United States Patent [19]

Heisig

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[54] **METHOD OF PRODUCING AND PACKAGING GLOVES FORMED OF THERMOPLASTIC FOIL**

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[51] **Int. Cl.** **B65b 11/48**

[58] **Field of Search** ..... 53/21 R, 21 FW, 31, 33, 53/116, 117, 206; 206/7 F, 46 AP, 58, 63.2 R, DIG. 17, DIG. 20; 229/87 A, 62; 156/251, 226

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[57] **ABSTRACT**

Method of producing and packaging gloves formed of thermoplastic material by severing from two superimposed foil sheets of thermoplastic material disposed on a paper web respective portions of the foil sheets each corresponding to half of a glove, welding together the corresponding edges of the glove-half portions except for respective edge portions which define an opening for sliding a hand into the thus formed glove, and then subdividing the paper web into sections at locations between the individual thus-formed gloves, includes folding over once the subdivided paper sections together with the respective, thus-formed glove adhering thereto, and thereafter securing respective opposite marginal portions of the folded paper sections by one another so that a pouch closed on all sides thereof is formed around the glove.

7 Claims, 4 Drawing Figures

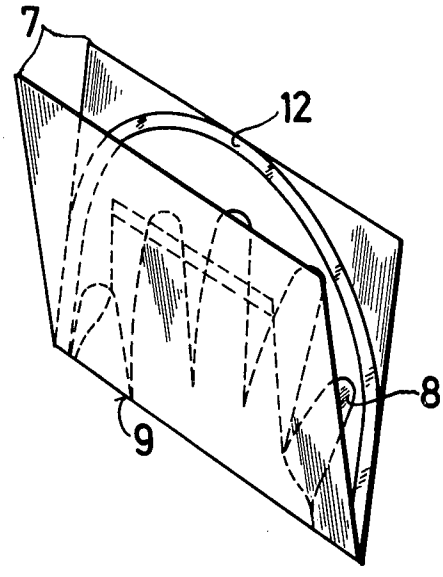


FIG. 1

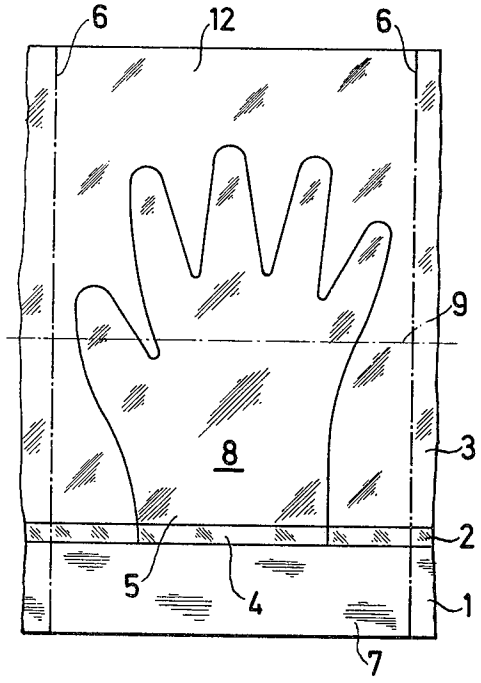


FIG. 2

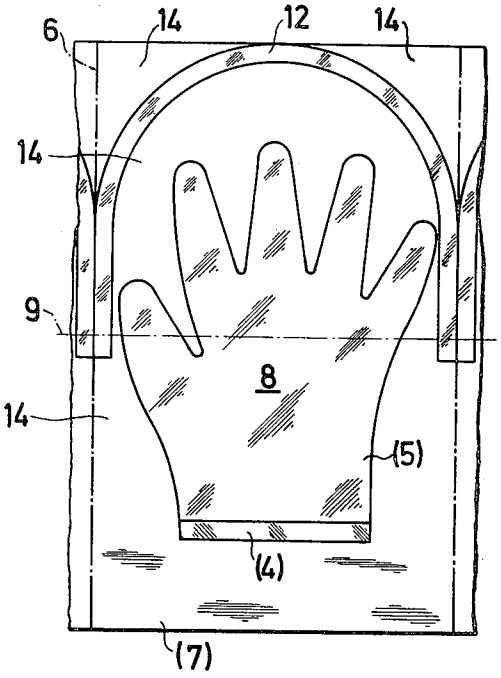


FIG. 3

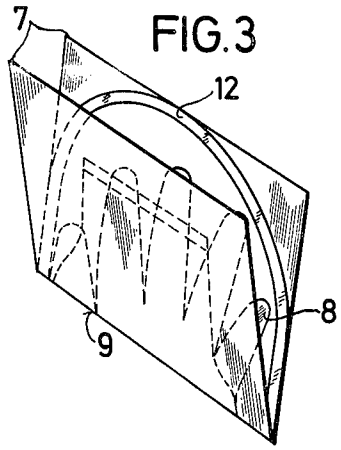
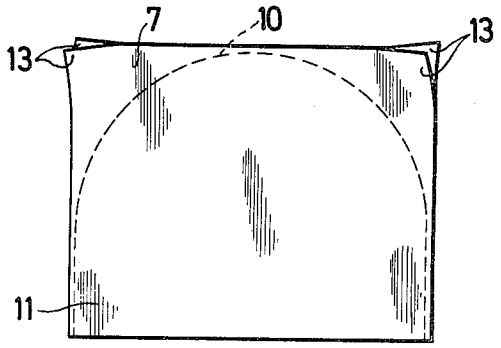


FIG. 4



METHOD OF PRODUCING AND PACKAGING GLOVES FORMED OF THERMOPLASTIC FOIL

The invention relates to a method of producing and packaging gloves formed of thermoplastic foil material by severing from two superimposed foil sheets of thermoplastic material disposed on a paper web respective portions or areas of the foil sheets, each corresponding to half of a glove, welding together the corresponding edges of the glove-half portions except for respective edge portions which define an opening for sliding a hand into the thus-formed glove and then subdividing the paper web into sections at locations between the individual thus-formed gloves.

Packaging of the gloves produced in this heretofore known manner is effected by folding several times a respective paper web section with the glove adhering thereto, after the excess of foil material has been removed, inserting the folder paper web and glove into a paper bag or pouch, and then closing the bag or pouch opening.

This type of packaging is relatively expensive as viewed both from the standpoint of the cost of materials as well as from the standpoint of production costs.

It is accordingly an object of the invention to provide a method of the foregoing type for producing and packaging gloves formed of thermoplastic foil that has been so improved as to materially reduce the cost of the packaging.

With the foregoing and other objects in view, there is provided, in accordance with the invention, a method of producing and packaging gloves formed of thermoplastic material by severing from two superimposed foil sheets of thermoplastic material disposed on a paper web respective portions of the foil sheets each corresponding to half of a glove, welding together the corresponding edges of the glove-half portions except for respective edge portions which define an opening for sliding a hand into the thusformed glove, and then subdividing the paper web into sections at locations between the individual thus-formed gloves, the improvement therein which comprises folding over once the subdivided paper sections together with the respective, thus-formed glove adhering thereto, and thereafter securing respective opposite marginal portions of the folded paper sections to one another so that a pouch closed on all sides thereof is formed around the glove.

In accordance with another feature of the invention, opposite marginal portions of the folded paper sections are heated while the remainder of the thermoplastic material portions severed from the foil sheets remains disposed therebetween and forms a welding seam.

In accordance with a further feature of the invention, a portion is severed from the remainder of the thermoplastic material portions that extends from the glove to the eventual location of the welding seam, and the final portion of the remainder of the thermoplastic material portions that extends from the eventual location of the welding seam to the edge of the thermoplastic material portions is removed prior to folding the respective paper sections.

In accordance with yet another feature of the invention, the final remainder of the thermoplastic material portions is removed by suction.

In accordance with an added feature of the invention, the final remainder of the thermoplastic foil material is severed and removed from that part of the remainder

of the foil material that is required for welding the pouch in a single operation with the severing and welding of the foil portions forming the glove.

In accordance with an additional feature of the invention, the welding seam is disposed arcuately around the glove received in the thus-formed pouch so that the superimposed corners of the folded paper section are not connected to one another but rather form handles or grips for opening the pouch.

In accordance with a concomitant feature of the invention when the gloves must be sterile, for example, gloves that are made specifically for medical or surgical purposes, they can be made germ-free, for example, by being irradiated with gamma rays while in the closed pouches.

Other features which are considered as characteristic for the invention are set forth in the appended claims.

Although the invention is illustrated and described herein as method of producing and packaging gloves formed of thermoplastic foil, it is nevertheless not intended to be limited to the details shown, since various modifications may be made therein without departing from the spirit of the invention and within the scope and range of equivalents of the claims.

The invention, however, together with additional objects and advantages thereof will be best understood from the following description when read in connection with the accompanying drawing, in which:

FIGS. 1 to 4 are diagrammatic views of the glove in various phases of the method of producing and packaging the same in accordance with the invention.

Referring now to the drawing and first particularly, to FIG. 1 thereof, there is shown therein two superimposed foil sheets 2 and 3 of a suitable thermoplastic material disposed on a paper web 1. Respective portions 4 and 5 of the foil sheets 2 and 3 are severed into glove halves, the edges of the glove halves being joined one to the other by suitable application of heat thereto and, if necessary, by the application of pressure as well, except for opposite edge portions located at the lower edges of the thusformed glove 8 as viewed in FIG. 1, those lower edges being left free so as to define an opening through which a hand may be insertable into the glove 8. The paper web 1 is subdivided into paper web sections 7 by transverse cuts 6 at are made at locations between adjacent gloves 8. The cuts 6 simultaneously slice through the thermoplastic foil sheets 4 and 5. Thereafter, the respective paper web section 7, in the manner shown in FIG. 3, together with the glove 8 which adheres thereto, is folded along the line 9 and is closed to form a pouch 11 by an arcuate welding seam 10 in accordance with FIG. 4. To produce the welding seam 10, the remainer 12 of the foil sheets 2 and 3, from which the glove-half portions 4 and 5 have been severed to form the glove 8, is heated to a temperature at which it softens so that both portions of the remainder 12 adhere to one another and also to the folded opposite parts of the paper web section 7. Due to the arcuate construction of the welding seam 10 as represented by the broken line in FIG. 4, the corners 13 of the paper web section 7 are kept free i.e. are not caused to adhere by the softened plastic foil material, so that those corners 13 can serve as handles or grips when opening the pouch 11.

In the view shown in FIG. 2 of a variation in the method of the invention, the remainder of the thermoplastic foil material 12 is reduced to a narrow strip having a shape corresponding somewhat to that of the

welding seam **10** due to the severance and removal of the parts **14** that are not required for welding the pouch **11**.

The inventive method is especially suitable for continuous production and packaging of gloves formed of thermoplastic material, but may, however, also be advantageously transferred to a cyclic or batch method of operation. Instead of the pouch closing technique of the preferred type described in the specification other pouch closure methods may be suitably employed and are encompassed within the scope of the invention.

I claim:

1. Method of producing and packaging gloves formed of thermoplastic material by severing from two superimposed foil sheets of thermoplastic material disposed on a paper web respective portions of the foil sheets each corresponding to half of a glove, welding together the corresponding edges of the glove-half portions except for respective edge portions which define an opening for sliding a hand into the thus-formed glove, and then subdividing the paper web into sections at locations between the individual thus-formed gloves, the improvement therein which comprises folding over once the subdivided paper sections together with the respective, thus-formed glove adhering thereto, and heating opposite marginal portions of the folded paper sections while the remainder of the thermoplastic material portions severed from the foil sheets remain disposed therebetween to form a welding seam.

2. Method according to claim **1** wherein the welding seam is disposed arcuately around the glove received in the thus-formed pouch so that the superimposed corners of the folded paper section remain free of weld.

3. Method according to claim **1** which includes sterilizing the contents of the pouch after the latter has been closed.

4. Method according to claim **3** wherein the pouch contents are sterilized by gamma ray irradiation.

5. In the method of producing and packaging gloves from two superimposed foil sheets of thermoplastic material wherein the foil sheets are disposed on a web of paper are welded together in a glove form by a welding seam means, and the webs cut into cross-sections, whereupon the sections to which the glove adheres in the range of the welding seam, are folded so that the glove is disposed between two paper section halves; the step of welding the superimposed marginal portions of the folded paper web sections together with the intermediately disposed foil remnants.

6. Method as claimed in claim **5** wherein foil remnants are left on the marginal portions of the paper sections.

7. Method as claimed in claim **5** wherein a strip-like connection of the folded paper section is designed in the shape of an arc.

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