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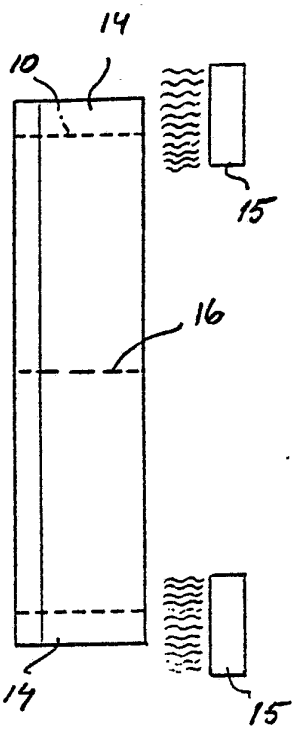
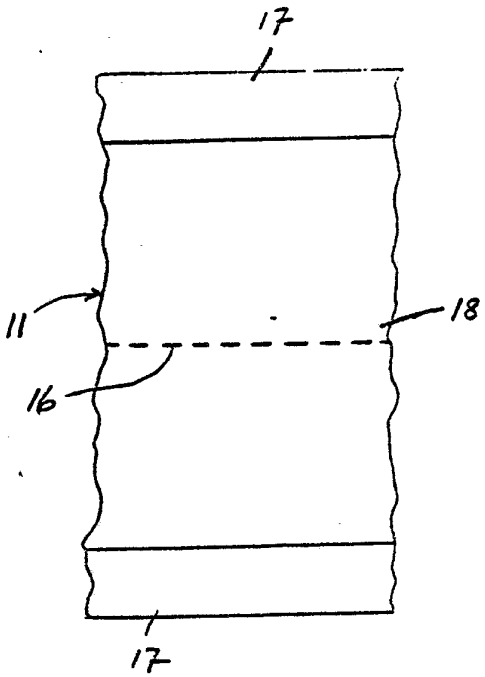
With international search report.

(54) Title: A METHOD IN PACKAGING COINS AND A FILM OF PLASTIC MATERIAL FOR PRACTISING THE METHOD

(57) Abstract

A method in packaging a solid cylindrical body (10) of coins which are arranged in axial alignment and face-to-face contact. An elongated strip (11) of a film of plastic material is wrapped about the body of coins, projecting with marginal edge portions (14) from each end of the body of coins. The film wrapped about the body of coins is heated in a local region at each end of the body of coins to contract onto the end portions of the body of coins. The invention also relates to a film of plastic material forming an elongated strip, for practising said method. The marginal edge portions (17) of the strip are more heat-absorbing than the intermediate portion (18) of the strip to absorb heat when the film is being heated, more rapidly than the intermediate portion to contact locally in said marginal portions.





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A METHOD IN PACKAGING COINS AND A FILM OF PLASTIC MATERIAL FOR PRACTISING THE METHOD

The present invention relates to a method in packaging coins and a film of plastic material for practising the method.

US-A-3,491,507 describes the use of heat-shrinkable material for packing coins, said material being wrapped about a solid cylindrical body of coins which are arranged in axial alignment and face-to-face contact. The heat-shrinkable material is heated over the entire length of the body of coins so as to shrink into firm engagement with the cylindrical surface of the body of coins. In a package obtained in this manner the heat-shrinkable material tends to break at the edges of the ends of the coin body and, moreover, it is difficult to apply a satisfactory print on the package e.g. in order to identify the denomination of the coins in the package or the bank or other monetary institution that has produced the package, because the print is distorted by the shrinking of the heat-shrinkable material. The package obtained is hard and rigid and is difficult to open.

The object of the invention is to provide a method in packaging coins, which substantially facilitates the packaging and at the same time overcomes the disadvantages mentioned above.

Additional objects and advantages of the invention in part will be set forth in the description which follows and in part will be obvious from the description, or may be learned by practice of the invention.

To achieve the foregoing objects and in accordance with the invention as embodied and broadly described herein the invention provides a method in packaging a solid cylindrical body of coins which are arranged in

axial alignment and face-to-face contact, by wrapping about the body of coins an elongated strip of a film of plastic material projecting with marginal edge portions from each end of the body of coins, characterized in that the film wrapped about the body of coins is heated in a local region at each end of the body of coins to contract onto the end portions of the body of coins.

The invention also provides a film of plastic material forming an elongated strip, for practising the method of the invention, which is characterized in that the marginal edge portions of the strip are more heat-absorbing than the intermediate portion of the strip to absorb heat when the film is being heated, more rapidly than the intermediate portion to contract locally in said marginal portions.

The accompanying drawings which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

Of the drawings:

FIG. 1 is a side view of a solid cylindrical body of coins in an initial step of the method of the invention,

FIG. 2 is a side view of a following step wherein the film is heated to contract locally at the edge of the coin body,

FIG. 3 is a perspective view of the completed package,

FIG. 4 is a plan view of a portion of an elongated strip of plastic film material of the invention,

FIG. 5 is an enlarged diagrammatic cross-sectional view of a laminated film which is printed, and

FIG. 6 is a diagrammatic view illustrating the

manufacture of a laminated film.

Reference will now be made in detail to the present preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings.

Referring to FIGS. 1 to 3, a solid cylindrical body 10 of coins arranged in axial alignment and face-to-face contact is enclosed to form a package by an elongated strip 11 of a film of plastic material being wrapped about the coin body. The film can consist of any of the conventional materials used for packaging films such as polyethylene or polypropylene. The wrapping is effected by the coin body being held between supports 12 and being rotated in the direction indicated by the arrow 13 while an elongated strip of said material and having a proper length is being wrapped about the coin body. The coin body should have such a width that marginal edge portions 14 thereof project from the edge of the coin body 10.

In the next step, disclosed in FIG. 2, regions of the elongated strip at the ends of the coin body, including the projecting marginal edge portions 15, are heated to a proper temperature in order to effect contraction of the film at said end portions. In FIG. 2 there are shown heating means 15 limiting the heating to the end portions, and such heating means can comprise electrical radiation heaters or nozzles for expelling hot air towards the end portions of the coin body. The coin body enclosed by the elongated strip wrapped about said body is being rotated during said heating. The result is shown in FIG. 3 according to which the marginal edge portions 15 by heating of the film have contracted over the end surfaces of the body of coins.

A print on the film, if any, will not be distorted when practising the method of the invention as described above, because that part of the package which is located

between the restricted end portions which are heated locally, will not be heated at all and therefore will not contract onto the body of coins.

The coin package thus obtained can be opened easily, the package at the same time being sufficiently safe so as to withstand the rough handling to which the package may be exposed during transport in a bag or a box. However, the package can be more easily opened by providing in the elongated strip of plastic film a central longitudinal perforation 16. Due to this perforation it will be easy to break the package centrally thereof, the enclosure being split at the perforation. Since the plastic film has not contracted onto the major part of the length of the coin body, the coins can be easily discharged from the two halves of the enclosure.

For practising the method of the invention as described above the invention provides a film of plastic material in the form of an elongated strip constructed in a special way as shown in FIG. 4.

The elongated strip shown in FIG. 4 can consist of any of the conventional plastic materials used for packaging purposes such as polyethylene or polypropylene. The marginal edge portions 17 thereof which in a typical embodiment can have a width of 5 to 7 mm are made more heat-absorbing than the intermediate portion 18, a heat-absorbing material being entrained into or applied to the marginal edge portions 17. Such heat-absorbing material can comprise e.g. a metal or metal-oxide pigment. In addition or as an alternative to such pigment, the marginal edge portions 17 can be made opaque e.g. by applying a dark (black) colour to said portions. The pigment can be applied e.g. by printing such pigment on the elongated strip. The intermediate portion 18 can be provided with the proper

print supplying desired information. The width of the marginal edge portions 17 is adjusted to the length of the body of coins such that these portions, when the elongated strip is arranged centrally on the coin body and is wrapped about said body, cover the uttermost end portions of the coin body and project from the ends thereof. Due to the fact that the marginal edge portions 17 are more heat-absorbing than the intermediate portion 18, said marginal edge portions will be heated more rapidly when the end portions of the film are heated locally, such that the film will contract locally more rapidly at the end portions while the intermediate portion 18 will be substantially unaffected by the heating. The marginal edge portions 17 will contract about the ends of the body of coins and will bend over the end surfaces of the coin body e.g. 3 to 5 mm as shown in FIG. 3. As soon as this has taken place the heat radiation can be discontinued with the intermediate portion 18 intact.

Preferably, the film of the elongated strip is transparent in order to eliminate the possibility of cheating by including in the package iron washers or an iron rod as a substitute for coins. The transparent package makes possible to check the contents of the package by ocular inspection of the contents of the package from the outside thereof without the necessity of breaking the package.

The film can be laminated in the manner shown in FIG. 5 an inner layer 19 being provided with a print indicated diagrammatically by lines 20, at one side thereof, and this side of the inner layer is covered by an outer layer 21 which accordingly must be transparent so as to allow reading of the printed information through said layer. Also the inner layer 19 preferably is transparent for the reasons mentioned

above, but is not necessarily of this character. The laminated film will be wrapped about the coin body with the layer 21 facing outwards, said layer protecting the print such that the print will not be damaged or erased.

The embodiment shown in FIG. 6 has been developed from that shown in FIG. 5. In the embodiment of FIG. 6 the two films forming the inner and outer layers 19 and 21, are put together while prestretching the film 19 such that the laminated film tends to curve as shown in FIG. 6. As a consequence thereof the elongated strip comprising such laminated film will curve about the body of coins when it is to be wrapped about said body such that the wrapping operation will be facilitated.

CLAIMS

1. Method in packaging a solid cylindrical body of coins which are arranged in axial alignment and face-to-face contact, by wrapping about the body of coins an elongated strip of a film of plastic material projecting with marginal edge portions from each end of the body of coins, c h a r a c t e r i z e d in that the film wrapped about the body of coins is heated in a local region at each end of the body of coins to contract onto the end portions of the body of coins.

2. Film of plastic material forming an elongated strip for packaging coins which are arranged in axial alignment and face-to-face contact, by wrapping the strip about the body of coins with marginal edge portions projecting from each end of the body of coins, c h a r a c t e r i z e d in that the marginal edge portions of the strip are more heat-absorbing than the intermediate portion of the strip to absorb heat when the film is being heated, more rapidly than the intermediate portion to contract locally in said marginal portions.

3. Film as claimed in claim 2 wherein the marginal edge portions are made more heat-absorbing by a heat-absorbing pigment being entrained into or applied to the film.

4. Film as claimed in claim 2 or 3 wherein a longitudinal perforation is arranged substantially centrally of the elongated strip.

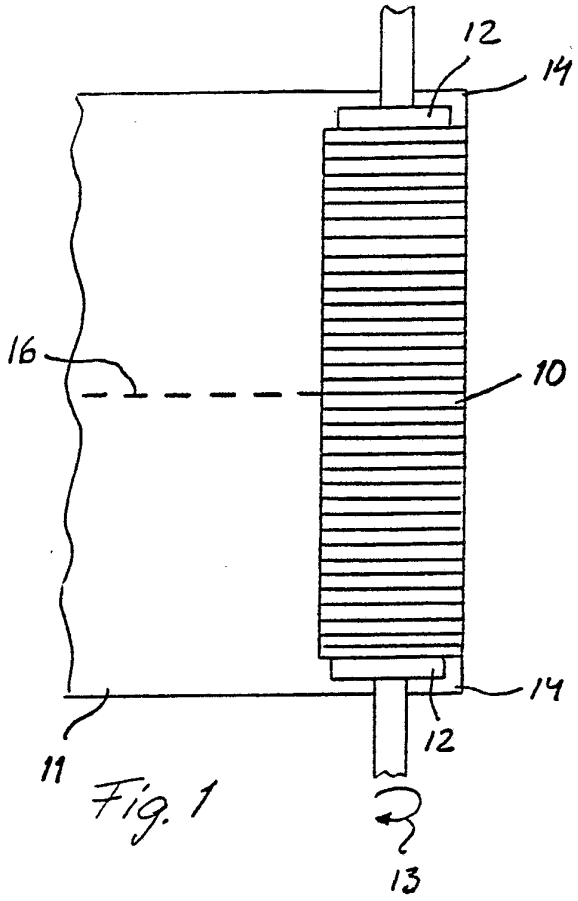

Fig. 1

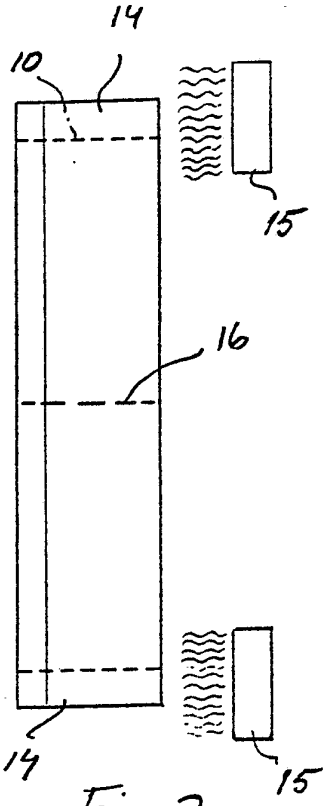

Fig. 2

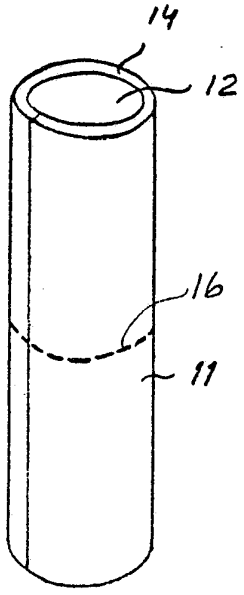

Fig. 3

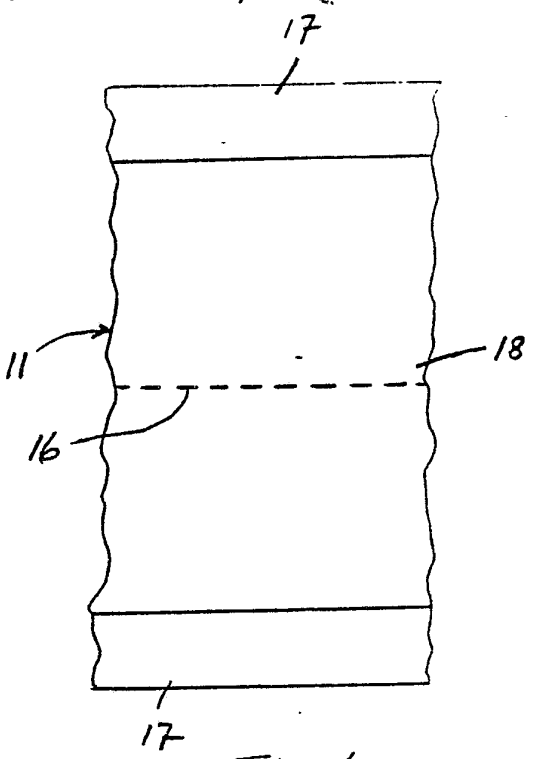

Fig. 4

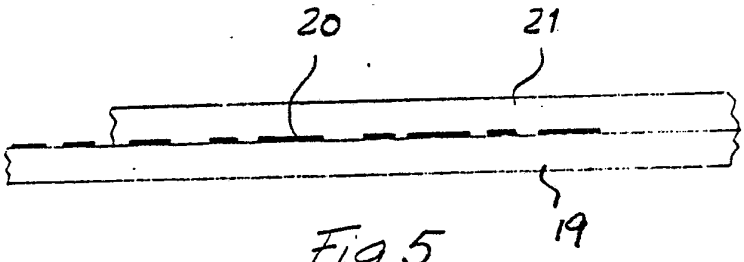

Fig. 5

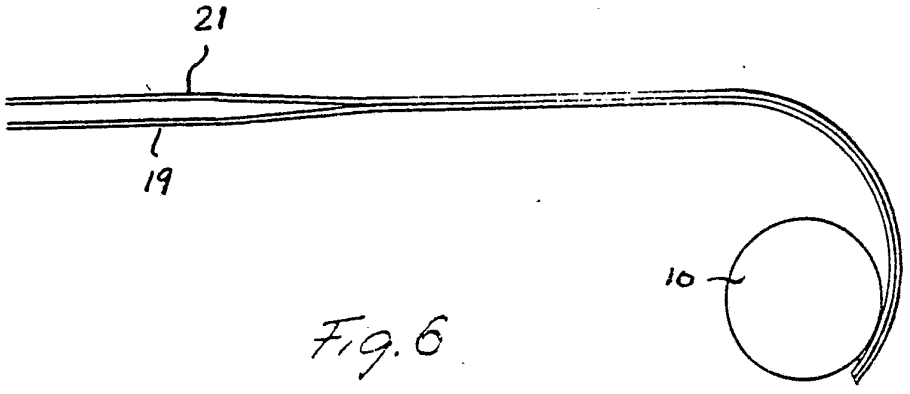

Fig. 6

INTERNATIONAL SEARCH REPORT

International Application No PCT/SE84/00124

I CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) [3]

According to International Patent Classification (IPC) or to both National Classification and IPC 3

B 65 B 11/04, 53/02, B 29 D 7/24

II. FIELDS SEARCHED

Minimum Documentation Searched [4]

Classification System	Classification Symbols
IPC 3	B 65 B 11/00-11/04, 11/48, 11/54, 11/56, 25/14, 49/00-49/16, 53/00, 53/02, 53/06; B 29 D 7/24
US Cl	53:30,32,33,183, 184, 203, 210-216, .../...

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched [5]

SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT [14]

Category [6]	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No. [18]
X	US, A, 3 491 507 (WARFEL) 27 January 1970	1
A	DK, B, 116 048 (AB RESTELLO) 1 December 1969	1
A	GB, A, 1 383 556 (RAYCHEM CORPORATION) 12 February 1975	2-4

[6] Special categories of cited documents: [15]

"A" document defining the general state of the art which is not considered to be of particular relevance

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

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IV. CERTIFICATION

Date of the Actual Completion of the International Search [2]	Date of Mailing of this International Search Report [2]
1984-06-28	1984 -07- 06
International Searching Authority [1]	Signature of Authorized Officer [20]
Swedish Patent Office	Christina Nordström

L.E.

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

II Fields searched (cont).

US Cl 53:453, 461, 463-466, 556, 558-559

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE [10]

This International search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers ....., because they relate to subject matter [12] not required to be searched by this Authority, namely:

2. ☐ Claim numbers ....., because they relate to parts of the International application that do not comply with the prescribed requirements to such an extent that no meaningful International search can be carried out [13], specifically:

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING [11]

This International Searching Authority found multiple inventions in this International application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International search report covers all searchable claims of the International application.

2. ☐ As only some of the required additional search fees were timely paid by the applicant, this International search report covers only those claims of the International application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.