C. H. DAVIDS.

COMBINATION OF A CONTAINER AND A PHOTOGRAPHIC RECORDING LABEL.

APPLICATION FILED OCT. 4, 1907.

1,095,313.

Patented May 5, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

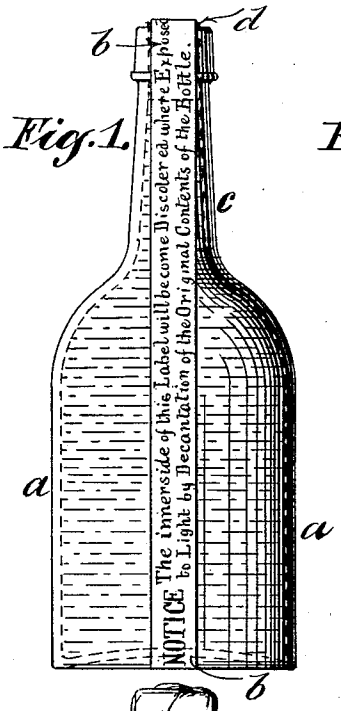


Fig. 2.

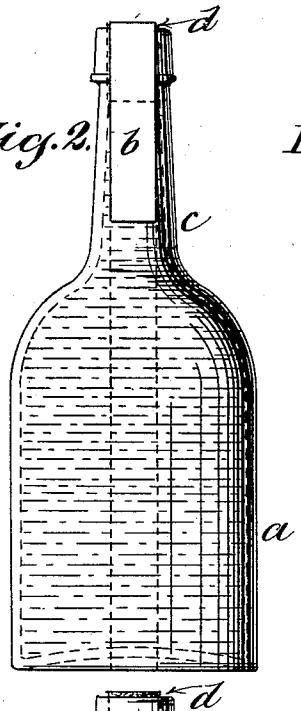


Fig. 3.

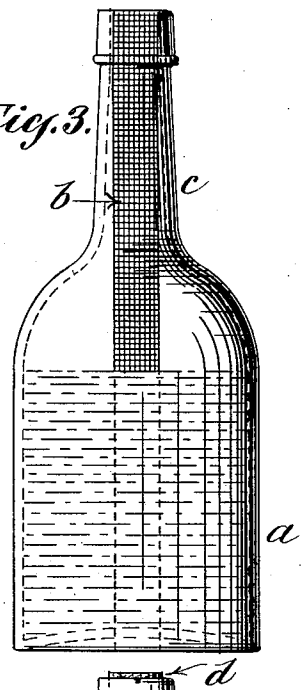


Fig. 4.

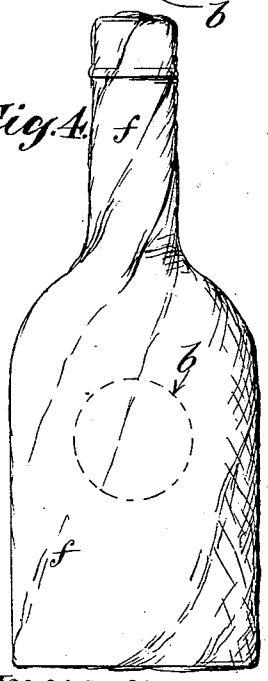


Fig. 5.

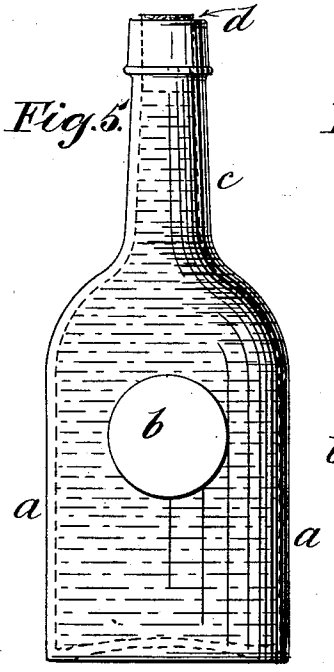
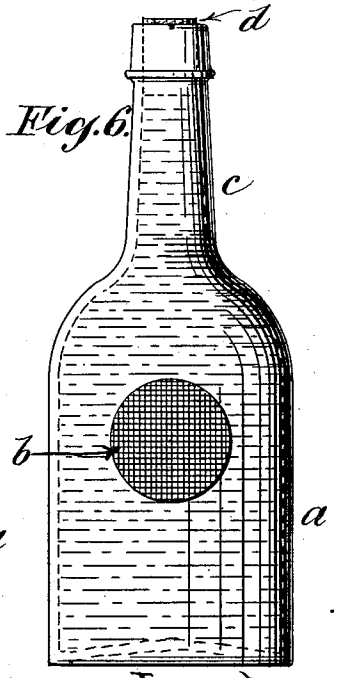


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

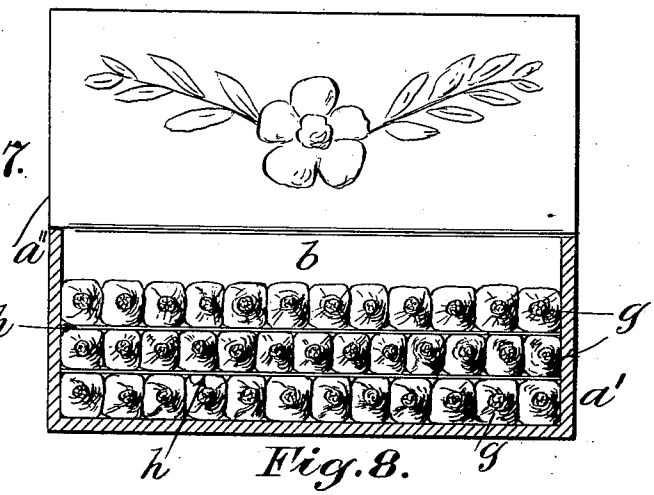


Fig. 8.

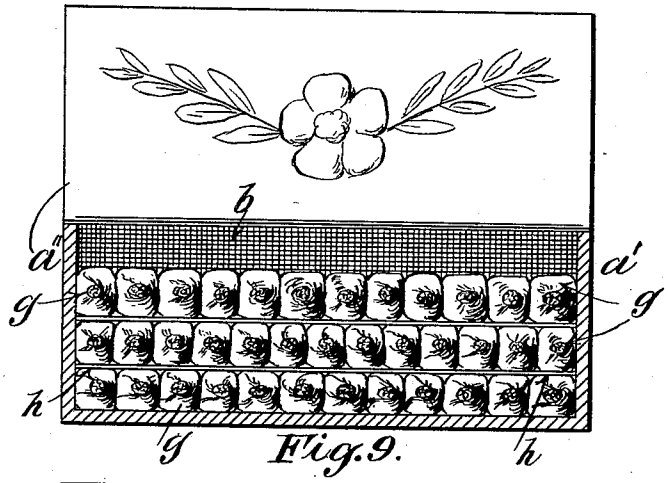
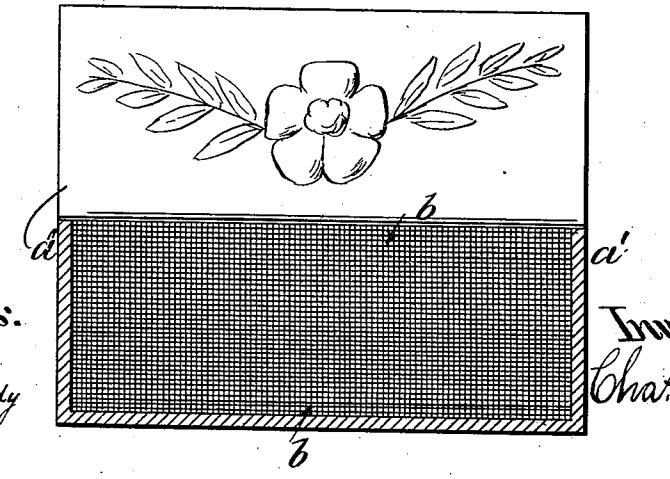


Fig. 9.



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UNITED STATES PATENT OFFICE.

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COMBINATION OF A CONTAINER AND A PHOTOGRAPHIC RECORDING-LABEL.

1,095,313. Specification of Letters Patent. Patented May 5, 1914.

Application filed October 4, 1907. Serial No. 395,980.

To all whom it may concern:

Be it known that I, CHARLES H. DAVIDS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in a Combination of a Container and a Photographic Recording-Label, of which the following is a specification.

My present invention pertains to means for preventing the undetectably fraudulent refilling of bottles, boxes or other containers of goods, if all or any part of the original contents of said containers have once been removed from the latter.

The invention comprises the combination of a suitable container with means for photographically recording the removal therefrom of the original contents thereof; the means herein shown and described for that purpose being hereinafter termed a "recording label."

In the drawing, Figure 1 is an elevation of a container which is sufficiently transparent to transmit actinic rays of light; is filled with a liquid and has a recording label fixed upon it; Fig. 2 is a similar view of the reverse side of the same container and the same recording label; the latter being shown through the container and its contents; Fig. 3 is a view, similar to Fig. 2, of the same container after its contents have been partially decanted; part of the label being shown above the level of the remaining contents of the container, and part of the label being shown below said contents; Fig. 4 is an elevation of a container which is inclosed in a wrapper; Fig. 5 is an elevation of said container with the wrapper removed; a photographic recording label being shown as fixed upon the container and as said label appears before becoming discolored; Fig. 6 is similar to Fig. 5, except that the recording label is shown as it appears after it becomes discolored; Fig. 7 is a front elevation of an operculate container, herein shown as a box which contains cigars; the front wall of the box being removed; a recording label being shown at the inside of the rear wall of the box and before any part of said label has become discolored; Fig. 8 is similar to Fig. 7, except that the part of the recording label which is shown has become discolored, and Fig. 9 is similar to Fig. 8, except that the box is shown as empty and that the whole of the recording label is shown as it appears after becoming discolored.

Reference characters are alike throughout the drawings.

A container, shown herein as a bottle *a* which is sufficiently transparent to transmit actinic rays of light and is filled, may have affixed thereon a label *b* which may be made of any suitable material and may be made to automatically record, according to the purpose for which it is intended to be used, by being photographically sensitized in such a manner that either the whole of it or, preferably, the inner side thereof, will change its color if, under the particular conditions which attend the specific use thereof, it be subjected to the action of light. The label *b*, if used as shown, may be lettered to indicate the object of its use; for instance, like the one shown in Fig. 1; and it may extend from the base of the bottle *a*, upwardly to and along the neck *c* of the latter, across a cork *d* and thence downwardly to the neck *c*. It is not necessary that the label *b* should be photographically sensitized throughout its entire length; though this may be done for the purpose of comparing the colors upon its inner surface, according to the operation of this invention; but so much of the label should be sensitized as will extend from the base of the container to the surface of the contents *e* of the latter when it is filled as full as may be required in the first instance.

Figs. 4, 5 and 6 illustrate another method of use of my invention. In this instance, a photographic recording label *b* is shown attached to a container *a*, the photosensitized side of said label being outward and discoloration thereof being prevented by a wrapper *f*, which is non-permeable by light-rays which are actinic to the photosensitizer which is the functional element in the combination shown and described.

Figs. 7, 8 and 9 illustrate still another method of use of my invention. In this instance, a photographic recording label is shown attached to the inside of the rear wall of an operculate container *a'*; the latter being shown, in this instance, as a box *a'* which has a lid *a''* and contains cigars *g*; the latter being shown as arranged in layers which are separated, one from another, by sheets *h* of paper or other suitable tissue.

If preferred, a suitable label may be secured to a container by a paste which con-

tains a suitable photosensitizer; or the photosensitizer may be applied directly to the surface of the bottle and be protected there by any suitable coating or cover, be it a label or what-not; but said coating or cover whatever its texture, substance or thickness may be, should, preferably, be opaque to the particular rays of light which would be actinic to the sensitizer used so as to prevent the transmssion of said rays to the sensitizer. Howbeit, whatever the form of the photosensitized material may be, or whatever means may be used to photographically record the removal of all or any part of the contents of a container, it is intended that the term "photographic recording label," as used herein, shall be understood to refer and apply thereto.

The generic basis of this invention is the tendency of some substances to change their color when exposed to certain particular rays of light; the photochemical action which is thus effected causing said substances, in some instances, to become more or less decolorate, and, in other instances, to become more or less discolorate. The operation of my invention correlates said generic basis. For instance, if opaque paper be coated with an emulsion which contains a solution of a salt which is photo-chemically acted upon by the violet rays of light, such, for instance, as the nitrate of silver, and the paper be applied as a label to one side of a transparent bottle, with the sensitized side of the paper next to said bottle, and the latter be filled with a liquid, which is opaque to violet rays, then the photographically sensitive inner side of the label could not become discolorate behind the contents of the bottle, as said contents would intercept the violet rays which only would be actinic upon the photosensitized inner side of the label; but, if some or all of the contents of the bottle be removed therefrom and light be thereby admitted directly to all or a part of said inner side of the label, then, the violet rays being no longer excluded therefrom, as before, the light will actinically act upon and discolor a part or all of said inner side of the label in due proportion with the amount of the contents which has been removed from the bottle.

The label *b* must be photosensitized upon its exposable surface, whether the exposure be directly outward or through other substances; such, for instance, as glass; whether such exposure be caused by the removal of goods from the inside of a container, or of a wrapper from the outside thereof. In the one case the goods, and in the other case the wrapper, constitute removable means which are arranged to prevent the admission of light to the label *b*; said removable means being opaque to the light-rays which are actinic to the photosensitizer used on, or as, such label. When, and as far as, the removable means are removed from and expose the label *b*, the color of the photosensitized exposed side of the label is changed by the action of the actinic light-rays which are then admitted to the latter.

The operation of my invention is, therefore, substantially as follows; a container, substantially such as shown, and bearing a photosensitized label, may, in some instances, be operculate, in some instances, be inclosed in a wrapper *f*, and, in some instances, be provided with sheets *h*. In any case the container will be provided with removable means for obstructing the passage of light; the wrapper *f* being such in the first instances and the contents of the containers, either with or without the sheets *h*, being such in the other instances shown and described. It should be noted that, while the opening of the lid *a''* admits light to the interior of said container, nevertheless only because of the removal of said removable means can light be admitted in any instance to the labed *b* and the latter become discolored. Therefore, upon removal of said removable means for obstructing the passage of light, the light will so act upon the then exposed surface of said label *b* as to cause the color of the latter to change. In some instances, therefore, the removal of the original wrapper *f* will be attested by the change of color of the exposable side of the label *b*, while, in other instances, the removal of the original contents of the containers will be attested in the same manner. The function of the sheets *h* is to cause the line of demarcation between the decolorate and discolorate parts of the label *b* to be more sharply defined than would otherwise be the case were the passage of light obstructed only by goods, such as cigars, which do not closely contact one another throughout their whole lengths, and, therefore, do not wholly obstruct the passage of light to the label *b*.

A function of the lid *a''* is to prevent the continuous admission of light to the interior of the container *a'*, and thus prevent discoloration of the label *b* below the surface of the contents *g*, or of the sheets *h*, if either or both of said elements be of such dimensions as to fail to effectually prevent continuously-admitted light from penetrating below said surface.

I claim as new and as my invention.

1. A container and a photographic recording label which is applied thereto.

2. A container; a photographic recording label which is applied thereto; and removable contents of the container which are opaque to rays of light which are actinic to the sensitizer which makes the label photographic.

3. A container; and a recording label

which is applied thereto and is photographically sensitized upon its inner face.

4. A container which is sufficiently transparent to transmit actinic rays of light; a recording label which is applied thereto and is photographically sensitized upon its inner face; and removable contents of the container which are opaque to rays of light which are actinic to the sensitizer which makes the label photographic.

5. A container; removable contents of said container; and a photographic recording label applied to the container and operating to automatically record the removal of the contents from the container.

6. A container which is sufficiently transparent to transmit actinic rays of light; removable contents of the container which are opaque to said rays; and a photographic recording label applied to the container and operating to automatically record the removal of the contents from the container.

7. A container; contents thereof which are opaque to rays of light which are actinic to certain photographic recording means; and said recording means, applied to the container and operating to automatically record the removal of the contents from the container.

8. A container; a recording label which is photographically sensitized on its exposable surface and is fixed upon the container; and removable means which are arranged to prevent the admission of light to the exposable surface of the label.

9. The combination of a vessel and a body of material that changes on exposure to light and adjusted with reference to the vessel to be masked from light action by substance in the vessel and to be exposed to light action on reduction of such substance, and thereby to register such reduction.

10. The combination of a vessel and a body of material containing a silver compound that changes on exposure to light action and adjusted with reference to the vessel to be masked from light action by light-absorbing substance in the vessel and to be exposed to light action on reduction of such substance and thereby to register the reduction.

11. A container, means associated with the container changeable in color by the action of light in such relation to the contents of the container that diminution of the said contents exposes the said means to the action of light.

12. An article of the character described comprising a vessel and a piece of material sensitive to light secured thereto so as to be protected by the contents of the vessel from light to which it is sensitive.

13. An article of the character described comprising a translucent vessel and a piece of material sensitive to light which passes through said vessel, the said piece of material being secured to the vessel so as to be protected by the contents of the vessel from the said light.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHAS. H. DAVIDS.

Witnesses:
HENRY D. SOMERVILLE,
HUGH H. KENNEDY.

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