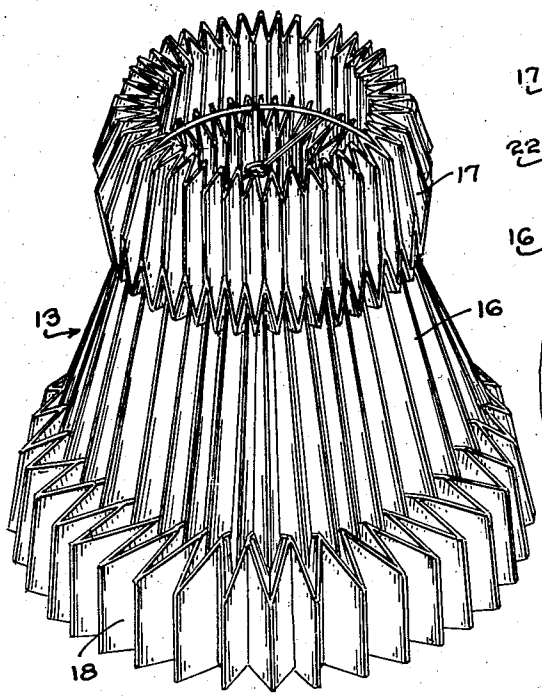
Oct. 1, 1946. S. B. BARTHA 2,408,594

LAMP SHADE AND METHOD OF MAKING THE SAME

Filed May 27, 1944 2 Sheets-Sheet 1

Fig. 1



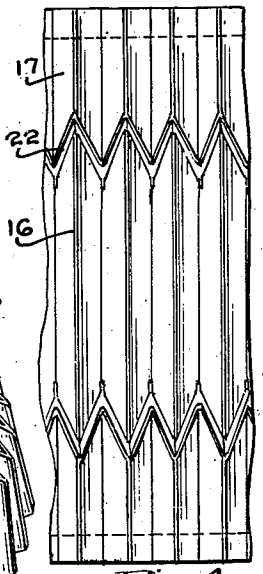


Fig. 4

Fig. 2

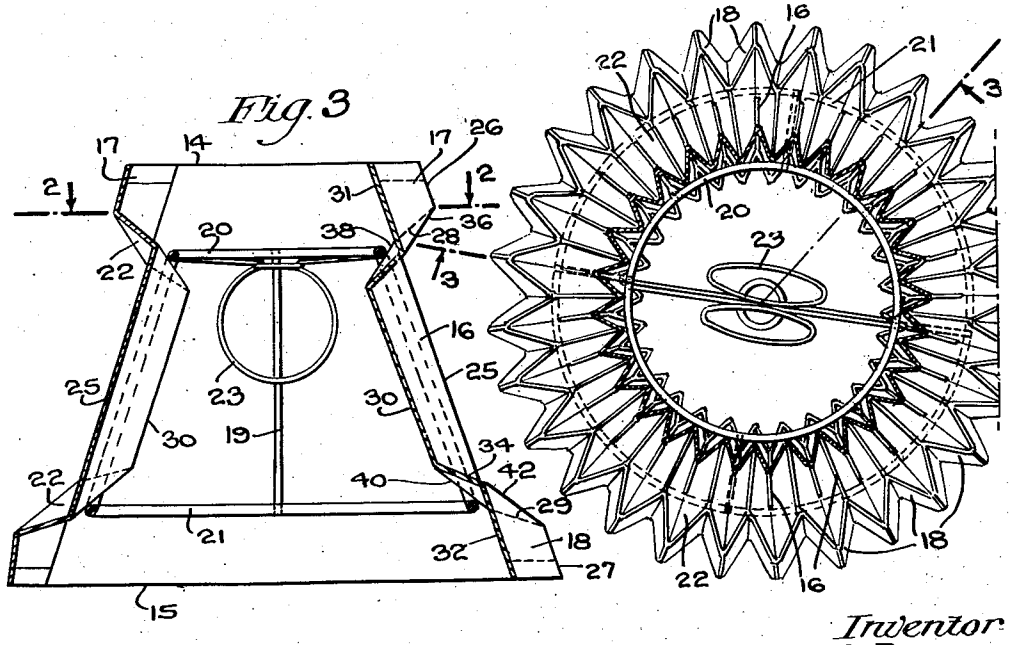


Fig. 3

Inventor
SANDOR B. BARTHA
By Lear Edelson
Attorney.

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LAMP SHADE AND METHOD OF MAKING THE SAME

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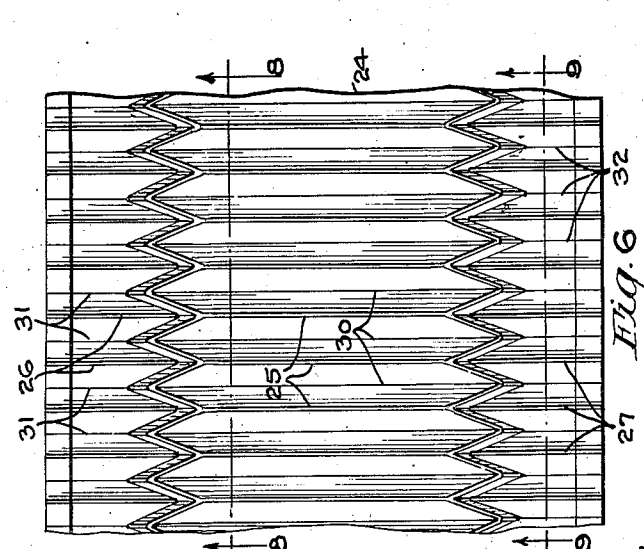


Fig. 6

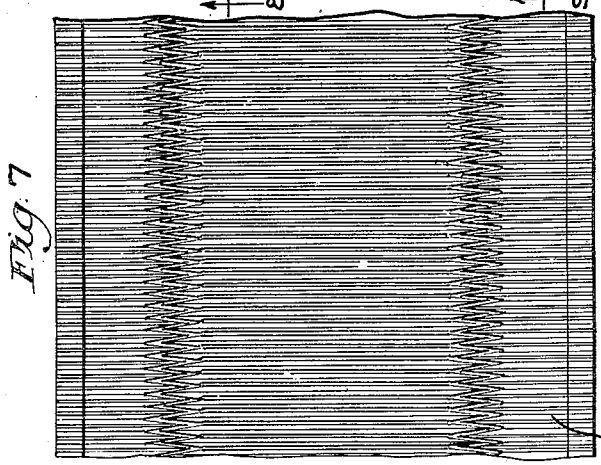


Fig. 7

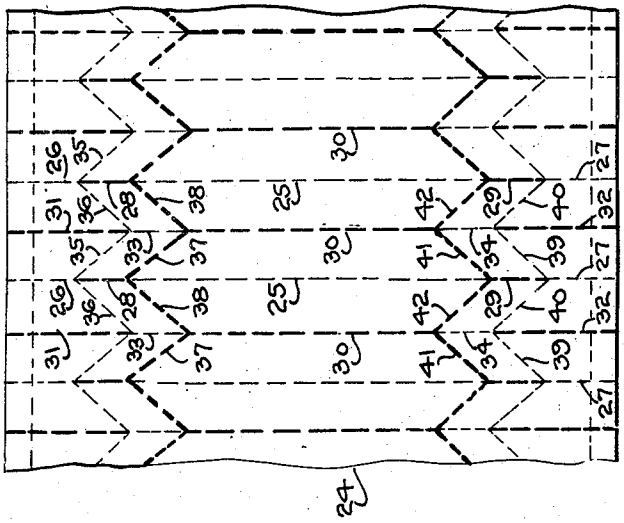


Fig. 5

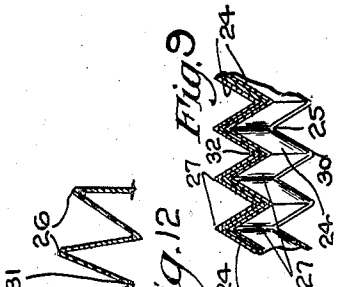


Fig. 9

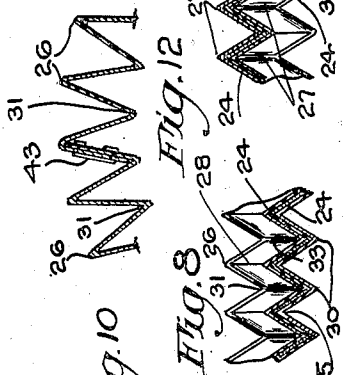


Fig. 12

Fig. 8

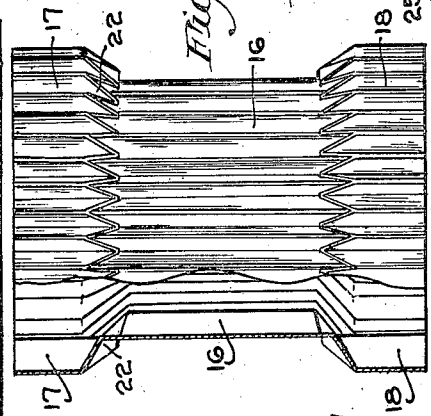


Fig. 10

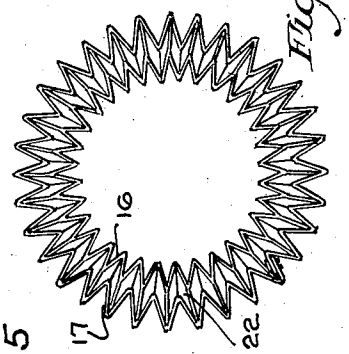


Fig. 11

Inventor
SANDOR B. BARTHA
By Leavidelson
Attorney.

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2,408,594

UNITED STATES PATENT OFFICE

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LAMP SHADE AND METHOD OF MAKING THE SAME

Sandor B. Bartha, Philadelphia, Pa., assignor to Max Galman, Philadelphia, Pa., trading as Imperial Lamp and Shade Company

Application May 27, 1944, Serial No. 537,745

3 Claims. (Cl. 240—108)

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This invention relates generally to lamp shades and more particularly to improvements in the construction of and process for making pleated lamp shades and lamp shade fabrics.

Among the objects of the present invention is to provide a pleating device in the form of a pair of complementally formed accordion-like foldable elements between which suitable material may be readily and inexpensively formed into a pleated lamp shade fabric. It is a further object of this invention to provide foldable complementary male and female forming elements with pre-scored lines formed therein, which may be stretched flat with a suitable material sandwiched or interposed therebetween and folded and compacted along the scored lines to readily and inexpensively form pleated lamp shade fabric having an offset or gallery-effect trim along one or both edges thereof.

It is also an object of this invention to form a frusto-conical-shaped lamp shade of offset pleated fabric supported upon a wire frame with the offset pleated sections of the fabric so cooperating with the wire frame as to maintain the fabric in the frusto-conical-shape and to prevent axial movement of the lamp shade relatively to the wire frame.

Other objects and advantages of the invention will be apparent from the accompanying drawings in which like characters refer to like parts and in which:

Figure 1 is a perspective view showing the finished gallery pleated lamp shade in place on a frame;

Figure 2 is a transverse cross sectional view of the finished lamp shade taken on line 2—2 of Figure 3;

Figure 3 is a vertical cross sectional view of the finished lamp shade taken on line 3—3 of Figure 2;

Figure 4 is a view showing the finished gallery pleated material itself;

Figure 5 is a plan view of one of two like flexible folding molds used in the pleating process, here shown in the flat unfolded position;

Figure 6 is a view similar to that of Figure 5 with the molds in a partially expanded position;

Figure 7 is a view similar to that of Figure 5 with the molds in the full folded position;

Figure 8 is a cross sectional view taken on the lines 8—8 of Figure 6;

Figure 9 is a cross sectional view taken on lines 9—9 of Figure 6;

Figure 10 is a view, partially in section, of the finished gallery pleated material formed into cylindrical form;

Figure 11 is a top plan view of Figure 10; and

Figure 12 is a transverse section through the pleats.

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Referring now to the drawings, Figure 1 illustrates in perspective a finished gallery pleated lamp shade 13 made of any suitable material, the shade being of frusto-conical shape having a top portion 14, a bottom portion 15, and a center portion therebetween. The center portion of the lamp shade 13 comprises a series of similar adjacent accordion-type pleats 16 also arranged in frusto-conical form. The top portion 14 and the bottom portion 15 are respectively formed of a series of similar adjacent accordion-like pleats 17 and 18, also arranged in frusto-conical form, but offset relative to the pleats 16 of the center portion of the lamp shade 13. A set of saw-tooth-shaped accordion pleats 22 integrally unites the adjoining ends of the center pleats 16 and the offset pleats 17 and 18. It will be noted in the lamp shade shown in Figures 1 to 3 that the pleats 16, 17 and 18 are all formed in a single piece of material, by a process to be described, and are consequently integrally connected even though the pleats 17 and 18 are offset relative to the pleats 16. The pleats 17 and 18, being offset relative to the pleats 16, are termed "gallery" pleats, a section of gallery pleated fabric of this type being shown in Figure 4. The gallery pleats 17 and 18 are offset outwardly relative to the pleats 16 and thus the finished lamp shade 13 is adapted to fit snugly around a frusto-conically-shaped wire frame 19 having the horizontally disposed, vertically spaced wire ring sections 20 and 21 between which the inwardly extending portions of the pleats 16 are adapted to fit, the frusto-conical plane common to the inner fold lines of the pleats 16 being smaller than the frusto-conical plane defined by the circular wires 20 and 21. The rings 20 and 21 are in contact with the inside folds of the pleats 22—22 and support the lamp shade 13 against axial displacement relative to the frame 19, it being understood that the natural tendency of the pleated fabric to contract along the fold lines, after being stretched over the wire frame, will tend to hold the lamp shade in place. In addition to this, the shade may be securely held in place on and to the frame by any suitable means, such as sewing, tacking or gluing. It will be noted in Figure 3 that the frusto-conical plane common to the inner fold lines of the pleats 17 and 18 coincides with the frusto-conical plane common to the

outer fold lines of the pleats 16. The wire frame 19 is provided with the conventional wire loop 23, well known in the art, by means of which the lamp shade may be secured in place over the end of an electric light bulb.

Referring now to Figures 5 to 11, which illustrate the process of forming the gallery pleated fabric per se and of shaping the fabric so produced into frusto-conical form, it will be noted, as shown in Figure 5, that the complemental male and female foldable die elements 24—24 are arranged in superposed relation and stretched flat with a suitable length of the material to be pleated sandwiched therebetween. Each of the die elements 24 comprises a rectangular shaped length of relatively stiff material, such as fibre board or kraft paper, which is scored, as indicated by the various dotted lines of Figure 5, to facilitate its being folded along these scored folding lines. The dies may be of any suitable length depending upon the length of the material to be pleated thereby.

In the process of forming the pleated fabric, the material of which the lamp shade is to be formed and which may consist of paper, fabric or fabric-covered paper suitably sized to give it requisite body and the capability of being self-sustaining in form and shape, is initially wetted and while still moist, is interposed between the flattened complemental male and female die elements 24—24 to constitute a laminated assembly of the die elements and the interposed shade fabric. One end of this assembly is then suitably held or secured in fixed position, and by pulling upon the opposite end of the assembly, it is stretched flat and so maintained in taut condition. Thereafter, beginning at the free or unsecured end of the assembly, the die elements, with the shade fabric interposed therebetween, is folded along the scored lines to pleat the same in seriatim, the unfolded portion of the assembly being maintained flat and under tension.

Viewing Figure 5, each heavy dotted line represents a fold line which produces, in the finished fabric, the inner fold line of each pleat thereof, while each light dotted line correspondingly represents a fold line which produces, in the finished fabric, the outer fold line of each pleat thereof. Naturally, in folding the die elements along the fold lines in seriatim commencing with the unsecured end of the assembly, a plurality of identical folded or pleated sections are obtained, each of which includes a plain center pleat 16 and a pair of outwardly offset pleats 17 and 18 respectively arranged to either side of the center pleat.

Each plain center pleat 16 is formed by a scored line 25 and the scored lines 30—30 arranged to either side thereof. Each offset pleat 17 is similarly formed by a scored line 31 and the scored lines 26—26 arranged to either side thereof, while each offset pleat 18 is correspondingly formed by a scored line 32 and the scored lines 27—27 disposed to either side thereof.

The offset pleats 17 and 18 are, of course, integral with their longitudinally alined center pleats 16, but because of the offset relation, the joinder is effected through the medium of the intervening saw-tooth-shaped pleats 22. Of these latter pleats, those which immediately adjoin the offset pleats 17 are each formed by folding the die elements along a scored line 28 and a pair of scored lines 33—33 arranged to either side thereof, at the same time that the die elements are folded along the diagonally extending score lines 35—36 and 37—38. Similarly, the

saw-tooth-shaped pleats 22 which immediately adjoin the offset pleats 18 are each formed by folding the die elements along a scored line 29 and an associated pair of scored lines 34—34, at the same time that the die elements are folded along the diagonally extending score lines 39—40 and 41—42.

It is to be understood, of course, that each similar pleated section of the lamp shade fabric is obtained by folding the corresponding section of the forming elements 24—24 simultaneously along all of the fold lines 25 to 42, inclusive, as just described, thereby producing in seriatim identical pleated sections each of which include a central plain pleat 16 and a pair of offset pleats 17 and 18 respectively joined to opposite ends of the plain pleat by the intervening saw-tooth-shaped pleats 22.

After all of the sections of the dies 24 and the included shade material has been folded tight or compacted, as in Figure 7, the mold is held in this position until the material has set and has conformed to the folded shape of the sections. Thereafter, the dies are released and permitted to relax to the position of Figure 6 and then the molds 24—24 are removed leaving the offset pleated fabric of Figure 4.

The pleated shade material is then formed into tubular form, as shown in Figure 10, with the extremities thereof overlapped and joined together by any suitable means, such as gluing, stapling or tacking, as shown, for example, at 43 (see Figure 12). Thereafter, the tubular hollow structure of pleated fabric is placed over the wire frame 19 and joined thereto in the manner already described.

It will be noted that the same process, with different dies appropriately pre-scored along the proper fold lines, may be carried out to produce a pleated fabric with the offset pleats at one side only of the center pleats instead of at both sides thereof, as shown in the drawings, or a pleated fabric may be produced in which the offset pleats are located between the ends of the base or center pleats, in which case there will be two short saw-tooth pleated sections, similar to the sections 22, joining the offset section, one at each end thereof, to the base or center section. This latter modification, in effect, would be the equivalent of the fabric of Figure 4 except that the two offset sections 17 and 18, instead of extending outwardly from the section 16, would extend inwardly, or expressing it another way, the finished fabric, instead of being formed into the tubular shape after the manner of Figure 10 with the offset pleats 17 and 18 extending outwardly, could be formed into a tubular shape in the reverse manner with the offset pleats extending inwardly. However, in the latter case, care would have to be taken that the material is placed in the molds in such a manner that the right side thereof would be on the outside of the finished product.

It will be noted that I have provided a process by means of which offset or gallery pleated fabric may be readily and inexpensively made in simple and inexpensive molds. It will also be noted that I have provided an offset or gallery pleated fabric by means of which an attractive lamp shade may be readily and inexpensively made.

What is claimed as new and useful is:

1. In a lamp shade a pleated fabric arranged in frusto-conical shape, said fabric having a plurality of adjoining pleated sections, the fold lines of which are parallel, two of said sections of pleated fabric being of similar conformation to

form the end portions of the lamp shade, the fold lines of said end portions being respectively outwardly offset relatively to the corresponding parallel fold lines of the central portion of the lamp shade to provide a double gallery effect, and means disposed within the lamp shade for maintaining said fabric in said frusto-conical shape.

2. In a lamp shade a pleated fabric arranged in frusto-conical shape, said fabric having a plurality of adjoining pleated sections, the fold lines of which are parallel, two of said sections of pleated fabric forming the end portions of the lamp shade and being offset outwardly relative to a pleated section forming the central portion of the lamp shade to provide a double gallery effect, the folds of the central pleated section extending inwardly from and the folds of the end pleated sections extending outwardly from a frusto-conical plane common to the outer fold lines of the central pleated section and to the inner fold lines of the end pleated sections, and a wire frame having spaced open rings horizontally disposed within said lamp shade and between which the inwardly extending folds of said central pleated section are fitted to maintain said fabric in said frusto-conical shape and to prevent movement of said lamp shade axially relative to said wire frame, said frame also having means to engage and to position said lamp shade over the end of an electric light bulb.

3. In a lamp shade a pleated fabric arranged

in frusto-conical shape, said fabric having several adjoining integral pleated sections, one of said sections forming the central pleated portion of the lamp shade, and others forming the end pleated portions of the lamp shade which are offset outwardly relative to the central portion to provide a gallery pleated effect, the fold lines of the aforementioned pleated sections being parallel, the end portions being integrally united to the central portion by forming intermediate pleated portions whose fold lines are at an angle to the said parallel lines, the folds of the central pleated portion extending inwardly from and the folds of the end pleated portions extending outwardly from a frusto-conical plane common to the outer fold lines of the central pleated portion and to the inner fold lines of the end pleated portions, the intermediate pleated portions extending across the said frusto-conical plane, and a wire frame having spaced open rings horizontally disposed within said lamp shade in contact with the inner fold lines of said intermediate pleated portions and between which the inwardly extending folds of said central pleated portion are fitted to maintain said fabric in said frusto-conical shape and to prevent axial displacement of said lamp shade relative to said frame, said frame also having means to engage and to position said lamp shade over the end of an electric light bulb.

SANDOR B. BARTHA.