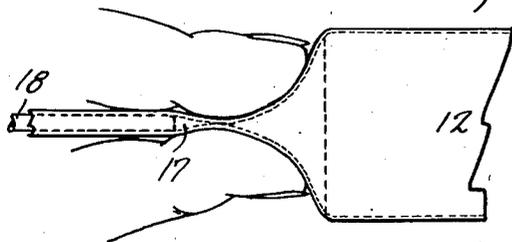
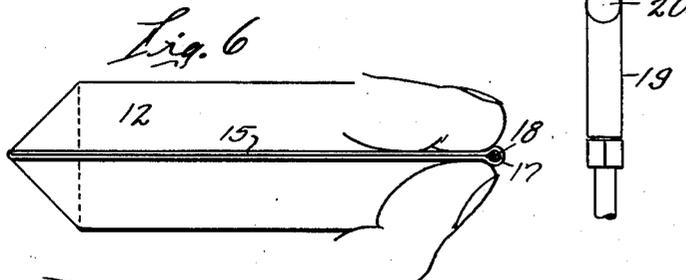
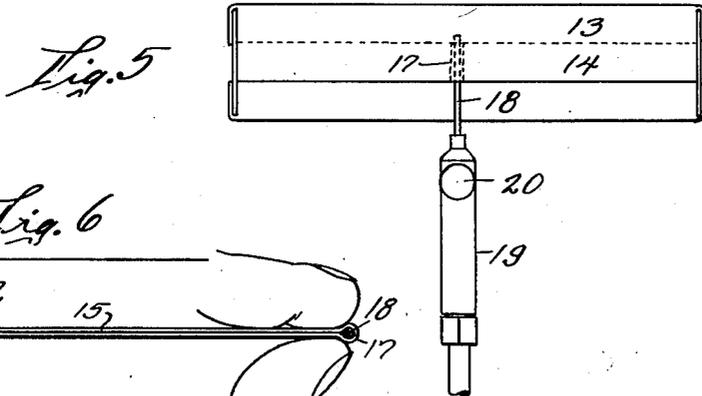
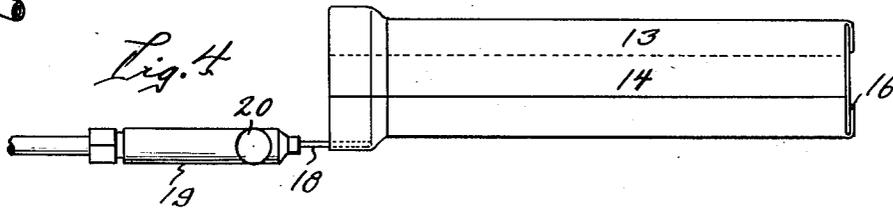
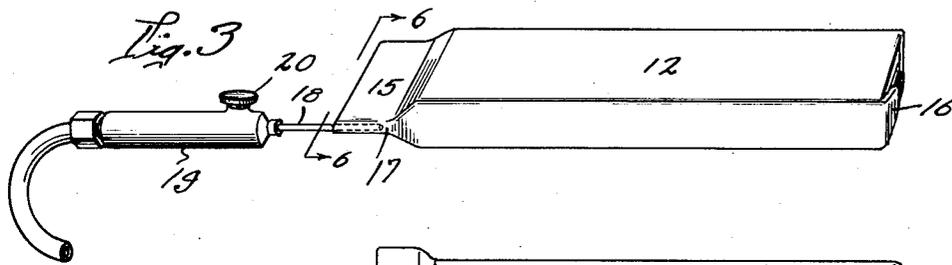
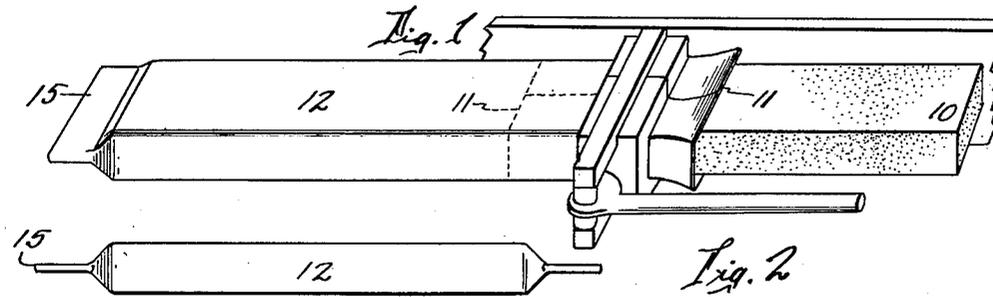


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F. RIEBEL, JR
METHOD OF PACKAGING
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Inventor
Frederick Riebel, Jr.
By
Lynn H. Latta
Attorney

UNITED STATES PATENT OFFICE

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METHOD OF PACKAGING

Frederick Riebel, Jr., Toledo, Ohio, assignor to
Air-Way Electric Appliance Corporation, To-
ledo, Ohio, a corporation of Delaware

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11 Claims. (Cl. 226—2)

This invention relates to the manufacture of a floor wax package in the form of a bar of wax encased in a liquid-tight, sealed container of "cellophane", for use in a particular type of wax applicator which applies pressure to the container to extrude the wax through a slit in the side of the container, formed by cutting the container after it has been inserted in the applicator.

By first congealing the wax, it may be placed in its container and the latter sealed in place, without being deformed by the handling. But it has been found that a package thus formed will often bloat when the wax returns to normal temperature, and become unfit for shipment. A package with rounded, bloated sides, is difficult to pack into cartons, and is subject to the constant danger of the container becoming ruptured and thus unfit for subsequent use in the type of applicator mentioned.

The present invention solves this problem by the partial evacuation of the air within the container, whereby the container will be intimately pressed against the entire outer surface of the body of wax, by the pressure of air against the exterior of the container, and sealing the container in that state. Thus such space as would normally exist between the surface of the wax and the container, by virtue of a certain small amount of necessary looseness of the container around the bar, will not be filled with air while the bar is cold, but will remain available for accommodation of such air as may be occluded in the body of wax, when the latter expands under the rise in temperature.

By virtue of the tendency of the container walls to pull away from the surface of the bar, the pressure of the air remaining in the wax will be somewhat less than atmospheric pressure, and the evacuation may be carried to the extent of a material reduction in the internal pressure below external pressure, thereby allowing the air in the wax to expand materially without equalizing with the outside pressure. Thus the package may be formed so that the container will remain intimately associated with the body of wax and thereby supported against breaking or tearing, until it is punctured for use.

The invention further relates to the packaging of any material for which a sealed container of flexible material of the type requiring adhesive sealing, is desirable, and aims, in this general field, to provide a method of simultaneously evacuating and sealing, i. e., sealing the container while suction is still being applied thereto, to

avoid re-entrance of air into the container at the termination of the evacuating step.

The invention also has as its object to provide a simple but effective method of applying suction to any container of the type above mentioned. Briefly, the invention in this respect contemplates the application of suction through a slender, hollow needle, inserted between opposed surfaces of overlying wall portions that are to be adhesively joined.

With these and other objects in view my invention consists in the combination and construction and arrangement of the various parts thereof, whereby the objects contemplated are attained, as more fully set forth in the accompanying specifications, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Fig. 1 is a perspective view illustrating the step of placing the bar of wax into an open ended seamless tubular type of wrapper or container suitable for the desired end.

Fig. 2 is a perspective view showing a subsequent step of sealing the container around the bar.

Fig. 3 is a perspective view illustrating the subsequent step of evacuation.

Fig. 4 is a view of a step similar to Fig. 3, a slightly modified form of wrapper being disclosed.

Fig. 5 is a view of the same step in connection with a further modified form of wrapper.

Fig. 6 is an end sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is a side elevation of the bar illustrating the step of conforming the wrapper to the surface of the bar at the end thereof.

The bar of wax 10, after having been congealed and formed to the desired shape, is slid endwise into a seamless tube container 12 of tough, flexible, impervious material such as "cellophane", or is wrapped in a rectangular sheet 13 of such material as shown in Fig. 6 and sealed along a longitudinal seam 14 to form an open ended tube.

To protect the inner surface of the end portion of the tube 12 from contact with the wax, the bar is slid through a thin sleeve 11, which is withdrawn after the bar is properly positioned in the tube.

One end of the tube is then sealed by inserting either an adhesive or a liquid which will cause the surfaces of the material to weld together, between the adjacent faces of the opposite wall portions of the projecting ends 15 of the tube as shown particularly in Fig. 2. If desired, one end

may be thus sealed prior to the insertion of the bar 10 as shown in Fig. 1.

One of the flat projecting ends of the container is thence folded up snugly against the end of the bar as at 16 in Fig. 3, and cemented in that position. The opposed faces of the wall portions of the other end of the container are then spread with the adhesive. A passage 17 of limited area provides communication between the exterior atmosphere and the interior of the container at this end of the container, and is preferably formed by omitting to close together the wall portions forming said passage.

A hollow needle 18 forms the working nozzle of a suction tool 19 having a hand control valve 20. The suction needle 18 is first brushed with adhesive, and thence is inserted through the restricted passage 17 and the valve 20 is opened to exert suction against the interior of the container. The opposed walls of the projecting end portion of the container are drawn snugly about the nozzle 18, to seal the needle in the passage 17. (Fig. 6).

As free air in the spaces between the container and the bar is withdrawn, the container walls will collapse tightly against the bar, and gases occluded in the bar itself will be partially drawn off. The fingers of the operator may be employed as shown in Fig. 6 to press in the end portion of the wrapper against the end of the bar.

Suction is applied for a predetermined length of time, and the needle is thence withdrawn slowly, the operator firmly pressing the container walls together behind the point of the needle, (Fig. 7) and the passage 17 being thus sealed by the adhesive that is transferred from the surface of the needle, or by adhesive applied to the walls prior to the entry of the needle, or by both. The suction will aid in drawing the walls of the passage tightly together. This method of sealing is made possible by applying the suction between adjacent overlying wall portions.

I have found that the foregoing process effectively solves the problem of bloating of a package of this kind. The atmosphere within the container is rarified so that a differential in pressure between the interior of the container and the exterior atmosphere will be set up. This rarification may be carried to such an extent that expansion of the remaining occluded gases will not be sufficient to more than offset the pressure differential. As long as the pressure within the container can be kept below or at the level of atmospheric pressure, there will not be the slightest tendency of the container to swell, and a very neat rectangular package with flat sides, can thus be produced.

The importance of guarding against bloating will be realized when it is considered that such packages will be shipped in cartons each containing a large number of the packages closely packed therein in face to face contact.

As shown in Fig. 4, the container may be formed of a flat sheet of material folded over the bar and joined along the longitudinal seam 14, thence sealed at the ends as hereinbefore described.

A variation in the step of evacuating is that shown in Fig. 5 wherein the passage 17, instead of being formed between opposed faces of projecting end faces of the wrapper, is formed between overlapping side portions of the wrapper, in the longitudinal seam 14.

The evacuation through a passage formed between adjacent overlying wall portions has not only the advantage of facilitating sealing at the

termination of the suction step, and while suction is still being applied, but also facilitates the sealing of the needle in the container during the evacuation step.

I claim as my invention:

1. The method of encasing a body of plastic polishing wax in a container of flexible, impervious material, comprising: adhesively sealing the container around the body except for an opening of limited size, thence applying suction to the container through said opening, until the container walls are collapsed tightly against the body, and thence sealing said opening before air can re-enter the container.

2. The method of packaging a body of plastic polishing wax, comprising: providing a preformed body of the desired shape and dimensions at a low temperature at which the wax may be handled without deformation of the body, thence adhesively sealing a container of flexible, impervious material, around the body except for an opening of limited size, thence applying suction to the container through said opening, until the container walls are collapsed tightly against the body, and thence sealing said opening before air can re-enter the container, all prior to the return of the bar to normal temperature.

3. The method of packaging a body of material containing occluded gases, at a low temperature, in a container of flexible, non-pervious material, comprising: sealing the casing around the body except for an opening of limited size, thence withdrawing gases from the container through said opening to reduce the pressure in the container to a point below atmospheric pressure, and thence sealing the said opening before gases can re-enter the container.

4. The method of packaging a body of material containing occluded gases, at a low temperature, in a container of flexible, non-pervious material, comprising: sealing the casing around the body except for an opening of limited size, thence withdrawing gases from the container through said opening until the pressure of gases remaining in the container is sufficiently less than atmospheric pressure so that subsequent expansion upon return to normal temperature, will not be sufficient to cause said internal pressure to exceed atmospheric pressure, and thence sealing the said opening before gases can re-enter the container.

5. The method of packaging a body of material containing occluded gases, at a low temperature, in a container of flexible, non-pervious material, comprising: sealing the casing around the body except for an opening of limited size, thence withdrawing gases from the container through said opening until the pressure of gases remaining in the container is sufficiently less than atmospheric pressure so that subsequent expansion upon return to normal temperature, will not be sufficient to cause said internal pressure to equal atmospheric pressure, and thence sealing the said opening before gases can re-enter the container.

6. The method of encasing a bar of material containing occluded gases in an adhesively sealed container of flexible, impervious material comprising: adhesively sealing the container around the bar except for a passage of limited area lying between adjacent face to face wall portions of the container, withdrawing gases from the container through said passage, and thence sealing said adjacent wall portions to close said passage before gases can re-enter the container there-through.

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7. The method of encasing a body in an adhesively sealed container of flexible, impervious material comprising: adhesively sealing the container around the body except for a passage of limited area lying between adjacent face to face wall portions of the container, withdrawing gases from the container through said passage, and thence sealing said adjacent wall portions to close said passage before gases can re-enter the container therethrough.

8. The method of encasing a body in an adhesively sealed container of "cellophane", comprising: adhesively sealing the container around the bar except for a passage of limited area lying between adjacent face to face wall portions of the container, withdrawing gases from the container through said passage, and thence sealing said adjacent wall portions to close said passage before gases can re-enter the container therethrough.

9. The method of encasing a bar of plastic polishing wax in an adhesively sealed container of flexible, impervious material, comprising: adhesively sealing the container around the bar except for a passage of limited area lying between adjacent face to face wall portions of the container, withdrawing gases from the container through said passage, and thence sealing said

adjacent wall portions to close said passage before gases can re-enter the container therethrough.

10. The method of encasing a body in an adhesively sealed container of flexible, impervious material, comprising: adhesively sealing the container around the body to provide a tube one end of which projects and is sealed except for a passage of limited area lying between the walls of said projecting end, communicating with the interior of the casing and also with the exterior atmosphere, thence withdrawing gases from the container through said passage, and thence sealing the walls of said projecting end to close said passage before gases can re-enter the container.

11. The method of encasing a body in an adhesively sealed container of flexible, impervious material comprising: adhesively sealing the container around the body except for a passage of limited area lying between adjacent face to face wall portions of the container, withdrawing gases from the container through said passage, and thence sealing said adjacent wall portions to close said passage before gases can re-enter the container therethrough, while continuing to apply suction.

FREDERICK RIEBEL, JR.

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