J. G. JONES.

METHOD OF MAKING AND SEALING PACKAGES.

APPLICATION FILED MAR. 22, 1921.

1,415,038. Patented May 9, 1922.

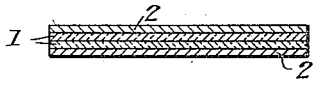


FIG. 1.

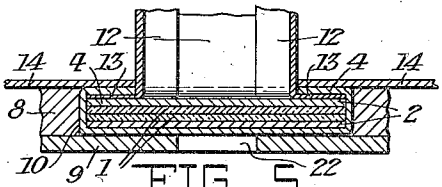


FIG. 5.

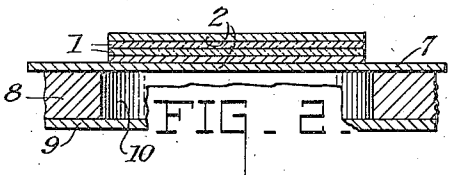


FIG. 2.

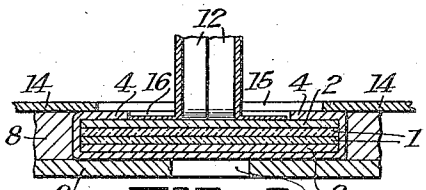


FIG. 6.

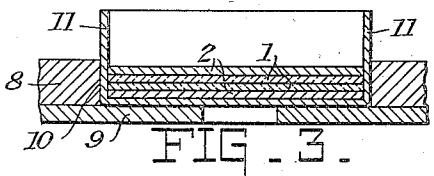


FIG. 3.

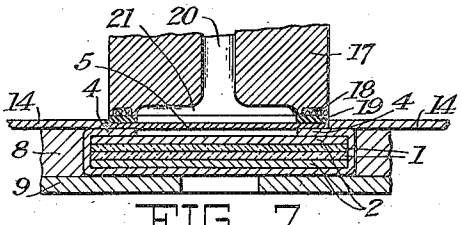


FIG. 7.

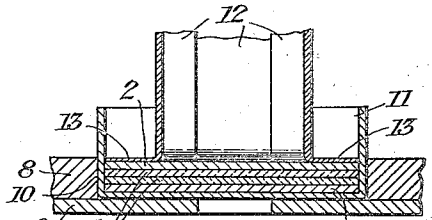


FIG. 4.

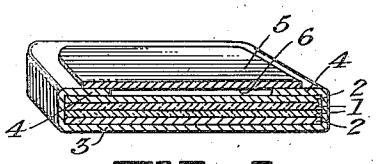


FIG. 8.

WITNESS

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING AND SEALING PACKAGES.

1,415,038. Specification of Letters Patent. Patented May 9, 1922.

Application filed March 22, 1921. Serial No. 454,522.

To all whom it may concern:

Be it known that I, JOHN G. JONES, a citizen of the United States of America, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Methods of Making and Sealing Packages, of which the following is a full, clear, and exact specification.

This invention relates to a method of making and sealing packages, particularly packages containing dental X-ray film, such as are described in the application of Frank W. Lovejoy, Serial No. 381,728, filed May 15, 1920.

The object of my invention is to make packages of the character described in a simple and economical manner and with tools that may be operated either manually or by suitable automatic machinery. Further objects will appear hereinafter as I describe more fully the details of my invention.

For the purpose of making clearer the steps of my method, I have illustrated it in a series of diagrammatic figures to which reference will now be made and in which the same reference characters refer throughout to the same parts.

Fig. 1 is a cross section of the contents of the package;

Fig. 2 is a section of the contents and wrapper laid upon a suitable die;

Fig. 3 shows the contents and wrapper forced into the die;

Fig. 4 is the same as Fig. 3 with the punch member in position;

Fig. 5 is a similar section showing the wrapper bent over by means of cheeking dies;

Fig. 6 shows the punch member and cheeking dies at a further step in the operation;

Fig. 7 shows the sealing member being applied in the final step of the process;

Fig. 8 is a perspective view of a finished package which has been cut transversely.

As is disclosed more fully in the application above identified, the package contains sheets of sensitized film 1, upon opposite sides of which are sheets of protective paper 2. These sheets are enclosed in a wrapper 3 which is bent around the edges of the packages to form overlying flanges 4, the latter being held in place by a sheet or label 5, the under surface of which is coated with a non-hygroscopic adhesive material designated 6.

The sheets of film and backing paper of the same size and shape are first assembled in a group, as indicated in Fig. 1. This constitutes the article to be wrapped, and this assemblage as a unit is placed upon a suitably diminished sheet of opaque wrapping material 7, which is positioned over a die member 8 having a bottom 9 and a recess 10 of the same shape as the assembled sheets and of such a size that when the sheets in the wrapper are forced down into the recess, they will fit snugly therein. The sheets, having been placed in register with the recess by means of any suitable locating or positioning means, are subjected to pressure with a suitable punching means, so that the sheets and wrapper assume the position shown in Fig. 3. The edges of the wrapper 3 are bent upwardly to form a continuous marginal flange 11, encircling the sheets and extending beyond their upper surface.

While the character of the punch member here used may be varied, I have indicated diagrammatically the form which I find most convenient. This consists of a series of bars 12 with flat outwardly extending feet 13. These members of the punch may be expanded and retracted by any suitable means. When used to press the sheets and wrapper down into the die recess, they are expanded to a position to engage the sheets near their edges, as indicated in Fig. 4. While the expanding punch members remain in the position shown in Fig. 4, I cause cheeking dies 14 to be advanced inwardly along the upper surface of the die 8, so as to engage the outer surface of the flange 11, and press it downwardly upon the feet 13 of the punch members. A series of these cheeking dies will be arranged around the recess in such a way that they can be advanced simultaneously so as to press the flange 11 over uniformly to form the overturned flange 4. The members of the punch are then retracted to the position shown in Fig. 6 and the punch removed. The cheeking dies are then partially retracted to a position where they still hold firmly the edges of the package as indicated in Fig. 8, but leave a recess or space 15 greater than the space 16 between the overturned flanges 4. I now take a sealing member 5 with the non-hygroscopic adhesive, which is particularly efficacious when heat is applied, and place this in a space 15. The size of this space

will be so adjusted that the seal 5 will just fit therein so that the edges of the cheeking dies form positioning means for the proper placing of the seal 5. Ordinarily this seal will also be a label containing any printed matter, directions, etc., as may be deemed advisable. This seal, it will be noticed, overlaps the edges of the flanges 4. This is now subjected simultaneously to pressure and heat. A suitable tool for such an operation is indicated at 17 in Fig. 7. This is a hollow tool bearing at the edges only upon the seal, and having around its edge a heating unit 18. The bearing face of the tool is indicated as 19. When this is pressed down upon the edges of the seal, the latter will be subjected simultaneously to pressure and heat and will be caused to adhere to the overturned flanges 4.

As a convenience in operation, I connect to the central bore 20 of the tool, a suitably controlled suction or vacuum apparatus. By means of this a partial vacuum may be established in the chamber 21 within the face 19, and the tool be used to pick up one by one the seal members from a pile and to carry them to the point where they will be positioned. When the seal is thus positioned, the connection to the vacuum may be broken, whereupon the tool releases its hold upon the seal and can be moved away after the seal has been pressed in place. There is shown an aperture 22 in bottom member 9 of the die through which a suitable tool or member may be thrust to expel the package after it is completed.

It will be seen that by means of the partial retraction of the cheeking dies, I have a very convenient method of holding the package in place in the die 8, and at the same time means for properly positioning the label or seal 5. Since a package containing a sensitized material must be securely sealed, it is important that the seal should be properly positioned and make good contact with the overturned flanges all the way around the package.

The feet 13 of the expanding punch serve, when in expanded position, to form an abutment over which the flanges 11 are sharply bent when the cheeking dies 14 are moved against them. At all points during the making of the package the latter is securely held in place and the operations can be precisely and accurately performed. The various operations may be performed by tools which are manually controlled or by mechanism which may be partially or entirely automatic in their operation. The use of such a mechanism would not be necessary for the proper carrying out of this method and the details thereof are, therefore, not essential to an understanding of my invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. The method of wrapping an article comprising the following steps: placing the article in a flanged wrapper in a snugly fitting recess in a die member, bending the flanges over the article by means of cheeking dies, positioning said cheeking dies to leave a space of predetermined size, positioning in such space a sheet of material of corresponding size and coated with an adhesive material and submitting it to pressure.

2. The method of wrapping an article comprising the following steps: placing the article in a wrapper having flanges around the edge and extending above the article and in a snugly fitting recess in a die member, moving cheeking dies against the flanges and over the article to bend the flanges down against the upper surface of the article, partially retracting said cheeking dies to leave a space of predetermined size, positioning in such space a sheet of material of corresponding size, and coated with a material that is adhesive when heated, and submitting it to the simultaneous action of pressure and heat.

3. The method of wrapping an article comprising the following steps: placing the article in a flanged wrapper in a snugly fitting recess of a die member, bending the flanges over the material by means of cheeking dies, positioning the cheeking dies to leave a space of predetermined dimensions, greater than the space between the downturned flanges, positioning in said space between the dies a sheet of material of corresponding size and coated with an adhesive, and submitting it to pressure to cause the last named sheet to adhere to the flanges and seal the package.

4. The method of wrapping an article comprising the following steps: placing the article on a sheet of wrapping material, forcing it into a die having a snugly fitting aperture by means of a plunger with thin expanding, bearing members, thus forming in the wrapping material flanges extending above the article, moving cheeking dies against the flanges and over the article to bend the flanges down against the upper surface of the article, positioning said cheeking dies to leave a space of predetermined size, greater than the space left between the overturned flanges, positioning in such space a sheet of material of corresponding size and coated with a material that is adhesive when heated, and submitting it to the simultaneous action of pressure and heat, to cause the last named sheet to adhere to the flanges and seal the package.

5. The method of wrapping an article comprising the following steps: placing the article on a sheet of wrapping material over

and in registry with a correspondingly shaped hole in a die member, pressing the article with an expanded punch, thus forcing it in the wrapping material into the hole and bending the edges of the wrapping material to form a flange, moving cheeking members against the flanges to bend these over the expanded punch, retracting and withdrawing the punch, retracting the cheeking members partially leaving a space of predetermined size, taking, by means of a tool having a heated vacuum head, a label member with an adhesive under surface, and of the size of said space, and pressing said label in said space, the label being caused by the pressure and heat to adhere to the said turned over flanges, and relieving the vacuum in the tool to release the label.

Signed at Rochester, New York, this 17th day of March, 1921.

JOHN G. JONES.