

July 16, 1946.

J. H. BROWN

2,404,162

METHOD OF MAKING LAMP SHADES AND SIMILAR ARTICLES

Filed June 3, 1944

2 Sheets-Sheet 1

Fig. 1

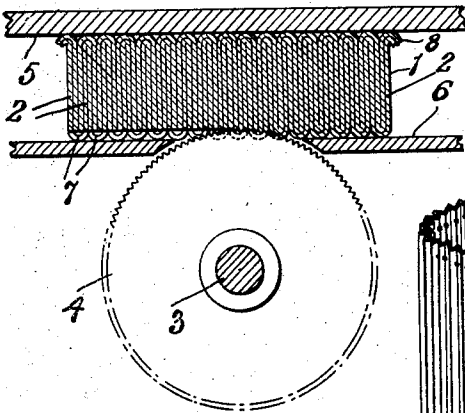


Fig. 2



Fig. 3

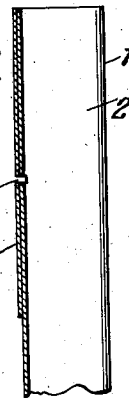


Fig. 4

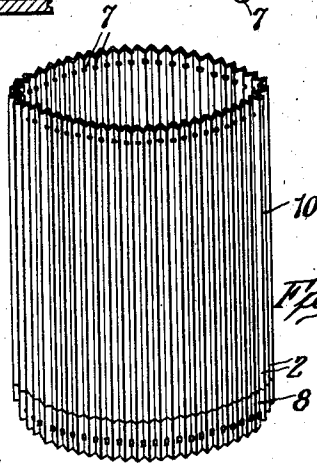


Fig. 5

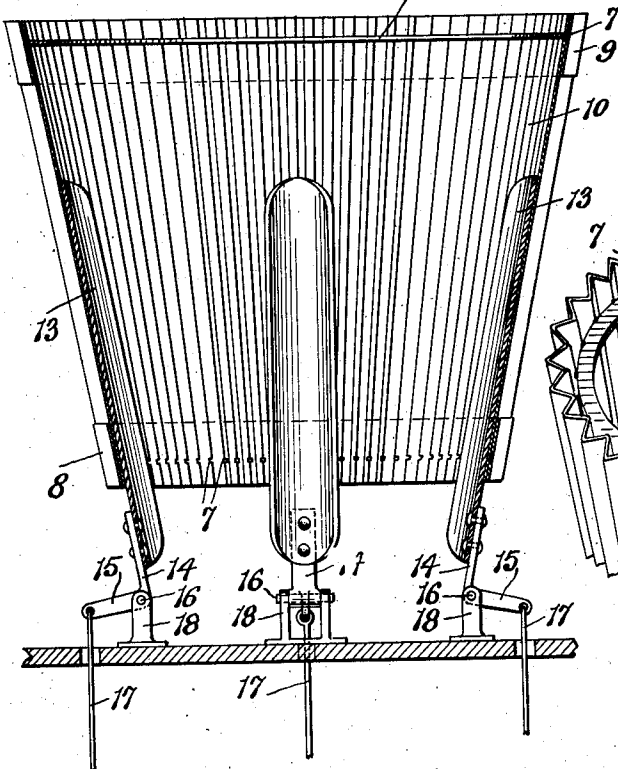
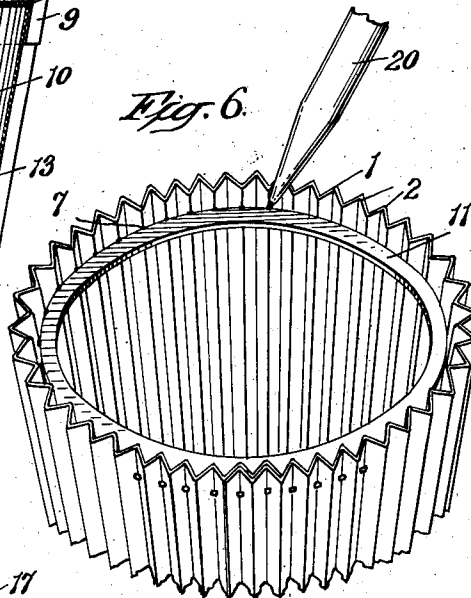


Fig. 6



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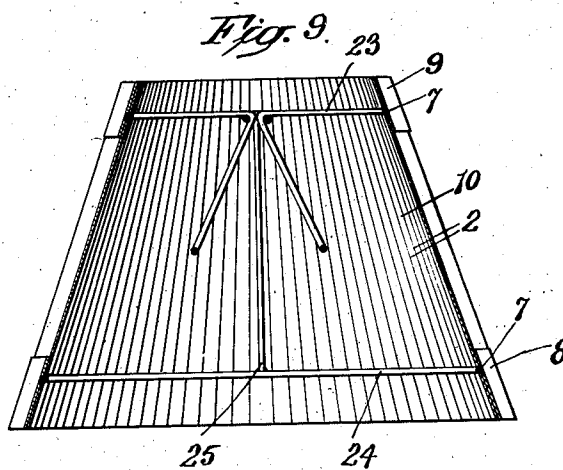
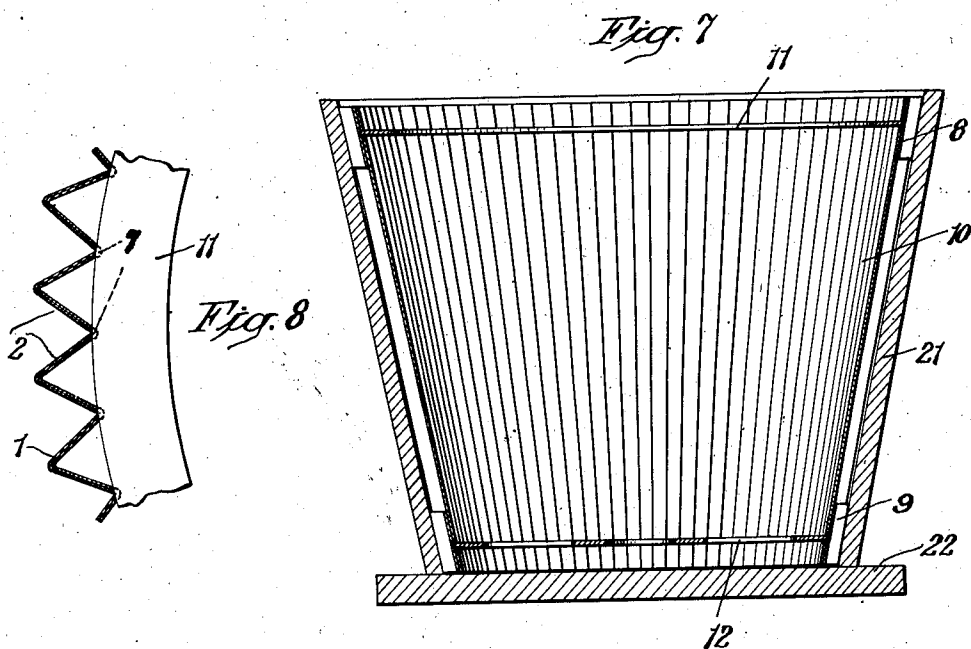
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METHOD OF MAKING LAMP SHADES AND SIMILAR ARTICLES

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2 Sheets-Sheet 2



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METHOD OF MAKING LAMP SHADES AND
SIMILAR ARTICLES

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Application June 3, 1944, Serial No. 538,566

7 Claims. (Cl. 93—1)

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This invention relates to the manufacture of lamp shades and other similar articles, and particularly to shades of the type having a body made of pleated or corrugated sheet material.

One of the objects of the invention is to provide an improved method by which a lamp shade may be quickly and effectively made with a minimum expenditure of time and material; in which the parts employed may be reduced, and in which a stiffened, sturdy and self-sustaining structure is the result.

Another object of the invention is to provide a novel means by which the pleats in the material forming the body of the lamp shade may be accurately notched or cut to provide a seat for the shade reinforcing rings; said means serving to place one or more lines of the notches along the inner apexes of the pleats as will be hereinafter described.

A further object of the invention is to provide a novel method of assembly of the lamp shade, wherein accuracy of alignment of parts of the shade is the result, and the products produced according to said method are symmetrical, even and uniform.

The improved method contemplates the provision of steps wherein a pleated strip is notched along its inner apexes; the strip is then made into tubular form; the tube is then expanded to allow rings to be placed into the notches the rings are then cemented in place and the resultant shade is trued up.

In the accompanying drawings, wherein the improved method of manufacture is disclosed, Fig. 1 is a diagrammatic view showing how the pleated strip from which a lamp shade is made is provided with a line of notches in the inner apexes of its pleats; Fig. 2 is a sectional view of a part of the pleated and notched strip, showing the location of the notches in the pleats; Fig. 3 is a vertical sectional view through one of the pleats; Fig. 4 is a perspective view, showing the pleated and notched strip after it has been made into tubular form; Fig. 5 shows how the tubular lamp shade body is expanded to permit of the insertion of one of the reinforcing rings; Fig. 6 shows how the rings are cemented or glued in place in the lamp shade body; Fig. 7 is a vertical sectional view of the aligning device with one of the lamp shades in place within the same; Fig. 8 is a transverse sectional view through a part of the lamp shade body, showing how one of the rings fits into the notches in the shade, and Fig. 9 is a vertical sectional view

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through a pleated lamp shade provided with a wire reinforcing frame.

The strip from which the lamp shade is made may be composed of any suitable sheet material, such as a relatively stiff paper of one or more thicknesses, cellulosic material, fabric-reinforced paper or the like, and the pleats in the strip may be formed in any desired way, such as by a pleating machine of known construction. In these machines, it is customary for a strip 1 of substantial width, and usually the width of two or more lamp shades, to emerge from the machine formed with the pleats 2. The next step in the manufacture of a lamp shade in accordance with the invention, is to pass the pleated strip 1 over a cutting device, diagrammatically indicated at 4, which will cut two lines of notches in each part of the strip intended for use as a lamp shade. These two lines of notches may be cut simultaneously, if two cutters 4 are provided in spaced relation on the shaft 3, or the lines of notches may be cut successively if a single cutter is employed. In the event of multiple cutters being used on the shaft 3, they may be made to be adjustable thereon to locate them at required distances apart according to the spacing of the notches required for the size of the lamp shade to be constructed. The cutters employed are preferably of the rotating type, and may be circular saws, abrasive wheels or of any other suitable construction for cutting the pleated material of which the lamp shade is made.

While the pleated strip is being passed over the cutting device, it is preferably held in compressed condition, that is to say, with the pleats 2 closed or compacted as shown in Fig. 1, the strip, while in this position, being sustained and supported between the surfaces 5 and 6 along which the pleated strip is moved. When the pleated strip is opened, or has its pleats expanded, as shown in Fig. 2, it will be observed that the inner apexes of the pleats are each provided with a notch 7 near each edge of the strip which is to make a lamp shade body. To strengthen and stiffen the shade, and particularly those portions thereof in which the lines of notches 7 are formed, it may be found desirable to provide reinforcing strips, both for utility and decorative purposes, as shown at 8 and 9. These strips 8 and 9 may be adhesively attached to the strip before it is pleated, and are located along the upper and lower edges of the finished lamp shade.

After the two lines of notches 7 have been

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formed in the strip adjacent to its longitudinal edges, a section is cut from the strip, said section being of the proper size to make a lamp shade. The ends of the cut-off section are then secured together, either adhesively, by stitching, or by any other equivalent means, and the result is the formation of a pleated tube 10 shown in Fig. 4. The next step is the insertion of suitable reinforcing or supporting rings, such as shown at 11 and 12. These rings may be made of cardboard, metal, plastic or any other suitable stiff and strong material. To fit the first, or bottom ring 11 in place, the pleated tube 10 is placed upon a suitable spreading device. Such a device is shown in Fig. 5, and by its use the tube 10 is expanded at one end, the lower end of the resultant shade, while the ring 11 is fitted into the line of notches 7 situated near the bottom or lower edge of the lamp shade. In the form shown, the spreaders consist of a plurality of blades 13, each of which is secured on the arm 14 of a bell-crank lever pivoted at 16 in a suitable bracket 18, the second arm 15 of the bell-crank lever being secured to a pull-rod 17. The several pull-rods 17 are connected to a foot pedal, by the depression of which the blades are caused to spread apart, thus expanding the tube 10 to an extent required to enable the ring 11 to be fitted into its line of notches.

When the ring 11 has been fitted within the notches in the manner explained, the lamp shade is then inverted on the spreading device to enable the top ring to be fitted in the top line of notches. When this has been done the shade will then have the two rings 11 and 12 fitted into the two lines of notches and frictionally held therein. The rings are then permanently secured in place by being cemented or glued in the notches, this being diagrammatically shown in Fig. 6, the operation being very speedily performed by passing a glue spreader tube 20 around the edge of each ring and depositing glue at each notch.

After the two rings 11 and 12 have each received an application of glue or cement in the manner described, the lamp shade is then straightened or trued up and this can be done speedily, and while the glue is soft, by placing the lamp shade, with its top disposed downwardly, in a conical aligning member, which in the form shown, consists of an inverted cone 21 of stiff and rigid material, firmly attached to a flat base 22. The lamp shade is placed in the aligning cone; has its lower or wider end aligned with the upper edge of the cone, and is then taken out and placed aside until the glue or cement hardens. When this occurs, the rings 11 and 12 will be securely held in place and a stiff and strong structure results.

In describing the improved method of making lamp shades, I have herein set forth the fact that the upper and lower reinforcing rings may be separate elements and may be composed of flat sheet material. It is entirely possible to employ wire rings or wire framework within the shade, as is shown in Fig. 9. There a frame of wire, having the upper and lower rings 23 and 24, has these rings glued or cemented in the notches 7 in the manner described in relation to the rings 11 and 12. In the construction of Fig. 9, the two rings may or may not be connected by vertical struts 25, or the frame within the shade may be constructed in a number of other ways.

In herein referring to the strip as being pleat-

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ed or corrugated, I do not limit myself to the particular form of angular pleats shown in the drawings since the pleats may be made in many shapes and sizes to suit different requirements and designs. Hence, in herein referring to "pleats" I wish to be understood as meaning any folds or undulations capable of being formed in the lamp shade body.

Also while I have herein described the notching means as being a mechanism operative independently of the pleat-forming machine, it will be apparent to those skilled in this art that the notching or grooving means may be readily placed adjacent to the output end of a pleating machine whereby the product emerging from such a machine will be a pleated strip formed with the lines of grooves at the proper locations.

Also, while I have described the improved method as consisting of a number of steps in a certain sequence, it is possible that the sequence of the steps may be changed; the aligning of the lamp shade may be done solely by hand, and other departures from the described method may be possible, such departures being considered as comprehended by the invention and within the scope of the annexed claims.

What I claim is:

1. In the method of making lamp shades or the like, the steps of bringing a pleated strip in contact with a rotating cutter to cause the cutter to produce a line of notches along the apexes of the pleats in the strip, joining the ends of a section of said strip to form said section into a tube to bring the notches on the interior of the tube, and cementing a reinforcing ring into the line of notches.

2. In the method of making a pleated lamp shade or the like, the steps of moving a pleated strip across a rotating cutter to cause the cutter to produce a line of notches along the inner apexes only of the pleats in said strip, joining the ends of a section of said strip to form it into a tube with the notches on the interior of the tube, placing a reinforcing ring on the inside of the tube and into the line of notches formed therein, and cementing the ring in place.

3. In the method of making pleated lamp shades or the like, the step of passing a pleated sheet over a plurality of spaced rotating cutters to thereby form a line of notches in the inner apexes of the sheet adjacent to the two longitudinal edges of the sheet, securing the ends of the sheet together to form it into a tube with the notches on the interior of the tube, cementing a ring in one line of notches and then cementing a second ring into the second line of notches.

4. In the method of making a pleated lamp shade or similar article, the steps of forming two spaced lines of notches in the inner apexes of pleats adjacent to the edges of a pleated strip, securing the ends of the strip together to form it into a tube with the notches on the interior of the tube, fitting a stiff ring on the inside of the tube within one line of notches and cementing said ring in place, fitting a second ring in the tube within the second line of notches and cementing the second ring in place, and maintaining the lamp shade thus formed in correct shape until the cement used for holding the rings in place, has set.

5. The method of making a lamp shade or the like comprising, compressing the pleats in a pleated strip, passing the compressed strip over a rotating cutter to form a line of notches in the

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inner apexes of the strip, severing a length from the strip, joining the ends of the length to form it into a tube with the notches on the interior of the tube, expanding the tube and placing reinforcing rings in the lines of notches, cementing the rings in place in the notches and placing the shade in an aligning device while the cement is soft and aligning the shade within said device.

6. The method of making lamp shades consisting in placing lines of notches on the inner edge of a pleated strip, severing a length from the strip and uniting the edges of said length to form a tube with the notches located on the interior

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of the tube, cementing stiffening rings in the lines of notches and placing the shade in an aligning cone and adjusting it therein to conform to the interior of the cone.

7. In the method of making a lamp shade, the steps of forming spaced lines of notches in the inner apexes of a pleated strip, cutting a length from said strip, joining the ends of said length to form a tube with the notches on the interior of the tube, and cementing a wire frame-work within the tube with parts of said frame-work secured in the lines of notches.

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