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STRETCH-WRAP METHOD AND PRODUCT

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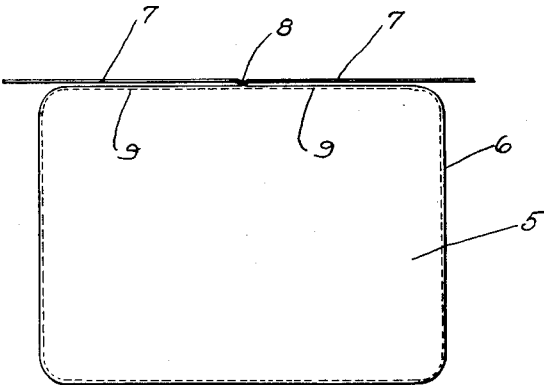


Fig 1

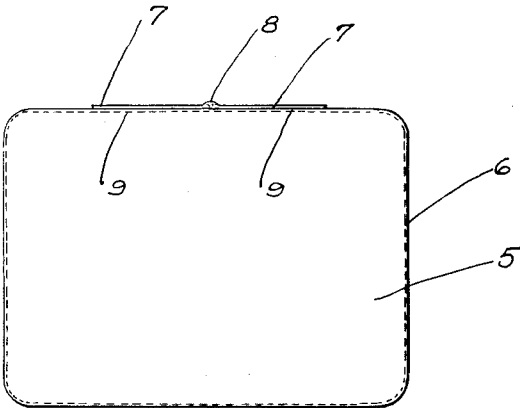


Fig 2

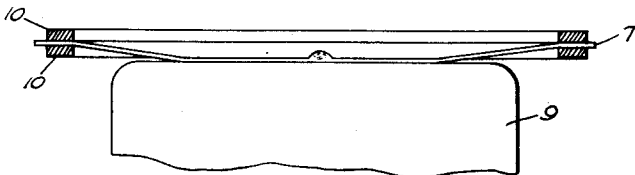


Fig 3

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STRETCH-WRAP METHOD AND PRODUCT

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2 Claims. (Cl. 18-56)

This invention relates to an improved method of stretch-wrapping and the resulting product. By stretch-wrapping is meant the process of heating a film of thermostretchable material and while holding the film taut, pressing the article to be wrapped into the film so as to stretch the film over the article. In the past it has been customary to finish the stretch-wrap operation by merely twisting the article and the film which covers it, and then relieving the tension from the film either by loosening the gripping means or by cutting the film between the twist and the gripping means.

According to this invention an improved seal is formed in the package made by the stretch-wrap method. After twisting the film to complete the inclosure of the article in the film, a portion of the film which extends beyond the twist is united to the film on the article in proximity to the twist thereby eliminating the possibility of the film becoming untwisted. The invention will be further described in connection with the accompanying drawing in which Fig. 1 shows a partially completed package, Fig. 2 shows the completed package, and Fig. 3 is a detail showing a stage of the packaging operation intermediate between that shown in Figs. 1 and 2.

Fig. 1 shows the article 5 wrapped in the film 6. The article has been wrapped by the stretch-wrap method. This figure shows the package just after the twist has been completed and while the portions 7, 7 of the film are still held taut by the gripping means. To wrap the article by the stretch-wrap method, a film of heat-sealable, thermostretchable material such as a sheet of Pliofilm rubber hydrochloride about .001 to .002 inch thick, plasticized or non-plasticized material, is gripped tightly on all sides in the plane occupied by the portions 7, 7 of the film shown in Fig. 1. After heating to the temperature at which the film is readily stretchable, (temperatures around 300° F. are satisfactory for rubber hydrochloride film) the article 5 is pushed from above down against the film and the film stretches and is forced into a cup shape, the bottom of the cup being against the bottom of the article 5 and the edges of the cup being held by the grips in the plane of the portions 7, 7 of the film. The article 5 is passed completely through the plane occupied by the film before stretching so that whereas prior to stretching the grips holding the film are in a plane below the bottom of the article, after stretching they are in a plane above the top of the article. In practice it will be usual to lower the article 5 to a distance

somewhat greater than that indicated in Fig. 1, and then after twisting return the article to the position shown in Fig. 1. By twisting, the film is brought together at the center of the top of the article and forms the twist 8. According to the methods now usually employed, the twist 8 is a large twist made by turning the article through several complete revolutions. Even so the twist is apt to become undone on standing.

An alternative method is to push the article up through the hot film. Or the film may be held vertically and the article pushed into the film from one side or the other.

According to the present invention only a small twist is required at 8, such as can be made by turning the article through not more than one complete revolution. The portions 7, 7 of the film which extend beyond the twist are then united to the film 9 which covers the top of the article as shown in Fig. 2. If the film after completing the twist is still sufficiently hot to be sealed to the film covering the article merely by the application of pressure, all that is required is to press the film 7 against the film 9. If the film has become too cool to form such a seal, the film may be reheated by pressing against a hot plate or other suitable means. If a hot plate is employed it may be desirable to use a plate with a hole in it so that the twist 8 which is somewhat bulky will fit into the hole and not interfere with the formation of a tight seal between the films 7 and 9. The films 7 and 9 are preferably united before the tension on the film is released, as shown in Fig. 3, i. e., before the grips 10, 10 holding the film taut are opened to release the film. After uniting the portions 7, 7 of the film which are located beyond the twist, to the portions 9, 9 at the top of the article, or after partially uniting these portions of the film, the excess film, such as that held by the grips, is preferably cut away to improve the appearance of the package.

This present method of stretch-wrapping forms a twist which does not unwind as the twists formed by the previous method have been apt to do. Furthermore, in order to make a twist which would not unwind it was necessary previously to make a much larger twist than is now required. The large twist required placed an extra strain on the film at the top of the package and splitting of the film after cooling and aging was not uncommon. The thin film at the top of the package where splitting occurred by the previous method is now reinforced by the extra thickness of film 7 and the wrap is thus reinforced.

A further advantage, of course, lies in the fact that the seal cannot become untwisted.

Although the invention has been described more particularly in connection with the use of rubber hydrochloride film, films of other heat-sealable, thermostretchable materials may be used in carrying out the invention, such as films of cellulose esters, vinyl derivatives, etc., plasticized as necessary or desired. The film may be pigmented or dyed, although a transparent film is preferred.

I claim:

1. The improvement in the method of stretch-wrapping an article in heat-sealable thermostretchable film while the film is held by gripping mechanism which comprises twisting the article with respect to the gripping mechanism

while holding the film taut and on all sides of the resulting twist uniting by heat and pressure (1) the film surrounding the twist and covering the article with (2) the film surrounding the twist and held taut by the gripping mechanism.

2. In a package an article enclosed in a single sheet of heat-sealable thermostretchable film stretched over the package and brought together at a twist, and between that portion of the film which surrounds the twist and covers the article, and that portion which surrounds the twist but is on the opposite side of the twist from the first-mentioned portion, a union formed by coalescence of the two portions of the film material on all sides of the twist.

JAMES E. SNYDER.