July 26, 1938. S. BERGSTEIN 2,125,146

DEVICE FOR OPENING, DISCHARGING THE CONTENTS OF, AND MUTILATING CARTONS

Filed Dec. 11, 1934

FIG. 1.

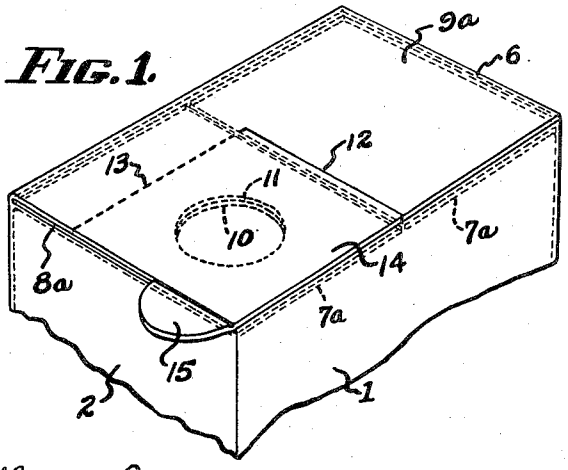
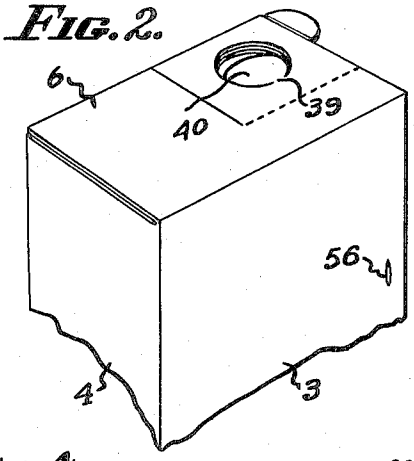
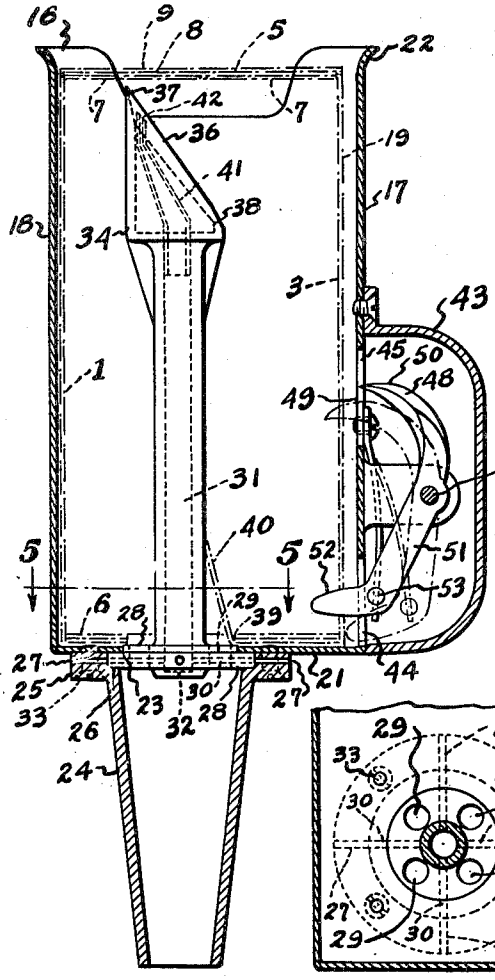



FIG. 2.



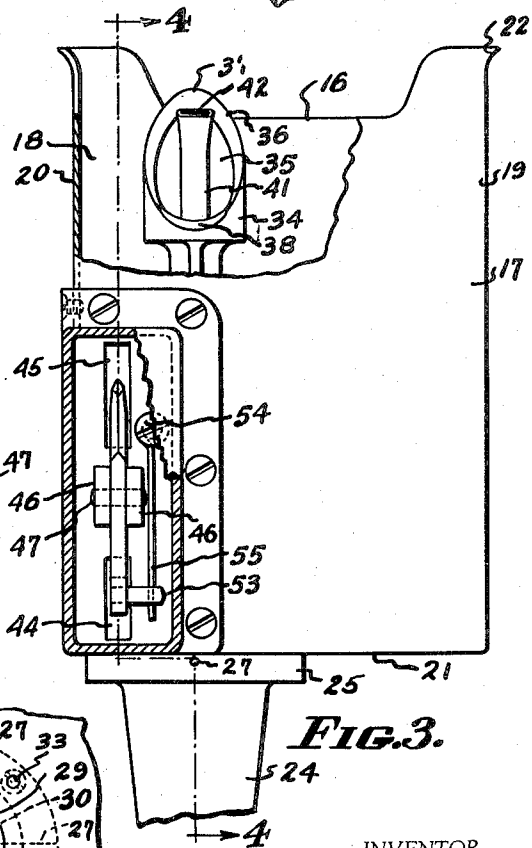




FIG. 3.




FIG. 4.

FIG. 5.

INVENTOR.
SAMUEL BERGSTEIN.

BY Allen & Allen

ATTORNEYS.

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## DEVICE FOR OPENING, DISCHARGING THE CONTENTS OF, AND MUTILATING CARTONS

Samuel Bergstein, Cincinnati, Ohio, assignor to Edna May Bergstein and Robert Morris Bergstein, as trustees

Application December 11, 1934, Serial No. 756,990

12 Claims. (Cl. 221—23)

My invention relates to dispensing devices, and more especially to devices of that kind adapted to receive a package or carton in dispensing relation to the dispensing device, so that the device may conduct the contents into some receptacle. My invention also relates to devices for opening packages, cartons or other containers, and more especially to devices of that kind which partially destroy or mutilate the container, so that it cannot be refilled with a substitute for a product which the container originally and rightfully contained.

An object of my invention is to combine in one device, in co-active relation to each other, the means for discharging and conducting the contents of the package, the means for opening the package so that it may discharge to the conducting means, and the means for mutilating the package.

A particular object of my invention is to combine the structures and function of the above devices in such a manner as to open, discharge the contents of and mutilate cartons made of paper stock and containing liquid, such for instance, as motor vehicle lubricating oil. My improvement is especially desirable in connection with the dispensing and sale of such oil, when contained in cartons such as those disclosed and claimed in my co-pending applications, Serial No. 664,948, filed April 7, 1933, and Serial No. 737,286, filed July 27, 1934. However, it will be understood that my invention is not limited to use with cartons constructed according to my invention disclosed in the above mentioned applications; and although the cartons disclosed therein, as well as the one disclosed herein, are rectangular, and my improvement as exemplified herein is designed for receiving and operating upon such rectangular cartons, it will be understood that cartons of any practicable shape may be received and operated upon by devices embodying my invention, but of accordingly modified shape. Also, while the present most desired use is in connection with dispensing lubricating oil, it will be understood that my improvement may receive and operate upon cartons containing substances other than oil.

Other objects will appear in the course of the following description, in which—

Fig. 1 is a perspective view of the upper part of a carton in closed condition.

Fig. 2 is a similar view of the carton after it has been opened, emptied and mutilated by the use of my device.

Fig. 3 is a side elevation of a preferred example of my device, portions of the casing being broken away to reveal interior details, and the lower portion of the spout being broken away for lack of space.

Fig. 4 is a vertical section on the planes of the broken line 4—4 of Fig. 3.

Fig. 5 is a partial horizontal cross section on the plane of the line 5—5 of Fig. 4.

The carton on which my invention is designed to operate, and which is constructed according to my inventions disclosed and claimed in my above mentioned co-pending applications, is, as shown in Figs. 1 and 2, made up of side walls 1, 2, 3 and 4, a bottom 5, seen in the broken line indication in Fig. 4, and a top 6. The bottom 5 is formed by turning in flaps 7 from the narrower sides 2 and 4, which flaps do not interlap, and turning in flaps 8 and 9 from the wider sides 1 and 3, across the shorter flaps 7; the flaps 8 and 9 interlapping, and all of the flaps 7, 8 and 9 being securely held together by adhesive. The top 6 is made up in a like manner with flaps 7a across which are folded flaps 8a and 9a; but is different in that one of the flaps 7a and the first inturned wide flap 8a have registering openings 10 and 11, to form an outlet for discharging the contents of the carton. These registering openings 10 and 11 are preferably formed near one corner of the top. Also, the last inturned flap 9a has the slit 12 partway across its width; and at right angles to this slit, extending from its inner end past the registering openings 10 and 11, is a line of perforations 13 so that a secondary flap 14 is formed on the flap 9a, and, when its adhesive connection with the underlying flap 8a is disrupted, this secondary flap 14 may be swung up, hinging along the periphery 13. To make this convenient, this secondary flap 14 has a small tab 15 extending from one outer edge. The carton may be opened for discharging its contents, in this manner; but it will be seen that after the original contents have been discharged, the carton could be refilled with a substitute product, and the secondary flap 14 could be again sealed down, enabling a dealer to deceive a customer. This secondary flap is provided on the cartons, because a customer may buy the package and open it, and thus have disposal of the empty carton. It is when the dealer has disposal of the carton, that my present invention finds its utility; my device being designed to partially cut out the portion of the secondary flap 14 lying across the outlet formed by the registering openings 10 and 11, as well as, with a co-acting device, cutting a slit in one of the side walls of the carton, so that the carton is useless for refilling in such a manner as to enable the dealer to deceive a customer.

In the preferred embodiment of my invention, as herein disclosed, a holder or casing 16, corresponding in shape to the shape of the carton to be operated upon, his wider walls 17 and 18 and narrower walls 19 and 20, and a bottom 21. This casing 16 is open at its top, and its upper rim 22 is somewhat flared outwardly, so as to readily admit the carton, which is inserted down into this casing 16 with the top 6 of the carton downward. The bottom 21 of the casing has an opening 23 of

about the diameter of the discharge opening formed by the registered openings 10 and 11 in the carton. Fixed to the bottom 21 and extending downwardly therefrom, and in alinement with the bottom opening 23 is a spout 24, comprising an annular radially extending flange 25 at its top, by which it is fastened to the bottom 21, and a main body portion which tapers downwardly so as to readily enter an opening in a receptacle into which the contents of the carton are to be discharged; as for instance in the case of motor vehicle lubricating oil, the oil inlet of the crank case of the motor vehicle engine.

The spout 24, at the upper end of its tapering interior passage has a countersunk portion 26; and from the outer periphery of the flange 25, ports 27 extend radially inward, into this portion 26, these ports, as herein shown, being four in number and equally angularly spaced, as best seen in Fig. 5.

Extending up inside the casing 16, in axial alinement with the spout 24 is the tubular column 28, having around its lower end a radially annularly extending base 28' which fits in the countersunk portion 26 of the top of the spout 24, and down through it a series of outlet openings 29; and it also has radial ports 30 from its periphery into the bottom part of the interior passage 31 of this column, which passage is closed at its lower end 32. This column 28 is so angularly positioned in the spout 24 that its ports 30 register with the respective ports 27 of the spout flange 25; and the column is held fixed in this relation to the spout by being clamped between the bottom of the countersunk portion 26 of the spout and the bottom 21 of the casing, by the means which fixes the spout to the casing which, as here shown, is a plurality of screws 33.

The top of the column is enlarged to form a hollow head 34 in the form of a cylinder cut off at a sharp angle to its axis, so that an inclined upwardly and laterally facing elliptical opening 35 is provided. The major upper portion 36 of the edge of this elliptical opening 35 is beveled interiorly, so that it is sharp, and increasingly sharp up to its uppermost point 37, which thus is adapted to readily pierce the portion of the flap 14 that extends across the carton outlet opening, and upon further depression of the carton into the casing 16, the edge portion 36 progressively cuts a circular opening in this flap 14. The minor lower portion 38 of the elliptical opening 35 is, however, beveled exteriorly, and, left dull, so that it will not cut the flap 14; the consequence being that a portion 39, as best seen in Fig. 2, is left uncut, so that the cutout disk 40 hinges at this portion 39 and is pushed up interiorly of the carton as the carton top descends past the head 34, and remains held up by the lower part of the column when the top 6 of the carton has come to rest on the bottom 21 of the casing as indicated in Fig. 4.

The interior passage 31 of the column opens up through the bottom of the head 34, and a nozzle 41 is fitted into the upper end of this passage 31 to incline over toward the highest part of the wall of the head; this nozzle 41 also gradually taking a flattened shape from its bottom upward, so that its tip has an outlet slit 42. This shape of the nozzle, of course, is to permit it to lie entirely within the hollow head 34 out of the plane of the cuttting edge of the head. By this construction, air may enter through the ports 27 and 30, passing up through the interior passage 41 and out through the slit 42 to the space above the liquid in the inverted carton. Thus, a vent is provided, so that the liquid flows freely out through the openings 29 in the base 27 into the spout 24.

The casing 16 has a hollow extension 43 near one corner, which is open into the main part of the casing through a lower vertical slot 44 and an upper vertical slot 45, the slots being in vertical alinement. The part of the casing wall between these slots has a pair of ears 46 extending out into the interior of the extension 43 and carrying a pivot pin 47 on which swings a sifting blade 48, extending up from the pin 47 and curving in and extending through the upper slot 45 and ending with a sharp point. This blade 48 has a lower sharp edge 49 and an upper sharp edge 50; and it has extending down from the pin 47 a lever arm 51 having at its lower end a cam portion 52 which extends into the main part of the casing through the lower slot 44. The lower end part of the arm 51 also carries a laterally extended lug pin 53; and, held to the casing wall at one side of the upper slot 45 by a screw 54, is a spring 55 which extends down loosely through an opening in the lug pin 53. This spring is so formed that normally it presses the arm 51 to extend its cam portion 52 a considerable distance into the main part of the casing, with the blade 48 withdrawn so that its point is very close to the side of the casing.

As the carton approaches its final position in the casing, its corner portion engages the cam portion 52, which cam portion is curved downwardly; the result being that the carton pushes outward on the cam portion as well as downward, against the pressure of the spring 55, swinging the blade 48 into the casing, in such a manner that the point follows the carton downward so that the blade point pierces the wall 4 of the carton, as indicated by the broken lines in Fig. 4. After the contents of the carton have been discharged, and the carton is being withdrawn from the casing 16, this blade 48 withdraws from the wall 4, at the same rate that the carton rises, under action of the spring 55, which returns the blade 48 to normal position, ready for co-action with a succeeding carton. The result is a short slit 56, as best seen in Fig. 2, very close to one upright corner of the carton, so that to secure a patch across this slit 56 in any effective and inconspicuous shape will be very difficult, if not impossible. Any prolonged cutting action along the wall is undesirable, as being liable to detach fibers of carton stock, which would get into the oil or other liquid dispensed.

It will be noted that, not only the slit 56 has to be repaired, but also the cutout disk 40 has to be replaced, in order to make the carton again dependable for holding liquid; and this has to be done in such a way as not to be readily noticeable. Taking for an example the present most desirable use of my device, the dispensing of a portion of lubricating oil to a customer having his car at a filling station, the attendant will bring out my device and also the carton of oil. He cannot readily insert the carton in the device before bringing it out, because insertion results in opening the carton and discharge of the oil; and this procedure would necessitate some way of preventing the oil from passing out through the funnel 34 while bringing out the device with the carton in it; at least holding a thumb across the bottom of the spout, which of course, would be readily noticed by the customer. Since the attendant cannot practically have the carton in the

device until he has inserted the spout in the crank case filling opening of the customer's car, he must bring out the carton in view of the customer. Thus, although the carton label might be concealed when the carton is in the device, this circumstance does not permit deception of the customer as to the brand of oil being dispensed. The carton may have the brand marked on its bottom so that it is visible when the carton is inverted in the device.

Since insertion of the carton into the device mutilates the carton so that it is practically impossible to repair it in such a manner as to deceive a customer, my device practically insures, to any customer reasonably observant of the filling station attendant, that the brand of oil desired by the customer will be supplied.

The cutter head **34** is provided with the lower dull edge **38**, so as to leave the cutout disk **40** attached to the carton top **6**, because were the disk **40** entirely detached, it might, free to float around in the oil, obstruct an outlet opening **29** or the vent slit **42**. Also, by being kept attached and being bent inward at a sharp angle, getting this disk **40** out in position to again close the carton is more difficult than if it were free to be shaken out of the empty carton. A slight amount of liquid may enter the column passage **31** through the vent slit **42** as the carton is pushed downwardly; but it will be understood that the atmospheric pressure will readily force any such slight amount of liquid out into the carton again as the out-flow of liquid proceeds. The extension **43** of the casing **16** will be understood to have liquid tight connection with the main part of the casing; it being understood that as soon as the cutting head **34** begins to open the carton the oil will pass into the casing; and the carton has to be forced down into this first out-flowing oil, a portion of which will be pressed up around the outside of the carton. Most of this portion will flow from the casing as the attendant partially raises the carton in the casing; but a considerable portion will adhere to the outer surface of the carton, additionally disfiguring the carton, so that the fact that it has been used will be readily noticeable.

It will be understood that, although not desirable for reasons above stated, the disk **40** may be cut entirely out by forming the entire edge of the cutting head **34** beveled throughout in one direction and sharp. Also, since the cutting out of the disk, either partially or entirely, is a decidedly noticeable mutilation and difficult to repair, the object of my invention is realized to a substantial extent without the mechanism in the extension **43**; and therefore a device constructed substantially as herein set forth, but omitting such mechanism and the extension in which it is contained, may occur in practice. Also, it will be understood that other modifications may occur, and that while I have rather specifically illustrated and described my invention herein, I am not to be understood as being limited to such precise disclosure, but what I claim as new and desire to secure by Letters Patent is:—

1. In a device of the character described, a holder having a lower outlet and being liquid retaining for at least a portion of its height upward from said outlet, and having an upper opening through which a container containing liquid may be inserted with a wall down adjacent to said outlet, means extending up in said holder, having an upwardly presented cutting portion, adapted to form in said wall of said container an outlet opening incident to the act of pressing the container down in the holder, and an air vent pipe independent of said upwardly presented cutting portion but shielded thereby to admit air above the liquid in the container through the opening thus formed.

2. In a device of the character described, a holder having a lower outlet and being liquid retaining for at least a portion of its height upward from said outlet, and having an upper opening through which a container containing liquid may be inserted with a wall down adjacent to said outlet, means extending up in said holder, having an upwardly presented cutting portion, adapted to form in said wall of said container an outlet opening incident to the act of pressing the container down in the holder, said means for forming the outlet opening in said wall being in substantial alinement with the outlet opening of the holder, so that the opening formed in said container wall is in substantial alinement with the said outlet opening of the holder, and an air vent pipe independent of said upwardly presented cutting portion but shielded thereby to admit air above the liquid in the container through the opening thus formed.

3. In a device of the character described, a holder having a lower outlet and being liquid retaining for at least a portion of its height upward from said outlet, and having an upper opening through which a container may be inserted with a wall down adjacent to said outlet, and means extending up in said holder, having an upwardly presented cutting portion, adapted to form in said wall of said container an outlet opening incident to the act of pressing the container down in the holder, said device having an air vent passage through but distinct from the outlet opening of the holder, and opening at a height in said device to draw in air from the atmosphere above the liquid in the inserted container.

4. A device as set forth in claim 1, in which the means that forms the outlet opening in the container comprises a head in the form of a hollow cylinder cut off at an angle to its axis to leave an elliptical opening and having the edges of said opening sharp and presented upwardly to the incoming container, and said device also including a column supporting said head and the vent means being provided by a passage communicating with the atmosphere through the outlet opening of the holder but distinct from said outlet opening, said device also having a continuation of the upper end of said passage opening in said head to admit air above liquid in the container, through the elliptical opening of said head.

5. A device as set forth in claim 1, in which the means that forms the outlet opening in the container comprises a head in the form of a hollow cylinder cut off at an angle to its axis to leave an elliptical opening and having the edges of said opening sharp and presented upwardly to the incoming container, and said device also including a column supporting said head and the vent means being provided by a passage communicating with the atmosphere through the outlet opening of the holder but distinct from said outlet opening, said device also having a continuation of the upper end of said passage opening in said head to admit air above liquid in the container, through the elliptical opening of said head, said column comprising a base fitting in

the outlet of the holder, and said device comprising a spout leading down from said outlet opening, said column base having an opening for the passage of the liquid into the spout, and said base having another opening which provides the communication of the column passage with the atmosphere.

6. A device as set forth in claim 1, in which the means that forms the outlet opening in the container comprises a head in the form of a hollow cylinder cut off at an angle to its axis to leave an elliptical opening and having the edges of said opening sharp and presented upwardly to the incoming container, and said device also including a column supporting said head and the vent means being provided by a passage communicating with the atmosphere through the outlet opening of the holder but distinct from said outlet opening, said device also having a continuation of the upper end of said passage opening in said head to admit air above liquid in the container, through the elliptical opening of said head, said column comprising a base fitting in the outlet of the holder, and said device comprising a spout leading down from said outlet opening, said column base having an opening for the passage of the liquid into the spout, and said base having another opening which provides the communication of the column passage with the atmosphere, said base being clamped to the holder by the spout, said spout surrounding said base and having a port registering with the port of said base, for said communication with the atmosphere.

7. In a device of the character described, means comprising a downwardly extending spout and a column extending up from the interior of the spout, cutting means extending up from the upper part of the column, and means to guide a container, whereby a portion of the container may be cut by said cutting means in an initial stage of insertion of the container along the guiding means to form an opening, which opening registers with said spout at the final stage of insertion, said device being liquid containing around the container at said final stage of insertion, and said device having a vent passage in position to be received in the opening cut by said cutting means and to extend above the level of liquid in the container, said vent means communicating with the exterior of the device.

8. In a device of the character described, means comprising a downwardly extending spout and a column extending up from the interior of the spout, cutting means extending up from the upper part of the column, and means to guide a container, whereby a portion of the container may be cut by said cutting means in an initial stage of insertion of the container along the guiding means to form an opening, which opening registers with said spout at the final stage of insertion, said device being liquid containing around the container at said final stage of insertion, said column having a vent passage opening above the level of the liquid in the container, adjacent to said cutting means, and said vent passage being open to the exterior of the device through a side portion of the spout.

9. In a device of the character described, means comprising a downwardly extending spout and a column extending up from the interior of the spout, cutting means extending up from the upper part of the column, and means to guide a container, whereby a portion of the container may be cut by said cutting means in an initial stage of insertion of the container into the guiding means to form an opening, which opening registers with said spout at the final stage of insertion, said device being liquid containing around the container at said final stage of insertion, said device comprising a swinging pointed blade at one side of the guiding means, and said blade having a cam portion extending into the path of insertion of the container, whereby pressure of the container swings the blade to pierce the adjacent wall of the container.

10. In a device of the character described, means comprising a downwardly extending spout and a column extending up from the interior of the spout, cutting means extending up from the upper part of the column, and means to guide a container, whereby a portion of the container may be cut by said cutting means in an initial stage of insertion of the container into the guiding means to form an opening, which opening registers with said spout at the final stage of insertion, said device being liquid containing around the container at said final stage of insertion, said device comprising a swinging pointed blade at one side of the guiding means, and said blade having a cam portion extending into the path of insertion of the container, whereby pressure of the container swings the blade to pierce the adjacent wall of the container, said cam being of such shape that the blade pierces said wall and follows the container while the container is being inserted and withdrawn along the guiding means, so that said blade cuts a mere short opening in said wall, without cutting materially along said wall.

11. In a device of the character described, a casing having an opening in its bottom and having its upper end open to admit a container to be passed down into the casing with a wall of the container adjacent to said bottom, and cutting means having a cutting edge presented upwardly in said casing, and having a base secured in said opening, said base having an opening for outlet of liquid from the container after said cutting means has cut an opening in said wall of the container, said device having a vent passage open to the atmosphere through the base of said cutting means, and open to the interior of the completely inserted container above the level of liquid therein.

12. In a device of the character described, a casing having an opening in its bottom and having its upper end open to admit a container to be passed down into the casing with a wall of the container adjacent to said bottom, and cutting means having a cutting edge presented upwardly in said casing, and having a base secured in said opening, said base having an opening for outlet of liquid from the container after said cutting means has cut an opening in said wall of the container, said device comprising a spout extending down from the opening in the bottom of the casing, and said spout clamping the base of said cutting means in said opening, said device having a vent passage opening above the level of liquid in the completely inserted container, and the base of said cutting means and the adjacent part of the spout having ports through which said vent passage communicates with the atmosphere.

SAMUEL BERGSTEIN.