Aug. 14, 1945. R. J. PENA 2,382,169

METHOD OF MANUFACTURE OF MULTI-PLY DEVICES

Filed Sept. 3, 1942

Fig. 1.

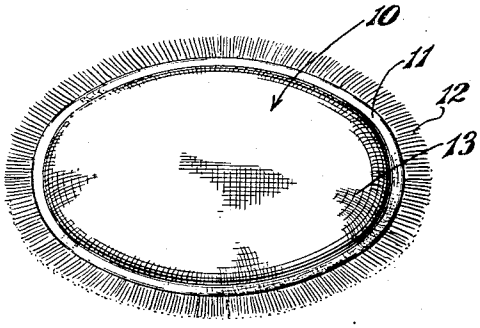


Fig. 2.

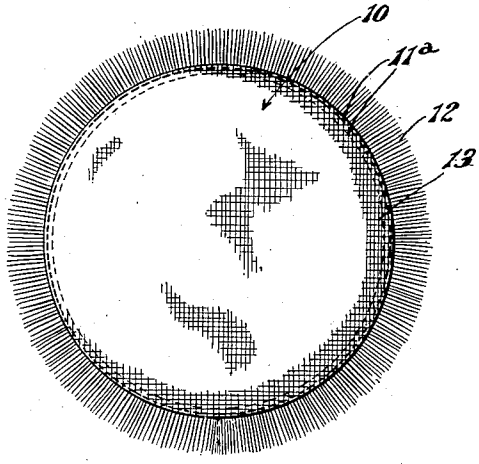


Fig. 3.

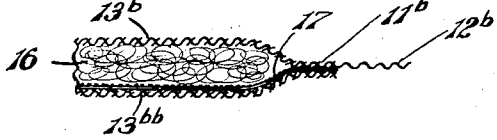


Fig. 4.

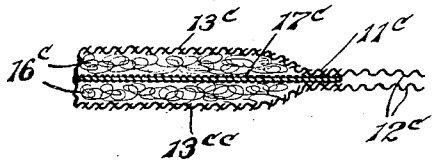


Fig. 5.

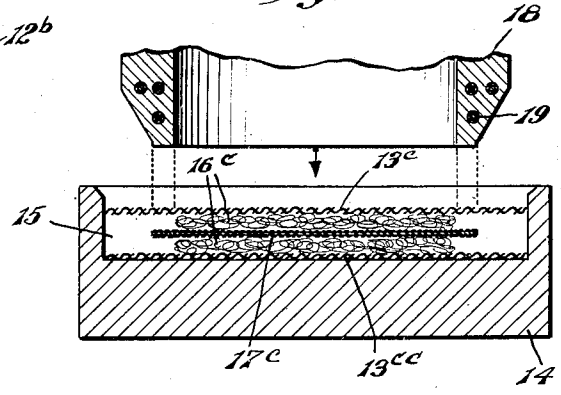
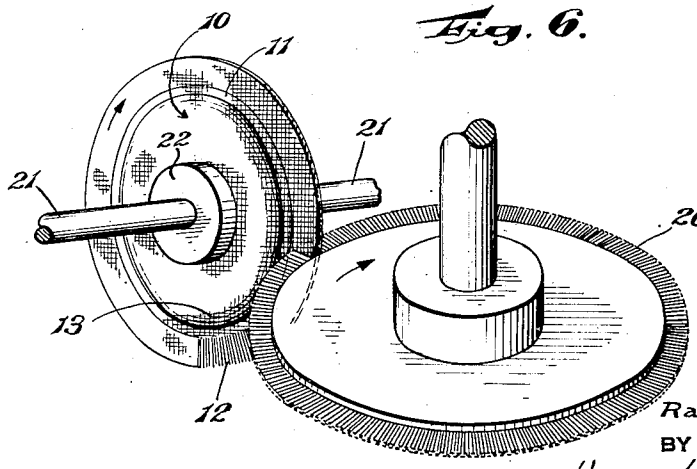


Fig. 6.



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METHOD OF MANUFACTURE OF MULTIPLY DEVICES

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4 Claims. (Cl. 154—2)

This invention relates to a method of manufacture of multi-ply devices, and more particularly to a method of manufacture of such devices as are of the character of powder puffs, sachet packets, rouge applicators and the like.

Peripheral sealing and edge formation for multiply articles of the character indicated have heretofore been the causes of much difficulty in manufacture and causes of production of devices of uncertain perfection, which reflect in dissatisfaction of sellers and users. Attempts have been made to secure margins of the plies of such devices by stitching, adhesive or otherwise, but with the secured margin turned inward of the completed device. It has not heretofore been deemed practical to provide a device of this character having the secured ply margins projecting outward in the finished device, since such a construction would result in an unsightly periphery and would utterly ruin all sales appeal. Then again, protruding ply margins, when secured by adhesive, would present a stiff marginal rim which would be harsh to the tender skin of a feminine face when applied thereto. In general, faults heretofore considered insurmountable in a multi-ply device as characterized with protruding rim have irregular, insecure, non-registering and stiff or harsh edges. An object of the present invention is to provide a multi-ply device with protruding rim wherein these and other faults or effects therefrom are avoided.

As intimated above, an adverse condition resides in the fact that the materials secured cannot be so perfectly registered as to avoid lapping of part of one beyond the corresponding part of another when the device is made with a protruding rim, or from binding in some of the pile when assembling a puff with a turned-in rim, resulting from which is the appearance and fact of imperfect manufacture. While the present invention does not necessarily register the several blanks with any greater precision than attainable heretofore, an object of the invention is to provide a fringe and to utilize that fringe for the double purpose of (1) correcting the imperfections of non-registration and irregularity mentioned by ravelling a part of the blank outside of and immediately adjacent the secured area, and (2) providing a soft texture at the edge of such area to overcome the harshness of the projecting rim.

Conversely, an object of the invention is provision of a securing means, such as an adherent, having a double function of (1) securing the parts of the device, and (2) preventing the fringe-forming ravelling or fraying from passing the line or area of attachment or adhesion.

A further object of the invention is to provide a continuous fringe without gaps due to forming part of the fringe from the warp threads and part from the woof threads.

Another object of the invention is to provide and perfect a method of manufacture capable of producing the multi-ply device specified.

Still further objects of the invention will appear as the description progresses, both by direct statement thereof and by implication from the context.

Referring to the accompanying drawing in which like numerals of reference indicate similar parts throughout the several views;

Figure 1 is a perspective view of a device made in accordance with the present invention and wherein the plies are secured at the rim by adhesive;

Figure 2 is a face view of another device made in accordance with the invention wherein the plies are secured by stitches.

Figures 3 and 4 are sectional views of devices of differing internal structure but both of which have the external appearance exemplified in Fig. 1;

Figure 5 is a sectional view of means forming a device such as shown in Fig. 4 and indicative of part of the method employed; and

Figure 6 is a perspective view illustrative of a further step of the manufacturing process.

In the specific embodiment of the invention as illustrated, the reference numeral 10 (with or without exponents) represents the body portion of the device having a peripheral protruding rim 11 (with or without exponents) and therebeyond a peripheral fringe 12 (with or without exponents) formed integrally from threads of the facing material of the device. In Figures 1, 2 and 6 the facing material is indicated by numeral 13, the absence of exponent from numerals 10, 11, 12 and 13 being intended to indicate that the parts thus identified may be specifically formed as shown in either of Figures 3 and 4 and there identified with the corresponding reference numeral with exponent. The facing material, at least on one face of the device, is preferably of a character having warp and woof threads or otherwise formed so it may be frayed or raveled to form the fringe directly in place. For purposes of this description the direction of the warp and of the woof threads of the material may be both considered as the "grain" of the material. In assembly, it is preferable to avoid correspondence

of grain direction of the two facing materials, especially when both are used to form the fringe.

With attention directed for the moment to Figures 4 and 5, top and bottom facing materials 13c and 13cc are shown, the blank sizes of which are preferably the same, so that they may both be placed within a female die 14 the hollow 15 of which is of corresponding facial area and shape as the blanks. The bottom face-material blank is first placed in the die, filling and adhesive layers 16, 17 respectively, are applied on the middle area of the said bottom face blank and then a top face-material blank is applied. A hot male die 18, shown with electric heater wires 19 therein, is then brought down into compressive engagement upon the upper facing material. Said male die 18 is centrally hollow so its bottom face is ring-shaped and the outer diameter of this ring-shaped face is preferably enough greater than the diameter of the adhesive layer 17 to assure superpositioning that face to or beyond the edge of the adhesive layer throughout the entire periphery of said layer and compensate for reasonable error of placement of said layer centrally of the female die. Said adhesive layer is of a character made effective by heat and therefore specifically defined as a thermo-adhesive. Pressure of the die brings ring-shaped portions of the two facing materials and the peripheral marginal portion of the adhesive layer into compressed contact and the presence of heat in the male die activates the adhesive to effectuate a retention of the ring-like portions permanently together.

A marginal portion of one or both of the face material blanks peripherally projects beyond the ring-shaped adhered area. The projecting portion is then frayed or ravelled in place and thereby provides the aforementioned fringe. By way of illustration, Fig. 3 shows only one facing material projecting and frayed beyond the adhered area, whereas Figure 4 shows both facing materials projecting and frayed.

The adhesive layer 17 may be applied in plastic state directly upon the inner face of one of the facing materials, Figure 3 being illustrative of such an assembly. However, if preferred, the adhesive layer 17 may be of a self-sustaining character such that it may be cut to shape and juxtaposed upon said facing material, Figure 3 being equally illustrative of such construction. In this view the filling 16 is laid upon the middle part of the adhesive layer so there will be a margin of that layer projecting beyond the filling.

If preferred, however, the adhesive layer 17c may be situated as a middle layer with filling layers 16c above and below the same and next the upper and lower facing materials respectively. Such an arrangement is shown in Figures 4 and 5. In any event, the adhesive layer projects peripherally beyond the filling so that, at the marginal portion of said adhesive layer, the facing materials are in direct juxtaposed contact with the adhesive layer and are secured together at their inner faces thereby. The filling 16 (with or without exponent) may be of any desired material and character, such as padding, cosmetic, face powder, sachet powder and so forth. Accordingly, the facing material, in conjunction with selected character of filling, may be of appropriate texture, for instance, to prevent egress of the filling, and, as in the case of sachet powder, to permit egress of aroma therefrom, or may be of a texture to permit sifting or restricted egress of the filling through the facing material as when using face powder, rouge and the like for the filling. The material comprising opposite faces may both be alike or different as desired, as for instance, either or both may be silk, satin, cotton, wool, pile fabric, velour and so forth. Furthermore the fringe may be made from the margin of either or both facing materials so long as the material from which the fringe is formed is a woven fabric and has its margin protruding beyond the secured area. Two fabric facing materials of the same size will present a fringe twice as thick, as shown in Figure 4, as where only one, as in Figure 3, projects beyond the securing area. Then again, where lambs-wool or other non-fabric material is used as one of the facings, it should have a smaller diameter than the other facing which must then be of fabric with its rim beyond the securing area so as to form the fringe.

The method of fraying the margin of the facing constituting the fringe is a feature of the present invention. Broadly considered, the method contemplates addressing the edge of the otherwise completed device to a rotating circular or cylindrical brush 20 the bristles of which have desired rigidity and flexibility. In practice wire bristles of brass and of steel have been found satisfactory, the steel ones being used to ravel heavier or coarser materials such as velour, pile fabric and the like. The bristles passing against the margin of the puff or other device pull threads therefrom, including pile or the like when present, which are not secured by the adhesive or other securing means. Thus the margin of the material as far as the adhering area, is frayed and the threads that are secured by the adhering area are pulled by the brush and caused to extend substantially in radial directions.

Exemplary of mechanical means for holding, rotating and addressing the margin of the puff or other device to the brush, opposed shafts 21, 21 with appropriate face plates 22 between which the puff is gripped, are shown. Rotation of the device is preferably very slow in comparison to speed of rotation of the brush, and while the brush is motor or machine driven, it is within the scope of the invention to rotate the shafts 21, 21 either by hand or machine drive.

It may now be pointed out that the shape of the body portion of the puff is definitely determined by the ring-like adhering area, and since that is governed by the shape of the hot die, there is no probability of mis-shape occurring. The fringe constitutes a soft edge for the protruding and adhered margin of the device and counteracts the usual harshnes to the touch of an adhered and protruding margin having no fringe, and also counteracts irregularity and overlapping of the face material beyond the adhesive area and beyond each other. The fraying takes place up to the adhesive area and since fraying cannot occur in the adhesive area, regularity of the body of the device is assured and a sufficiently even projection of fringe length is obtained to present an average evenness of contour of the fringe. If desired, the ends of the constituent threads of the fringe may be trimmed to obtain greater uniformity of outer contour of the fringe.

In Figure 2, circular lines of stitching are shown as a substitute securing means for the described adhesive. Application of these lines of stitching on automatic sewing machines or otherwise replaces the step above described in the method of applying heat and pressure by the dies shown. The sewing machine applies requisite

pressure and the stitching, rather than the adhesive, constitutes the means and the method step of securing the parts together. Otherwise, the construction, method, and objectives obtained will be substantially as described above. In either construction the device is composed of a plurality of plies of material in that there are facing materials at both sides and a filling therebetween. In the first described construction there is a still further ply comprised by the adhesive layer.

Since the various details of construction and steps involved in the method, as well as the precise relation and functioning of parts are subject to variation and change without departing from the inventive concept or scope of the invention, it is intended that all matter contained in the specification or illustrated in the drawing, shall be interpreted as exemplary and not in a limiting sense. It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein shown and described and all statements of language which might be said to fall therebetween.

I claim:

1. The method of manufacturing powder puffs and like devices, said method comprising securing plies of material together along an endless line spaced from both the center and the periphery of the plies and providing a container space between the plies surrounded by the line and an unsecured peripheral portion on at least one of the plies outwardly of the line, and thereafter fraying said portion completely around its periphery and inwardly to provide a continuous marginal fringe, the means providing said line functioning to limit the inward extent of fraying.

2. The method of manufacturing powder puffs and like devices, said method comprising securing plies of material together along an endless line spaced from both the center and the periphery of the plies and providing a container space between the plies surrounded by the line and an unsecured peripheral portion on at least one of the plies outwardly of the line, and thereafter rotating the unitary plies while subjecting said portion to the action of a fraying brush rotating on an axis disposed angularly with respect to the axis of rotation of the plies to fray said portion around its periphery and inwardly thereof to provide a continuous marginal fringe, the means providing said line functioning to limit the inward extent of fraying.

3. The method of manufacturing powder puffs and like devices comprising disposing a filler between plies of material, one of said plies having warp and woof threads, securing the plies of material together along an endless line around the filler, said line being spaced from both the center and the periphery of the plies and providing an unsecured peripheral portion on said one ply outwardly of the line, and thereafter clamping the plies between rotating means, and subjecting said portion while rotating to the action of a fraying brush rotating on an axis disposed angularly to the axis of rotation of the plies to fray said portion around its periphery and inwardly thereof to provide a continuous marginal fringe, the means providing said line functioning to limit the inward extent of fraying.

4. The method of manufacturing powder puffs and like devices comprising disposing a filler between plies of material, one of said plies having warp and woof threads, adhering the plies of material together along an endless line around the filler, said line being spaced from both the center and the periphery of the plies and providing an unsecured peripheral portion on said one ply outwardly of the line, and thereafter clamping the plies between rotating means, and subjecting said portion while rotating to the action of a fraying brush rotating on an axis disposed angularly to the axis of rotation of the plies to fray said portion around its periphery and inwardly thereof to provide a continuous marginal fringe, the means providing said line functioning to limit the inward extent of fraying.

RAFAEL J. PEÑA.