

J. L. SELLAR.
NON-REFILLABLE BOTTLE STOPPER.
APPLICATION FILED FEB. 14, 1911.

1,015,591.

Patented Jan. 23, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

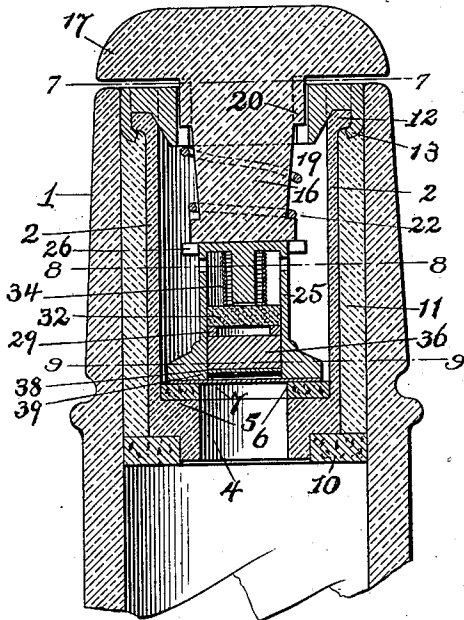


Fig. 2.

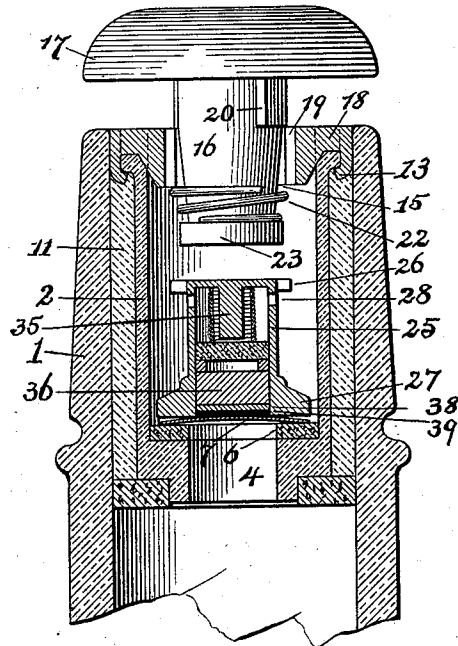


Fig. 3.

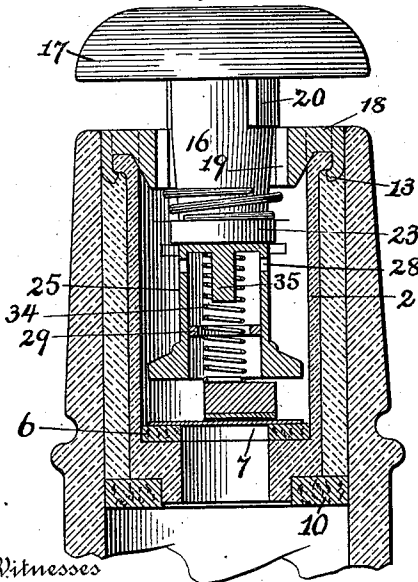
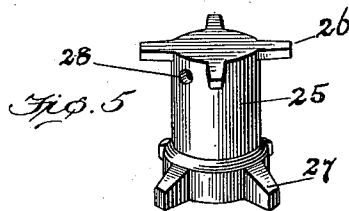
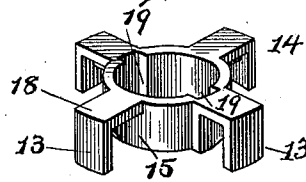


Fig. 4.

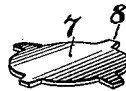


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Witnesses

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Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

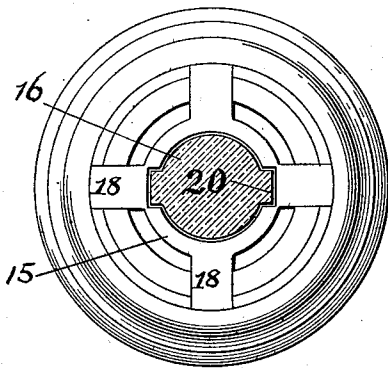


Fig. 8.

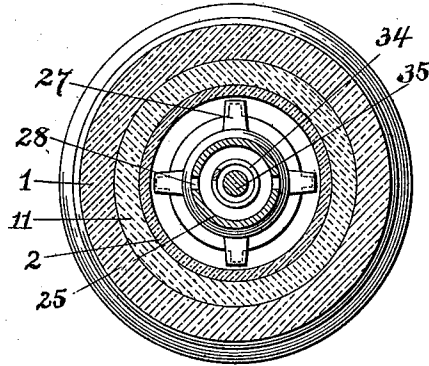


Fig. 9.

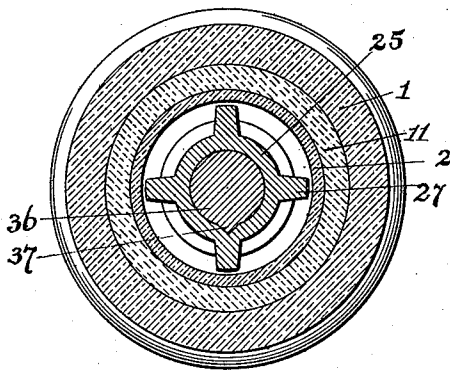


Fig. 10.

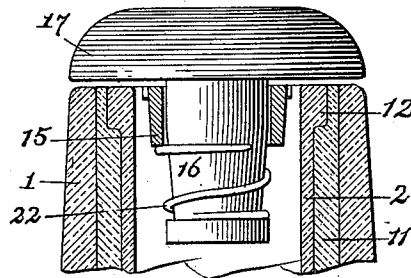


Fig. 12.

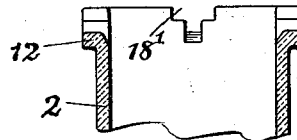
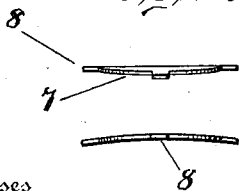


Fig. 11.



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UNITED STATES PATENT OFFICE.

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NON-REFILLABLE-BOTTLE STOPPER.

1,015,591.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN L. SELLAR, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Non-Refillable-Bottle Stoppers, of which the following is a specification.

My invention relates to bottle stoppers of that type which when applied to the bottle
10 prevents the refilling of the same and renders the bottle useless after it has been emptied of its original contents.

An object of the invention is to provide a "tablet" that will disintegrate in alcoholic
15 liquor but not dissolve therein, and which is not affected by atmospheric conditions or the mere fumes of this liquor and to also provide improved means for using such a tablet in a bottle stopper.

20 With the foregoing and other objects in view, the invention consists of certain novel features of construction and combinations of parts which secure a new mode of operation, as are hereinafter described and particularly pointed out in the appended claims.

25 In the drawings,—Figure 1 is a central vertical section of a bottle-neck and stopper showing the device with its parts sealed and in condition adapted for transportation. Fig. 2 is a vertical sectional view showing the cap raised, the device unsealed and free for emptying the contents of the bottle. Fig. 3 is a similar view showing the cap elevated and the parts in position they take
30 when an attempt has been made to refill and the cartridge parts positioned so as to lock the valve closed. Fig. 4 is a detail perspective view of the cap-securing spider. Fig. 5 is a perspective view of the cartridge removed from the casing. Fig. 6 is a detail perspective view of the valve. Fig. 7 is a transverse section on the line 7—7 of Fig. 1. Fig. 8 is a transverse section on the line 8—8 of Fig. 1. Fig. 9 is a transverse section on the line 9—9 of Fig. 1. Fig. 10 is a vertical sectional view of the bottle-neck and a side view of the cap and its stud—the cap and stud being in the closed position. Fig. 11 is two edge views of the
35 valve,—each view showing the different appearance the valve has when turned one quarter revolution. Fig. 12 is a vertical section on the top part of the inner stopper-casing.

55 Referring to the drawings, 1, represents a bottle neck having a straight interior

throat; 2, represents the stopper-casing, which in practice is made of glass or other suitable material. The lower end of the casing, 2, is provided with an inwardly-
60 extending flange forming a central aperture or valve-port, 4, and having on its upper surface a valve-seat, 5, upon which an annular cork face, 6, rests. The valve, 7, is held in proper relation centrally within
65 the casing by radial lugs, 8, whose ends loosely contact with the sides of the casing and permit easy movement of the valve when released for pouring. As shown in Figs. 2 and 11 the valve is a thin disk, and
70 is slightly bent diametrically so that its upper surface is convex and its lower surface is concave; this particular construction insures that the valve will unseat and not stick fast when pressure is removed from
75 its top. The casing, 2, is provided with an exterior annular recess adjacent its bottom which has secured therein a cork packing, 10, which makes a tight fit with the interior throat of the bottle-neck, and above
80 this cork packing is arranged a cement filling, 11, which secures the casing permanently within the bottle neck. The upper rim of the casing as seen plainly in Fig. 12 is provided with an annular outward flange,
85 12, having a plural number of notches, 18¹, and the radial arms, 18, of a spider, 14, fit in said notches, and the downward fingers, 13, on the said arms are bent under said flange so as to secure this spider firmly in
90 position upon the casing, 2. It will be noted from an inspection of the drawing that it is impossible to turn the spider upon the casing or to get at the fingers which are embedded in the cement, 11.

95 The spider comprises a ring, 15, in which fits the central stud, 16, of the movable cap, 17, and the said radial arms, 18, project from said ring. The spaces between the radial arms permit the liquor or other contents of the bottle, when the cap has been raised, to flow out of the bottle. In the
100 ring, 15, are two vertical recesses, 19, in which lugs, 20, formed integrally on the cap-stud, 16, are adapted to seat when the cap
105 is in its down position. The cap and lugs are held in this down position by the spiral spring, 22, which surrounds the cap-stud, 16, and is arranged between the stationary ring, 15, of the spider and the enlarged
110 head, 23, formed on the lower end of the cap-stud.

When transporting a filled bottle, the cap, 17, is lowered as in Fig. 1. By raising the cap against the tension of the spring, 22, and then slightly turning the cap so that its lugs, 20, rest upon the ring, 15, of the spider, it will be seen that the cap will be held in elevated position and free of the operating cartridge, 25, as in Fig. 2. This cartridge, 25, comprises a cup-shaped casing inverted or open at the bottom, and with its interior cylindric as shown, and with its upper and lower ends provided with radial legs, 26, and, 27, which are adapted to hold the device in proper loose position within the stopper casing, 2. Near the upper legs, 26, the casing has one or more apertures, 28, through which liquid will pass to the inside of the cartridge case when any attempt is made to refill the bottle. The interior of the cartridge case is circular, and its top has a pendant pin or plug, 35.

A tablet, 32, is within the cartridge case, and is supported by a ring, 29, which is frictionally held within the cartridge case. A spiral spring, 34, is in this case and presses down on the tablet, 32. The cartridge case also contains a block, 36, of metal or other suitable material, which fits snugly but loosely; this block is approximately round but has an irregular shape as shown by the point, 37, in Fig. 9 and the block will enter the cartridge case only when this point is coincident with a corresponding notch in the case. A thin metal disk, 38, is in this case below the block, 36, and some wax, 39, below the disk closes the lower end of the cartridge case.

In assembling the parts composing the cartridge the spiral spring, 34, is first placed within the case, being entered at the open bottom with one end of the spring around the pin or plug, 35; the tablet, 32, is then entered into the case and is pressed against the lower end of the spiral spring causing the latter to be compressed; the ring, 29, is next placed in and this ring supports the tablet. As already mentioned this ring is held in position by tight fit, or frictional contact with the inner wall of the case. The block, 36, is next placed within the case in contact with the ring—in this instance the irregularity of shape of the block from a true cylinder consists of a point, 37, which must coincide with a corresponding notch or groove in the wall of the case in order to permit the block to enter the case. The thin disk, 38, may then be entered below the block, and finally the wax, 39, is pressed into lower end of the cartridge case. The wax serves to seal the bottom entrance to the cartridge case and prevents any liquid from entering the case at that point; the wax however, does not harden to such a degree as to resist the expanding effect of the spring, 34, which presses down when the

dissolution of the tablet has taken place. The thin disk, 38, keeps the wax from the block.

The tablet, 32, which I use in the cartridge, 25, is composed of material whose parts will readily disintegrate but not dissolve in the liquid forming the contents of the bottle, and as this device is primarily constructed for the purpose of protecting manufacturers of distilled and other liquors, the tablets are readily softened and disintegrated in whisky or like liquids. The difficulty experienced heretofore in the use of tablets has been due to the fact that they were purely mutable and therefore subject to the action of atmospheric and other humid conditions, whether caused by the outside atmosphere or the fumes from the liquors. The tablet however, which I am using herein is what may conveniently be termed a normally immutable tablet. By the use of these words normally immutable, I do not wish to be understood that the tablet is unchangeable but that it is unchangeable by atmospheric or local conditions within the bottle-neck, and only disintegrated but not dissolvable in the liquor with which an attempt is being made to fraudulently refill the bottle, whether that be alcoholic or otherwise. I shall use the term normally immutable in some of the claims appended hereto with the definition here given.

The operation of this device is as follows,—When the bottle is originally filled with liquid the neck of the bottle is open or free of the improved device. After the bottle has been filled the complete device, with all the parts properly assembled, and with cement in plastic condition around the casing, 2, is inserted into the bottle-neck, 1, and the cement is allowed to harden; in this way the bottle-stopper is secured in its position within the bottle-neck. When transporting the filled bottles, the cap, 17, should be down in the position seen in Fig. 1; the pressure of the spring, 22, holds the parts in this down or closed position. When it is desired to discharge some of the liquid from the bottle for use, the cap, 17, should be raised to free the lugs, 20, from the recesses, 19, in the spider ring, and then a slight turn given to the cap will cause the said lugs to rest on the said ring and thereby the cap will be retained in the raised position as shown in Fig. 2. By this movement the pressure of the spring, 22, will be removed and the cartridge case, 25, will be free and the valve, 7, will also be free to unseat from the port, 4. The concave-convex shape of the valve, 7, see Figs. 2 and 11, facilitates this unseating of the valve. Now to turn the liquid out from the bottle, it only remains to tilt or cant the bottle sufficiently and by so doing the cartridge, 25, and all of its parts will slide forward until

the top of the cartridge abuts against the head, 23, on the lower end of the cap-stud, as in Fig. 3, and give ample room for the valve, 7, to open and the liquid to discharge.

After a bottle has been emptied of its original contents the construction of this improved stopper is such as to prevent the refilling of the same, and the operation by which this desirable result is secured will now be explained.

Numerous experiments and tests have been made with this device and other prior devices, for the purpose of refilling a bottle, and the experience thus obtained has demonstrated that the degree of likelihood of successfully refilling, or partly refilling, a bottle, is greatest if the empty bottle with the non-refillable stopper in it, be completely submerged in a vessel containing the liquid that is desired to be filled into the bottle. For this reason the operation of a device made in accordance with this invention, will be described when an attempt to refill is made by the "submerging" method just mentioned.

An empty bottle having its cap, 17, raised, and the bottle tilted so as to cause the cartridge, 25, to slide forward and remove all pressure from the valve, 7, which, being so relieved, will unseat and partly open the port, 4; under these conditions which are favorable to filling the bottle, the latter in a horizontal position is completely submerged in the liquid contained in a vessel. The liquid enters the bottle neck through the spaces between the radial arms, 18, of the spider and fills the chamber within the casing, 2, and the liquid also enters through the apertures, 28, into the cartridge case, 25.

Experiment shows that with the bottle horizontal the valve, 7, being unseated will usually allow a small quantity of liquid to enter the bottle, but as the valve is very light and is free to move, it will automatically seat and close the port, 4; then being closed the slight pressure of the liquid into which the bottle is submerged, will keep the valve seated, and no more liquid will enter the bottle. The liquid that entered through the apertures, 28, has access to the tablet, 32, and at once begins to soften the tablet; in a very short period of time this liquid has so affected the tablet, that the pressure of the spring, 34, will push the block, 36, and cause the wax seal, 39, to break and the block to escape entirely from the cartridge chamber; the moment the block, 36, leaves the cartridge (the bottle still resting horizontally) the function of the spring, 34, ceases and the weight of said block will cause it to slide or drop in the space between the bottom of the cartridge case, 25, and the valve, 7, as in Fig. 3. Thus the block, 36, takes position between the cartridge case and the valve, 7,

and confines the valve to its seat, and thereby the entrance of any more liquid into the bottle is prevented. The block, 36, after being ejected from the chamber is prevented from getting back into the chamber by its irregular shape, such as the point, 37.

It will be seen from this description that the block, 36, and its mode of operation serve very important purposes, and this is one of the features that are believed to be new.

The tablet, 32, is made of clay that has been refined to remove extraneous substances, and said clay is compressed into the form of a tablet.

What I claim and desire to secure by Letters Patent is,—

1. In a non-refillable bottle stopper, the combination of a valve-seat; a valve; a cap having a downward-projecting stud and capable of vertical movement; a spring to depress the cap and stud; an independently-movable case, 25, between the valve and said stud and which bridges the space between said valve and stud when the latter is depressed; a block, 36, within said case, and means also within said case which will eject the block downwardly when the case is in raised position and liquid enters the case.

2. A bottle having in its neck a casing provided with a valve-seat; a valve normally resting upon the seat; a cap member having a downward-projecting stud; a cartridge freely mounted in the casing and unconnected relative to said cap-member and adapted to co-act with the cap member to hold the valve upon its seat—said cartridge comprising a case having an aperture, 28; a frictional retaining device, 29, mounted in the case; a valve-engaging member, 36, within the case; a normally immutable tablet, 32, but which disintegrates in alcoholic liquor and supported by the said frictional retaining device, and an expansible means, 34, in the case adapted to act to expel from the case the said valve-engaging member upon disintegration of the said tablet.

3. A cartridge for non-refillable bottle stoppers, comprising a case having an aperture, 28, to permit the inlet of liquid and provided with legs projecting radially from the case at the top and bottom thereof,—a normally immutable tablet mounted in the case and adapted to automatically disintegrate but not dissolve when in contact with liquor, and a block, 36, loose in the case and to be ejected therefrom when the said normally immutable tablet disintegrates.

4. The herein-described cartridge for non-refillable bottle stoppers, comprising a case having an aperture, 28, for inlet of liquid; a ring frictionally held in the case; a normally immutable tablet which disintegrates in alcoholic liquors and is normally supported by the said ring; an expansible mem-

ber, 34, in the case; a block, 36, loose in the case below the said tablet,—the said parts being arranged so that the expansible member will eject the block when the normally
5 immutable tablet disintegrates.

5. In a bottle-stopper the combination with a valve-seat; a valve resting thereon; a cap-member at the top of the bottle mouth; resilient means normally acting to hold said
10 cap-member in depressed position; a freely mounted cartridge case which bridges the space between the said valve and cap-member when the latter is depressed and at such time serving to hold the valve on its seat;
15 and a block within the bottom of the cartridge case and to be ejected therefrom and then serving to hold the valve to its seat when the cap-member has been elevated and an attempt is made to refill the bottle.

6. In a non-refillable bottle, the combination of a casing in the bottle-neck and having a valve-seat; a valve; a movable case, 25, above the valve serving when the case is down to hold the valve to its seat; said case having a circular interior provided with a notch and open at its bottom; a block fitting within said case loosely and provided with a point that engages said notch and which
25 when ejected from the end of the case will take position between the open bottom of the case and said valve and thereby hold the valve to its seat.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN L. SELLAR.

Witnesses:

G. FERD. VOGT.

CHAS. B. MANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."