Nov. 15, 1932. E. B. GOODFELLOW 1,887,592

RECEPTACLE PERFORATOR AND CLOSURE

Filed Jan. 12, 1931

Fig. 1.

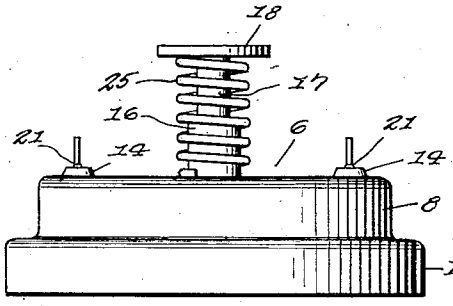


Fig. 2.

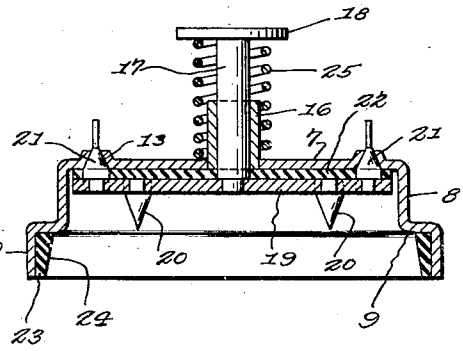


Fig. 3.

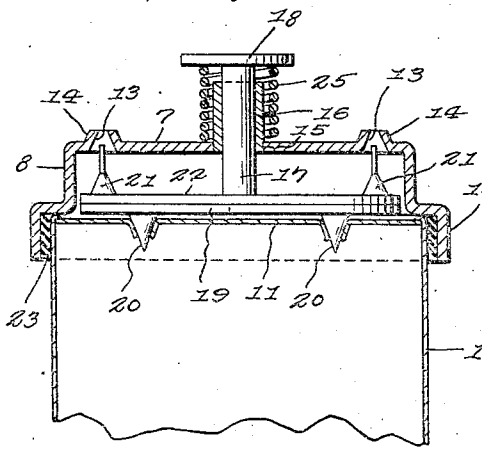
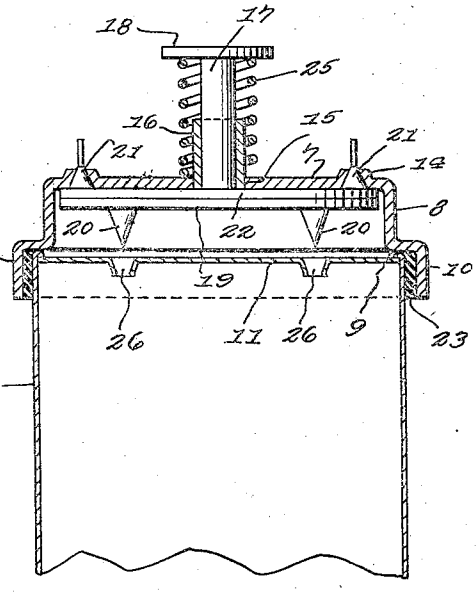


Fig. 4.



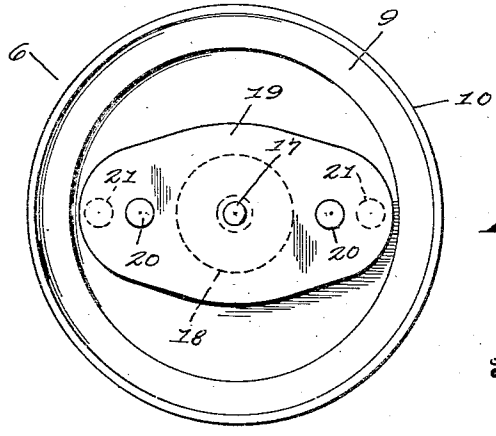


Fig. 5.

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UNITED STATES PATENT OFFICE

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RECEPTACLE PERFORATOR AND CLOSURE

Application filed January 12, 1931. Serial No. 508,293.

The subject-matter of the present invention is directed to a novel form of structure adapted to perforate a sealed receptacle to permit the removal of the contents thereof, and further to exclude the admission of air into said receptacle, in its perforated condition, when a portion of the ordinary contents thereof is retained therein for subsequent periodic use.

In the preserving or canning art, perishable material, such as evaporated milk, or the like, is hermetically sealed within the container or receptacle and once the latter is opened it becomes necessary to remove the said material from the receptacle else the admission of air into the latter containing some of the material, cause rapid deterioration thereof and a likelihood of the propagation of disease germs.

The convenience attending the use of evaporated milk in the ordinary or original container has prompted the more resourceful person to simply punch two holes in the top of the can, one opening being used for pouring out the milk, as desired, while the other serves to permit the admission of air. In such instances, the unused milk is retained in the can and certain plugs, or the like, are used to stop said openings. Such a procedure results in an unsanitary condition and quite frequently proves expensive in that rapid spoiling of the milk results.

My predecessors in this art have attempted to overcome the above conditions, some providing resilient means to perforate a can top in one or two places, said means serving to seal the openings made. While these devices are superior to the old method of punching-and-plugging, they signally fail of successful performance in that the means perforating the can top also serves as the sealing means, and hence as the accumulation of congealed milk clings to the inner edges of the openings the insertion of the sealing means is not sufficient to absolutely preclude the admission of air, and in consequence, conditions mentioned as applying to the old method, soon arise and defeat the purpose of the improvements.

Accordingly, it is the object of my invention to provide a device adapted to be placed onto a receptacle whereby a plurality of openings may be punched in the top thereof, said device including means whereby the perforating or punching means is returned to its normal position, i. e., above the can top and at the same time certain valve elements are closed to preclude the admission of air into the receptacle by way of the punched perforations.

Another object resides in the provison of a device of the above-mentioned character embodying means whereby the upper portion of the receptacle and the flanged body portion of said device are maintained in a snug engagement when the latter is serving as a closure for said receptacle.

A still further object of the invention is to provide valved means whereby air may be excluded from the receptacle after the can has been perforated, said means being adapted to be open to the atmosphere to permit the emission, or rather, the escape of any residual air in the affixed device during the perforating operation.

Still another object is to provide an article which is exceedingly neat in appearance and while possessing all the attributes hereinbefore pointed out, may be manufactured at a low cost to permit retailing at a most attractive figure.

With these objects in view, together with others which will appear as the description proceeds, the invention resides in the novel formation, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawing, and particularly pointed out in the claims.

In said drawing:

Figure 1 is an elevation of my invention.

Fig. 2 is a vertical central sectional view thereof.

Fig. 3 is a similar sectional view, but showing the device attached to the upper portion of a receptacle, the parts assuming the positions taken just after the perforating operation.

Fig. 4 is also a sectional view of the device, applied to a receptacle. but showing certain

perforating means returned to their normal positions and the valved means being closed to preclude the admission of air.

Fig. 5 is an inverted plan view of the device.

Referring now more in detail to the accompanying drawing, wherein like characters of reference denote similar parts throughout the several views, let 6 indicate generally the body portion of my novel and improved article, said body portion including a top portion 7 and a rim 8, the latter being bent outwardly, as shown in Fig. 2, to provide a shoulder 9 and a flange 10, said shoulder 9 being adapted to abut and rest against the top or cover portion 11 of a receptacle 12, as clearly shown in Figs. 3 and 4. Said top portion 7 of said body portion 6 is provided with substantially diametrically opposed openings 13 each being tapered, as shown, and being preferably formed by punching up the material from the under surface of said top portion to provide side walls 14. Said top portion 7 is further provided with a central opening 15 for the reception of a tubular element 16 which may be suitably affixed to said top portion in order to provide a guide for the reciprocation of the stem 17.

Said stem 17 is adapted to be reciprocated to operate some of the parts of the device and it will be observed that said stem is provided with a head portion 18, at one end, while its other end is reduced in diameter for engagement with a plate or disk 19, as shown in Fig. 2. It will also be noted that the under surface of said plate 19 is provided with perforating means or spurs 20, which are preferably diametrically opposed, while rising from the upper face of said plate are valve elements 21, also preferably diametrically opposed. The aforesaid parts being carried by said plate 19, it is obvious that the same move or operate in conjunction therewith, as will be pointed out more in detail hereinafter. Again reverting to Fig. 2 it will be observed that the device is provided with gaskets 22 and 23, the former being disk-like and suitably affixed to the upper face of said plate 19, while the latter is annular and fits beneath a portion of the shoulder 9 and against the inner surface of said flange 10. The inner face of said gasket 23 is beveled to converge upwardly toward the top portion 7, as shown.

When the device is placed onto the top portion of the can 12 the beveled portion 24 of said resilient gasket 23 snugly embraces the upper sides of said can and naturally affords an air-tight seal. As the above operation requires a certain amount of force, and as the top portion of the can must enter said body portion 6, it is obvious that the normal air content of the latter tends to compress and hence it is advisable to slightly depress the stem 17 to remove the valves 21 from the openings 13, thus permitting the escape of the compressed air in the body portion resulting from the above operation. The removal of such residual air positively permits an air-tight seal between the gasket 23 and said can.

With the device affixed, as aforesaid, it is only necessary to depress the stem 17, thereby tensioning the spring 25, said plate 19 and spurs 20 descending with said stem until the latter engage and perforate the can top 11 as shown at 26 in Fig. 3. At the same time the valve elements 21 leave the openings 13, but when the pressure of said stem is relieved, said spurs 20 ride out of the openings 26 and the valve elements rise upwardly and seal the openings 13, thus preventing the entrance of air into the body portion 6 or the receptacle 12, just perforated. While the above description of the operation would seem to imply the movements as being slow, it will, of course, be understood that in actual practice the operator would strike the head portion 18 a sharp blow with the hand, and the above cycle of operations would obviously take place within a short space of time, the blow on the head portion forcing the spurs into the can top, while the tensioned spring 17 removes the same therefrom.

In Fig. 2 the spurs 20, the stem 17 and the valve elements 21 are shown as having a reduced portion for securing the several parts to said plate 19. It is obvious that this manner of affixing the parts is but one of the many methods which might be employed. Manifestly, the showing is illustrative and not restrictive in any sense.

After the can top 11 has been perforated the component parts of my device assume the positions shown in Fig. 4; the spurs being withdrawn and the valve elements 21, the resilient gasket 22 and the openings 13 all cooperating to prevent the admission of air into the receptacle, and in this condition the material therein will keep for an indefinite period of time without danger of deterioration.

When it is desired to remove a portion of the contents of the receptacle 12, said body portion 7 is removed therefrom whereupon said contents exits through one opening 26 while air enters the other opening to facilitate the discharge of said contents, as is obvious. The device may be again affixed to the upper portion of the can, as pointed out hereinbefore and as the beveled gasket 23 assures an air tight connection between the said device and the can and since no air can enter by way of the openings 13, the receptacle and its contents, not yet removed, may be stored for subsequent and repeated use.

From the foregoing it is obvious that I have provided a device admirably adapted to perforate the top of a receptacle, said de-

vice being further arranged whereby said receptacle is returned to its original hermetically sealed condition.

While the present is a disclosure of the preferred embodiment of the invention, it is to be understood that the invention is not limited thereto, as various changes in the minor details of construction, proportion and arrangement of parts may be resorted to without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. A device of the character described comprising a body portion having depending flange adapted to fit over the top portion of a receptacle, resilient means presenting a beveled inner face fitting between said flange and said receptacle and adapted to seal the former to the latter, said top portion of said receptacle presenting a normally closed opening, spring-pressed spurs reciprocatorily borne by said body portion and adapted to perforate the top of said receptacle and means adapted to close the opening in said top portion of said body portion after the perforating operation.

2. A device of the character described comprising a body portion having a depending flange adapted to fit over the top portion of a receptacle, said body portion having openings in its top portion, resilient means carried by the inner face of said flange and adapted to effect a seal between said flange and the receptacle, a plate reciprocatorily borne by said body portion, spurs carried by said plate and adapted to perforate the top of said receptacle upon the operation of said plate and valve elements associated with said plate and adapted to open the openings in said top portion during the perforation of said receptacle top and to close said openings thereafter.

3. A device of the character described comprising a body portion having a rim formed to present a shoulder and a depending flange adapted to fit over and engage the top portion of a receptacle, said body portion having walled openings in its top, resilient means carried by the inner face of said flange and adapted to effect a seal between said flange and the receptacle, a stem slidably borne by said body portion, a plate carried by one end of said stem, a spring encircling said stem and adapted to hold said plate in an elevated position, spurs associated with said plate and adapted to perforate the top of the receptacle upon the depression and tensioning of said spring and valve elements borne by said plate and normally closing the openings in said top of said body portion, said elements opening said openings during the perforating operation and being returnable to close said openings under the influence of said spring.

In testimony whereof I affix my signature.

EARL B. GOODFELLOW.