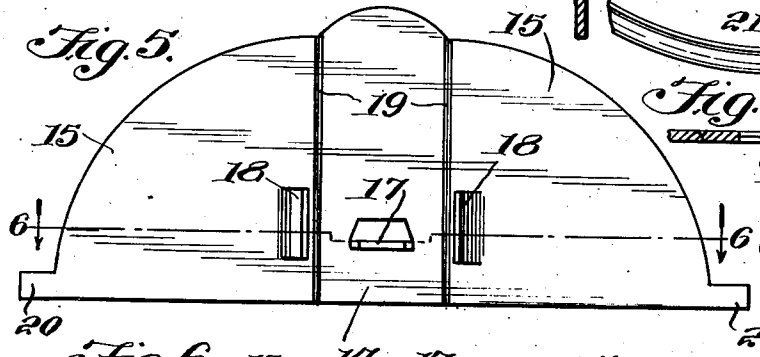


Fig. 3.

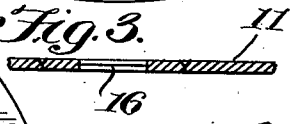


Fig. 4.

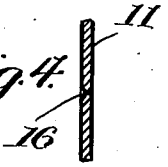


Fig. 6.

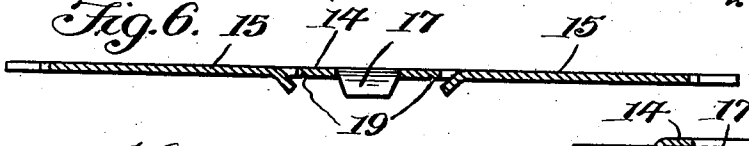


Fig. 7.

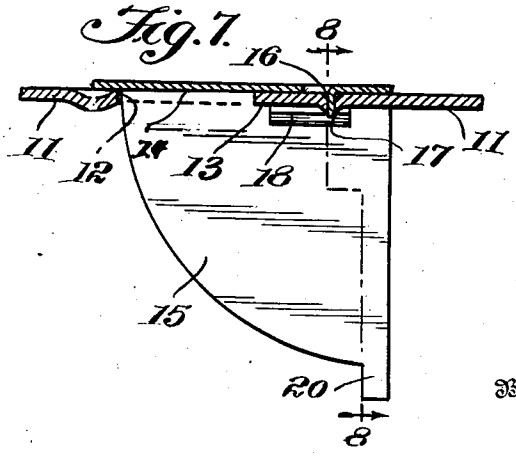
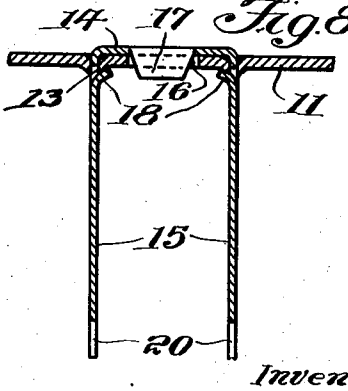


Fig. 8.



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Patented June 27, 1944 2,352,587

UNITED STATES PATENT OFFICE

2,352,587

POURING SPOUT FOR CONTAINERS

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Application May 12, 1942, Serial No. 442,679

2 Claims. (Cl. 222—531)

My invention relates primarily to non-metallic containers for marketing and dispensing powdered, granular or flaky materials, such as prepared breakfast foods, salt, corn meal, cereals, soap chips, and other dry products that are commonly sold in small packages for domestic consumption and are used directly from the package, and the invention comprises a novel form of non-metallic closure and pouring spout for such containers.

The invention aims to provide a secure, inexpensive, combined pouring spout and closure for preserving the contents of the package and keeping moisture and dust out after the package has been opened, and for readily dispensing the contents as desired.

One of the objects of the invention is to form from non-metallic sheet material having the required toughness, resiliency, flexibility and resistance to moisture and atmospheric gases, a pouring spout equal in all respects to spouts heretofore made of sheet metaal; and another object is to adapt existing machines and methods to the working of suitable non-metallic sheet material in order to produce spouts that can be readily assembled with containers of the types heretofore found desirable for packaging foods and household supplies.

I have discovered that what is known as hard vulcanized fibre can be produced in sheets of the desired thickness and also having characteristic physical properties making it suitable for replacing sheet metal, such as aluminum and tin, in the pouring spouts of food containers and other dispensing containers in the packaging industry, thereby enabling a substantial saving to be made in the cost of such containers and releasing large quantities of such metals for other industrial needs.

The special kind of vulcanized fibre preferred for the purposes of this invention is a chemically regenerated or gelatinized cotton base cellulose, having a greater density and corresponding toughness and strength than mechanically compacted fibrous sheet material commonly sold under the name fibre, and is less affected by heat and moisture. Its tensile strength may vary from 6000 to 18,000 lbs. per square inch, and its density from 1.05 to 1.5. It may be bent, cut, punched, flanged and shaped much like sheet metal. It has more resistance to weak chemicals and corrosive substances than many metals, and it has more flexibility and endurance to repeated bending stresses than any spout metal now in use.

To be suitable for my purpose, the fibrous material ought to be sufficiently pliant when moistened to be folded and pressed or swedged into suitable forms without cracking, and when dried by heating it should retain its formed shape. When dry it may be punched and machined like metals, and it may be coated with paraffin or shellac to prevent absorption of moisture. Its property of "flowability" distinguishes it from other fibrous or laminated sheet material, and its hardness and resiliency distinguish it from the softer metals. Any sheet material having these characteristics is within the field of the invention.

In the illustrative form of the invention shown in the drawing, a vulcanized fibre pouring spout of much the same general shape as those heretofore made of sheet metal, is applied to a cardboard container of the type commonly used for marketing many dry granular materials used in the household.

In the drawing:

Fig. 1 is a perspective view of the container and assembled spout in open or pouring position, a portion of the side wall of the spout being broken away to disclose the mode of attachment to the hinge;

Fig. 2 is a plan view of the end of the container showing it punched and scored ready to receive the spout, drawn to a larger scale than Fig. 1;

Figs. 3 and 4 are cross sections of the container on the lines 3—3 and 4—4, respectively;

Fig. 5 is a plan view of the blank from which the spout is to be formed;

Fig. 6 is a cross section thereof on the line 6—6 in Fig. 5;

Fig. 7 is a lengthwise cross section through the assembled spout and container on the center line of the pouring opening, showing the spout closed; and

Fig. 8 is a cross section of the same on the line 8—8 in Fig. 7, Figs. 2 to 8 being drawn to the same scale.

The container 10 shown in the drawing comprises a top or cover 11 provided with a pouring opening 12, formed by punching out a portion of the cover material. At one end of the pouring opening a hinge tongue 13 is left projecting into the opening for attaching the spout 14. Preferably the side walls of the opening 12 are cut with a knife blade or rule having a wedge shape cutting edge so as to leave sloping sides to the cuts, as shown in Fig. 3, permitting the side walls 15 of the spout to be readily inserted between the

sides of the opening and the edges of the tongue 13.

A cross cut 16 is made in the tongue as shown in Figs. 2 and 4, to receive a prong or projection 17 formed in the bottom wall of the spout when the parts are assembled. At the cross cut 16 the edges of the tongue material are beveled as shown in Figures 3 and 4. This permits free entry of projection 17. Projection 17 together with two opposed prongs or wings 18 formed in the side walls 15 of the spout and which engage under the sides of the tongue 13 in assembled position, serve to secure the spout to the tongue at all times. For most satisfactory results, the grain of the material ought to be made to run lengthwise of the spout, that is, crosswise of the longest dimension of the blank, so the wings 18 are not bent across the grain of the material.

Score marks 19 are cut in the upper side (Fig. 5) of the spout on the lines of bend between the side walls and the spout bottom to aid in bending the spout to trough shape prior to inserting it in the opening 12 and securing it in place, and the outer corners or tips of the side walls of the spout are provided with projecting tabs 20 which serve to prevent the spout from being pulled open so far as to permit the side walls 15 to disengage from the sides of the opening 12.

To assemble the spout in the container opening after it has been blanked out as shown in Figs. 5 and 6, first the side walls are folded at right angles on the scored lines 19, and then the two tip ends 20 are inserted in the slits between the tongue 13 and sides of the opening 12 and the spout is pressed down until the bottom 14 is flat against the tongue 13, with the projection or anchor lug 17 extending through the cut 16 and the side wings 18 bearing against the edges of the tongue on its under side, as shown in Figs. 7 and 8, the resiliency of the spout material being sufficient to permit the side wings to straighten out enough to pass through the cuts in the top and spring back into place.

The spout may be readily formed and assembled in place by means of automatic machinery, and when once assembled in the pouring opening and secured in place by the projections 17 and wings 18 it cannot easily be removed without mutilating the tongue 13.

The thickness of the hard vulcanized fibre of which the spout is made is preferably between .007" and .015" for small spouts, and up to .02" for larger sizes. The cover 11 may be made of suitable thickness for the purpose for which it is intended. If it is much over .015" in thickness, the base line 21 of the hinge should be partly scored to enable it to bend readily to permit the spout to be pulled open for use.

The resiliency of the side walls of the spout causes them to hug the sides of the opening, and assists in holding the spout in its closed and open positions during use. The shape and dimensions of the pouring opening and spout are made conformable to the type of container and purpose for which it is expected to be used.

My invention fills a long felt need as it has much the same properties of the commercial forms of metal spouts combined with a greater resiliency and the cheapness and ease of working of laminated sheet material.

In the claims, the expression "hard vulcanized fibre" is used to designate a thin, hard, resilient sheet material having the properties of the chemically regenerated or gelatinized fibre above described.

What I claim as my invention is as follows:

1. A pouring spout and closure for containers of the type having a wall of flexible material provided with a pouring opening, said spout having flexible integral bottom and side walls and provided with cooperating means to secure it to the container when assembled in its pouring opening, said means comprising a hinged tongue at one end of said opening engaged by said bottom wall and formed of a portion of said container and having a slot, a projection formed integral with said spout and engaged tightly in said slot for attaching said spout to the container, and inwardly extending opposing wings integral with the side walls having free inner edges bearing against the said hinged tongue on the side of said hinged tongue opposite to that side engaged by said bottom wall and holding said tongue in contact with said bottom wall.

2. A pouring spout and closure for containers of the type having a wall of flexible material provided with a pouring opening, said spout having flexible integral bottom and side walls and provided with cooperating means to secure it to the container when assembled in its pouring opening, said means comprising a hinged tongue free of said container along one end and two sides and having a slot, a projection struck out from said spout and engaged tightly in said slot for attaching said spout to the container, and opposing wings struck inwardly from the side walls of said spout and bearing resiliently against the bottom surface of said hinged tongue and holding it in contact with said bottom wall, said projection and wings being aligned transversely of the spout, said slot being disposed transversely of the tongue to permit free entry of the projection into the slot in assembly.

FERDINAND H. MÜLLER.