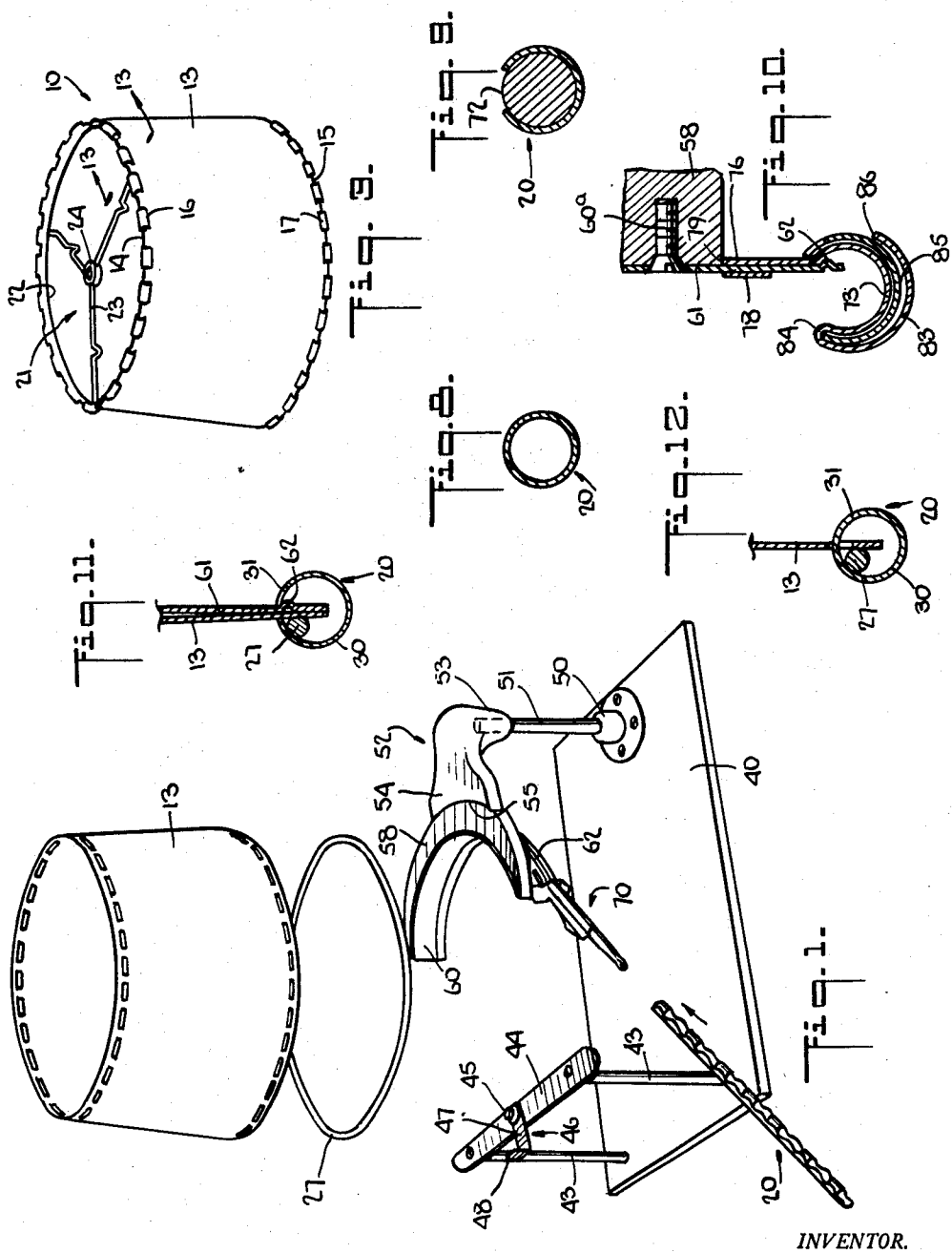
Aug. 9, 1960 A. FREUNDLICH 2,948,198

LAMPSHADES AND APPARATUS FOR ASSEMBLING THE SAME

Filed April 30, 1956 4 Sheets-Sheet 1



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LAMPSHADES AND APPARATUS FOR ASSEMBLING THE SAME

Filed April 30, 1956 4 Sheets-Sheet 2

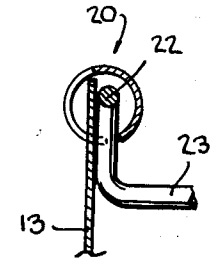


Fig. 1a.

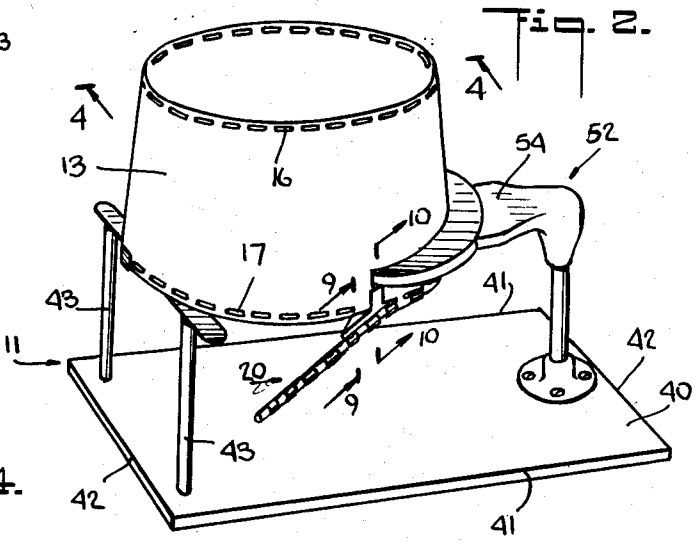
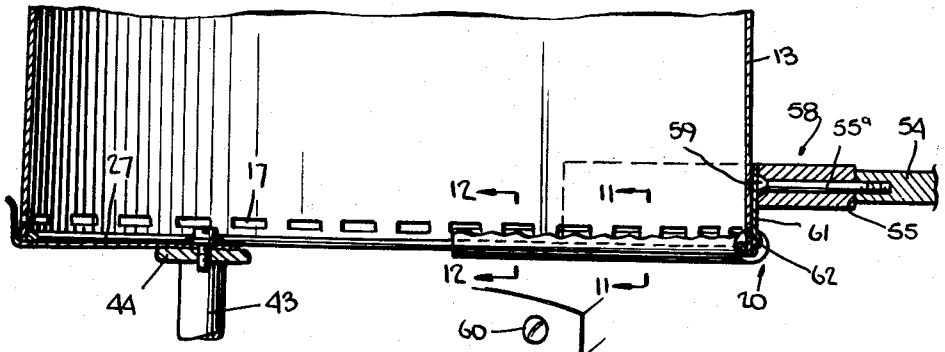


Fig. 2.

Fig. 4.



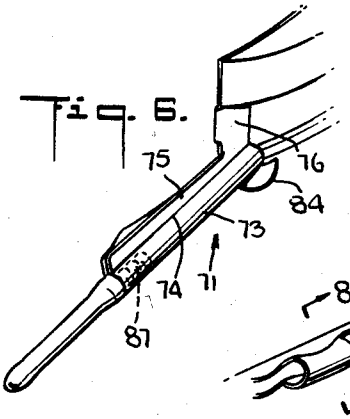


Fig. 6.

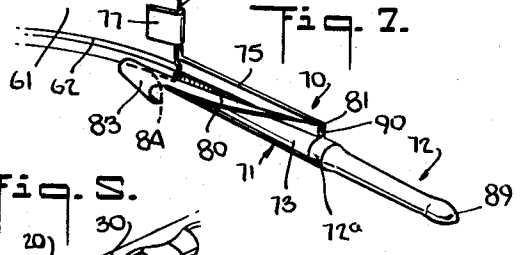


Fig. 7.

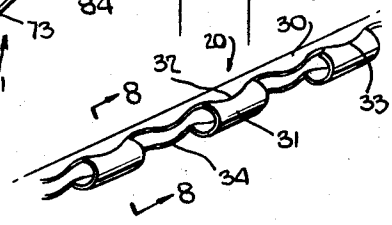


Fig. 5.

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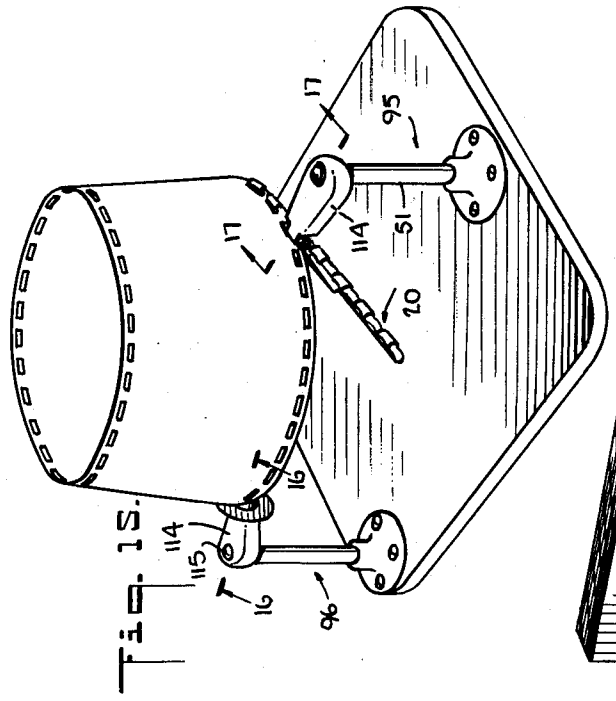


Fig. 15.

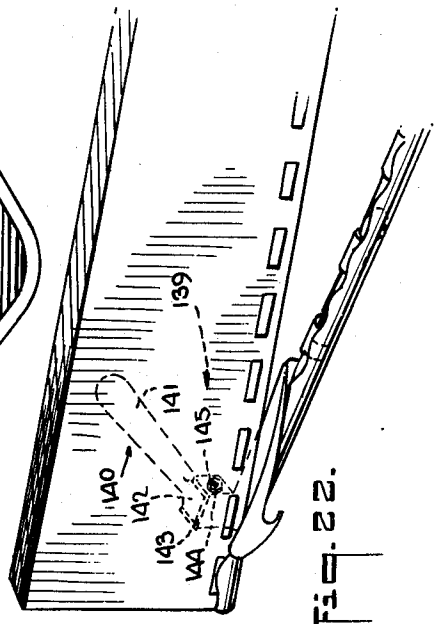


Fig. 22.

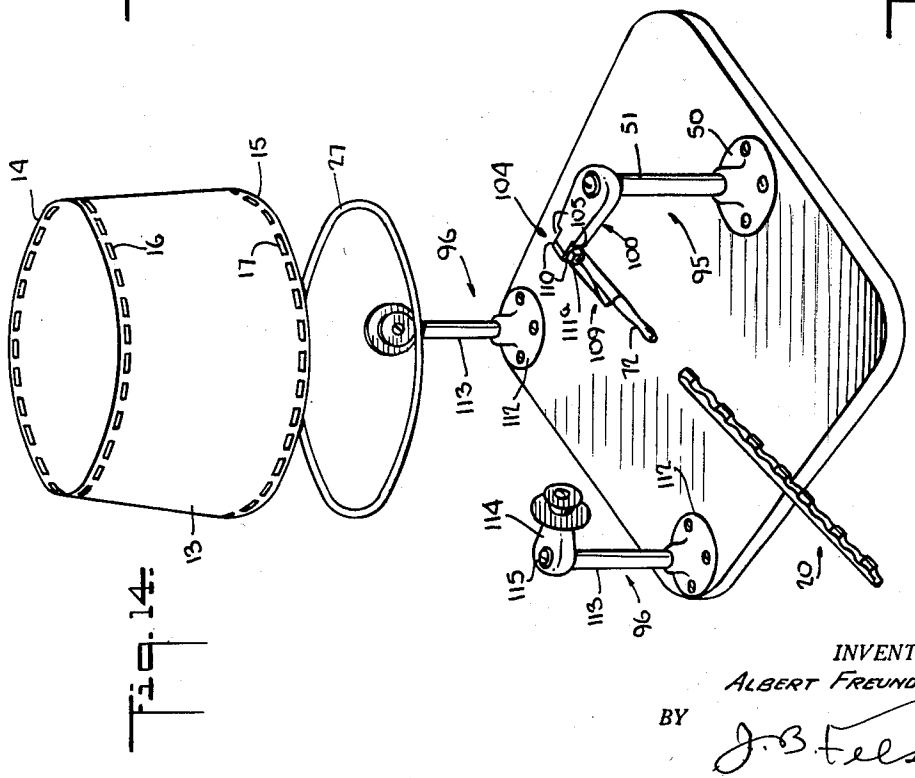


Fig. 14.

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Fig. 16.

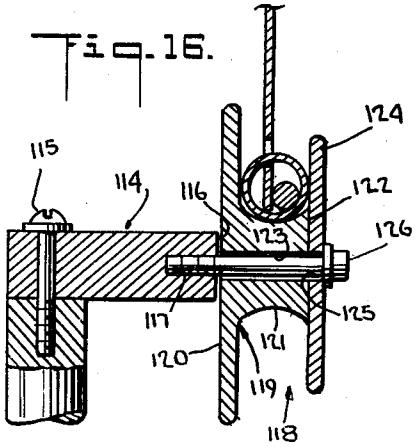


Fig. 17.

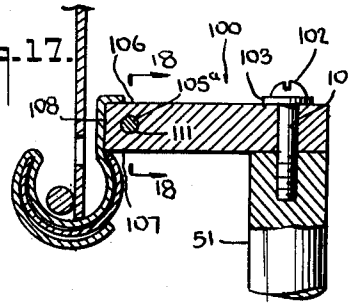


Fig. 19.

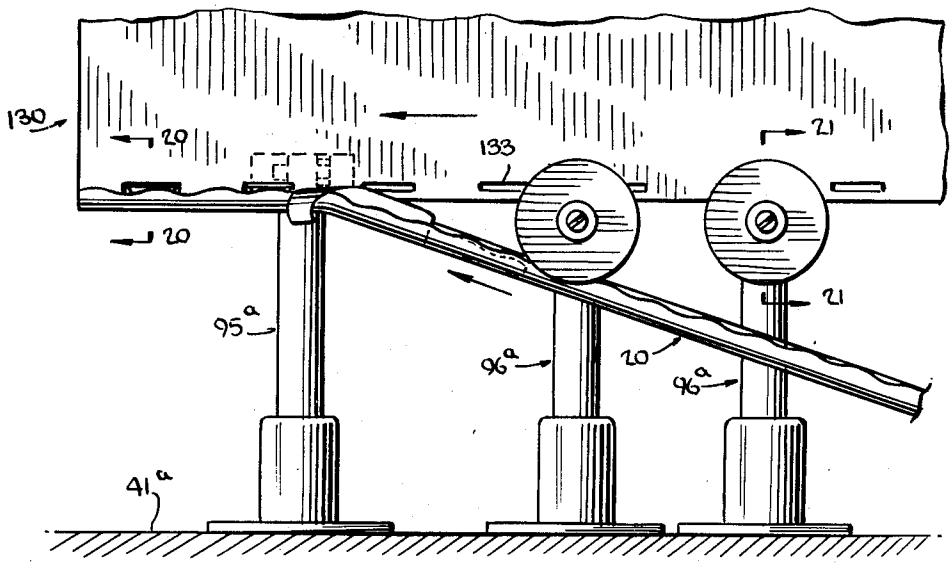


Fig. 21.

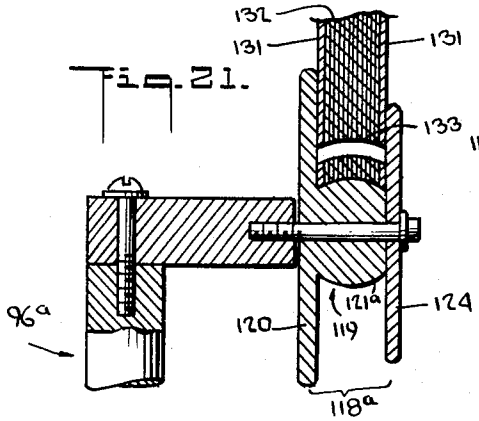


Fig. 18.

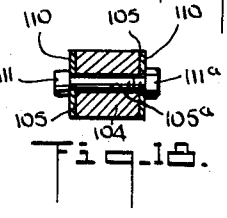
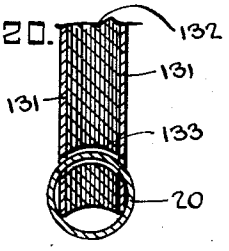


Fig. 20.



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United States Patent Office 2,948,198 Patented Aug. 9, 1960

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LAMPSHADES AND APPARATUS FOR ASSEMBLING THE SAME

Albert Freundlich, New York, N.Y., assignor to Freundlich-Gomez Machinery Corp., College Point, N.Y., a corporation of New York

Filed Apr. 30, 1956, Ser. No. 581,484

13 Claims. (Cl. 93—1)

This invention relates to lampshades and apparatus for assembling the same. It is particularly directed to a lampshade comprising a sheet annular body with wire frames at the upper and lower edges of the body and means for binding the wire frames to the body, and to apparatus for binding the wire frame to the body.

One object of this invention is to provide a lampshade comprising an annular sheet body either cylindrical or frustoconical in shape, circular wire frames at the upper and lower edges of the body and plastic tubular binders for attaching the frames to the body, said binders comprising a backbone and spaced fingers extending from the backbone and encircling the wire frame and passing through openings in the body.

A further object of this invention is to provide a highly improved apparatus for assembling the wire frames with the body by means of tubular plastic bodies of the character described.

A still further object of this invention is to provide apparatus of the character described comprising means for assembling articles other than lampshades, such as books, with tubular plastic bodies of the character described.

Yet a further object of this invention is to provide apparatus of the character described which shall be relatively inexpensive to manufacture, which shall greatly facilitate the assembly of the various parts of the lampshade, which shall be easy to handle, and which shall be economical and highly efficient in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists of the features of construction, combinations of elements, and arrangement of parts, and method steps, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is an exploded perspective view showing the apparatus embodying the invention and illustrating one step in the assembly of the body of a lampshade with a wire frame by means of a tubular binder;

Fig. 2 is a view similar to Fig. 1, and illustrating a further step in the assembly process;

Fig. 3 is a perspective view of a fully assembled lampshade embodying the invention;

Fig. 4 is a partial enlarged cross-sectional view taken on line 4—4 of Fig. 2;

Fig. 5 is a partial perspective view showing a piece of tubular binder used to bind the wire frame to the lampshade body in accordance with the present invention;

Fig. 6 is a somewhat enlarged outside perspective view illustrating the inserting device forming part of the apparatus embodying the invention;

Fig. 7 in an inside perspective of structure shown in Fig. 6;

Fig. 8 is a cross-sectional view taken on line 8—8 of Fig. 5;

Fig. 9 is a cross-sectional view taken on line 9—9 of Fig. 2;

Fig. 10 is a cross-sectional view taken on line 10—10 of Fig. 2;

Fig. 11 is a cross-sectional view taken on line 11—11 of Fig. 4;

Fig. 12 is a cross-sectional view taken on line 12—12 of Fig. 4;

Fig. 13 is a cross-sectional view taken on line 13—13 of Fig. 3;

Fig. 14 is an exploded perspective view of a second possible embodiment of the present invention;

Fig. 15 is a perspective view of the device of Fig. 14;

Fig. 16 is a cross-sectional view taken on line 16—16 of Fig. 15;

Fig. 17 is a cross-sectional view taken on line 17—17 of Fig. 15;

Fig. 18 is a cross-sectional view taken on line 18—18 of Fig. 17;

Fig. 19 is a part sectional elevational view of yet another form of the present invention, adapted for book binding;

Fig. 20 is a sectional view taken on line 20—20 of Fig. 19;

Fig. 21 is a cross-sectional view taken on line 21—21 of Fig. 19; and

Fig. 22 is still another adaptation of a device in accordance with the invention.

Referring now in detail to the drawings, 10 designates a lampshade embodying the invention, and 11 designates an apparatus for assembling the various parts of the lampshade. The lampshade 10 comprises a lampshade body 13 of sheet material, such as parchment, fibre-glass, cardboard, or any other suitable lampshade material. The body 13 is preferably made of fairly rigid, self-sustaining material. The body 13 may be frusto-conical in shape as shown in the drawing, or cylindrical in shape, and is generally tubular or sleeve-like. It has an upper edge 14 and a lower edge 15. The body may be made of one piece of sheet material rolled into sleeve-like shape and the edges overlap and attach to each other or fixed together in any suitable manner.

The lampshade 13 is formed adajacent its upper edge with a plurality of spaced aligned slots 16 parallel and adjacent to the upper edge 14, and with spaced aligned slots 17 parallel to the lower edge 15. Attached to the upper end of the body 13 by means of a plurality of tubular binders 20, is an upper wire frame 21. Said upper wire frame 21 comprises a circular wire 22 to which are fixed radial spokes 23 supporting a central ferrule 24. Attached to the lower edge of the body 13 by means of a plurality of said tubular binders 20 is a lower annular wire frame 27. The tubular binders 20 may be made of synthetic plastic material. The tubes 20 may be cut from extruded tubes of plastic material.

Each tube 20 comprises a backbone portion 30. Extending from one side of the backbone are a plurality of curved spring fingers 31. Spring fingers 31 have outer edges 32 abutting corresponding edges 33 of the backbone. The backbone is formed between the fingers 31 with edges 34. It will be noted that the tubular binders 20 which attach the upper frame 21 to the body have their fingers 31 passing through the upper slots 16. The binders encircle the annular wire portion 22 and extend around the upper edge of the body 13. The wires which attach the lower wire frame 27 to the lower end of the body have their spring fingers 31 passing through the slots or openings 17. Said fingers encircle the wire 27 and extend around the lower edge of the body 13.

The apparatus 11 for facilitating the assembly of the tubular binders with the shade body and wire frames, comprises a bottom base plate 40 which may be rectangu-

lar in shape. The plate 40 has longtiudinal edges 41 and end edges 42. Fixed to the plate 40 and extending upwardly therefrom adjacent one edge 42 adjacent the longitudinal edges 41 are a pair of upstanding posts 43 supporting a horizontal bar 44 at their upper ends. The bar 44 is parallel to the base plate 40 and has a length substantially equal to the width of the plate 40. It has a flat upper surface. Fixed to the center of the bar 44 by means of a screw 45, is a bracket 46. The bracket 46 has a horizontal outwardly extending arm 47, and extending up from arm 47 is a lip or flange 48.

Fixed to the center of the opposite end of plate 40 is a flange head member 50 supporting a vertical post 51. Fixed to the upper end of the post 51 is an angular member 52 formed with a downwardly extending vertical portion 53, and a horizontal portion 54. The vertical portion 53 is formed with a socket to receive the upper end of the post 51. The horizontal portion 54 projects toward the bar 44 substantially at the level thereof. It is formed at its inner surface with an inner curved edge 55. Fixed to said edge 55 as by screw 55*a* is an arcuate member 58. Member 58 is formed with a part circular inner edge 59. Fixed to said edge by means of screws 60 is an arcuate plate 61 extending below plate 58. Plate 61 is formed adjacent its lower edge with a rearwardly beaded shoulder 62 for the purpose hereinafter appearing. The curvature of plate 61 is such as to be substantially similar to the curvature of the larger end of the body 13. The angular extent of plate 61 is about 120° and it is attached centrally to member 54. Fitted on to one end of plate 61 is an inserting device 70 to facilitate the insertion of tubular members 20, as will appear hereinafter for the purpose of assembling the body 13 with the wire frame members.

The inserting device 70 comprises a member 71 made of sheet metal, and a tube 72 attached thereto. Member 71 comprises an elongated part cylindrical portion 73. At one side, portion 73 has a substantially longitudinal fold line 74 from which extends upwardly wing 75. At its rear end, the wing 75 has an upward extension 76. Folded back from the front end of portion 76 is a portion 77 forming with portion 76 a slot 78 receiving one end edge of the plate 61, as shown in Figs. 6 and 7 of the drawing. The upper end edge 79 of portion 76 contacts the underside of member 58. The inner surface of the curved portion 73 may fit over the top of rib 62. Member 70 is inclined downwardly and outwardly from the outer end of plate 60. The outer end edge of the curved portion 73 contacts the lower edge of plate 61 to hold member 70 in mounted position.

Extending from the opposite side of the part cylindrical portion 73 is a wing 80 which contacts the front end of wing 75 as at 81 and may be welded thereto at that point. Wing 80 gradually is curved away from wing 75 gradually exposing the interior of the tubular portion 73. At the rear end of member 70 there extends a finger 83 which is curved backwardly as at 84. The finger 83 is substantially concentric with the tubular portion 73 and is in spaced relation thereto, as illustrated in Fig. 10, thereby forming a curved channel 85. The finger 83 has an end edge 86 spaced from the fold line 74. Thus, member 71 forms a closed tube at its forward end.

Screwed into said tube is the rear threaded end portion 87 of the tube member 72. The tube member 72 tapers forwardly and is formed with a blunt, front pointed end 89.

The method of assembling the parts of the shade will now be explained. The lower frame member 27 is first inserted within the lower or wider end of the body 13, so as to be disposed just below the slot 17. This wire frame with the body then mounted to rest on the bar 43 and on the bracket 46 in such position will also rest on the turned back portion 84 of the inserting member 70. The wire may be held in position against the body by the hand of the operator. The operator then takes a tube 20, moves one end of the tube onto the tube 72 and pushes the tube in the direction of the arrow shown in Fig. 1, so that the forward end edges 90 of the wings 75 and 80 move inbetween the outer ends of the fingers 31 of the tube 20 and the backbone 30 thereof. As this is accomplished, the backbone and the fingers move through the channel 85 of the inserting device. In inserting the tube the spring fingers 31 should be on the outside and the backbone at the inside. As the tube is pushed onto member 70, the fingers are spread open by reason of the fact that the rear end of the tubular portion 73 is spread open. As the tube is pushed past the inserting device, the tube will surround the lower edge of the body 13 and the wire frame 27 and the free ends of the fingers will strike the outer side of the curved plate 61 above the bead 62.

The tubes used for assembling the wire 27 with the body may each have a length equal to about a 120° angle relative to the edge of the body. When a complete tube has been pushed past the inserting device, the body may be pushed down to cause the free ends of the fingers 31 to snap off the bead 62 and the plate 61 and pass through the openings 17. Care should be taken, of course, that the fingers 31 are aligned with the openings 17. After one tube is inserted, the body may be turned through an angle of 120° and then another tube mounted. After that, the body is turned another 120° and a third tube inserted. Then the body may be turned upside down and a wire frame 21 inserted in the smaller end of the body. The same procedure may be repeated with somewhat shorter tubes, whereby to assemble said wire frame with the body. It will be noted that the rear end of the tube member 72 is of somewhat greater diameter as at 72*a* than the front end to start opening up the fingers so that the forward edge 90 may be passed between the fingers and the backbone.

In the modification illustrated by Figs. 14–18, a base support 41 is used, to which is attached inserting assembly 95 and a pair of guide roller assemblies 96.

Assembly 95 comprises a flanged socket 50 secured to said base and an upstanding post 51 seated in said socket. A horizontal member 100, formed with a vertical through opening 101 is mounted at the top of post 51 (see Fig. 17). A screw 102 passes through said opening into the post 51. A washer 103 may be interposed between the head of the screw and member 100. The horizontal member 100 extends from the post 51 inwardly towards the center of the mounting board. The inward end 104 of the member 100 is formed with squared off sides 105, top 106, bottom 107 and leading edge 108. A passage 105*a* extends between sides 105.

An inserting device 109 is attached to the end 104 of member 100. The inserting device 109 is similar to inserting device 70 in that it is made with a frontal tip 72 screwed into an elongated part cylindrical member 70 having an upward flange 75, a tubular portion 71 and curled back flange 80, 84 for spreading open the aforementioned plastic bodies 20.

At the rearward end of flange 75 is a vertical flange extension thereof 76. Flange 76 abuts against the leading edge surface 108 of member 100. Flange 76 is formed with a pair of wing members 110 extending perpendicular to tube 71 and abutting sides 105 of member 100. The wings have a hole in each and bolt 111 passes therethrough and through hole 105*a* securing the inserting device to member 100. 111*a* is a nut on bolt 111.

Spaced equally from each other and from socket flange 50 are a pair of guide assemblies 96 having flanged sockets 112 fitted with upright posts 113 (see Figs. 14, 15, 16). A pair of members 114, similar to member 100, top the posts 113 and are fastened by screws 115. The inward edge 116 of members 114 may be flat. A hole 117 is formed in the surface 116. A guide roller 118 is attached at this point to each member 114. Each guide roller 118 consists of a spindle member 119 and disc 124,

said spindle 119 being formed of a vertical flat disc portion 120 having a central neck portion 121 extending sideways therefrom and having an inwardly curved annular groove. The neck portion has a flat forward surface 122. A hole 123 extends through the axis of spindle 118. The flat disc 124, which may be of smaller diameter than disc portion 120, and which is formed with a center hole 125, is mounted concentrically facing surface 122 of spindle 119. A bolt through holes 125 and 123 into hole 117 fastens the guide roller assembly.

The roller guides and inserting unit are spaced so that the metal ring 27 will rest in the roller guides on the spindle neck 121 and on the inserting device 109 when placed in position accordingly. It will be noted that in this case the spindle neck 121 is concave to accommodate the round wire ring 27. The lampshade body also rests in the position described.

To assemble the lampshade, the plastic binders 20 are fed onto the inserter as usual. As the first finger 31 passes the flange 76, it immediately snaps closed into a slot 17 of the lampshade, encircling the wire ring 27. The ring and lampshade body may then be pulled around in a circular motion. The plastic binder, with one finger after another snapping closed and gripping, will be pulled around too. The process is repeated till the edge 15 of the lampshade is completely bound.

Another application of this invention may be made in the binding of loose-leaf books and tablets. An embodiment of this invention, adapted for bookbinding is illustrated in Figs. 19–21 in which: 41*a* is a base supporting a pair of roller guide assemblies 96*a* and an inserting device assembly 95*a* arranged in a row. An unbound book 130 is set to rest across rollers 118*a* and inserting device 109. A plastic binder is inserted in the usual manner. The book 130 may have a pair of covers 131 and loose leaf filler sheets 132. The cover and filler sheets are formed with corresponding slots 133 adapted to receive the fingers of the plastic binders. The plastic binder is pushed up until the first finger locks in the first slot. The book is pulled in the direction indicated by the arrows. The binding is quickly and automatically completed. The necks 121*a* of spindles 119*a* may be formed convexly as shown in Fig. 21 in order to arch the slots 133 so as to better receive the curved fingers 31 of the plastic binder 20 (see Fig. 20).

Another modification 139 of the present invention adapted to bookbinding and other applications, is shown in Fig. 22. In this embodiment, the inserting device 109 of Figs. 14, 15 and 17 is secured to a wooden handle 140 having a hand grip portion 141 and a squared-off end 142 formed with a through opening 143. A bolt 144, held by nut 145 holds the inserter to the handle. In operation, a plastic binder 20 is started on the inserter 109 and the book held in one hand while the hand inserting assembly 139 is moved with the other hand.

It will thus be seen that there is provided the articles and process in which the several objects of this invention are achieved and which are well adapted to meet the conditions of practical use.

As various other possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. An inserting device for opening the fingers of tubular plastic binders comprising a solid, tubular front tip member pointed at one end, a rear member of resilient sheet material comprising a split tubular portion formed with two longitudinal flanges, one flange extending outwardly radially and running the length of said tubular portion, said other flange having a leading edge contacting the leading edge of said first flange, and having a rearward running portion diverging away from the first flange, said rearward portion of said second flange being curved away from said first flange and having a guide extension following concentrically about the rear end of said tubular portion in outwardly spaced relation thereto, said front tip member being fixed at its rear end to the front end of said rear member.

2. The combination of claim 1, said front member being externally threaded at its rear end, said rear member being internally threaded in the front end of the tubular portion thereof, said front member being concentrically received in said rear member with said threads in engagement.

3. In combination, a base, a plurality of lampshade support means mounted on said base, and a tapered inserter mounted on one of said support means and having means to spread open the fingers of a tubular plastic binder, some of said lampshade guide supports comprising an upright post, a horizontal bracket mounted on said post, and a guide wheel rotatably mounted on said bracket to receive the lower edge of said lampshade.

4. The combination of claim 3, another of said support means comprising a vertical post mounted on said base, a horizontal bracket mounted on said post, and said inserter being mounted on said last mentioned horizontal bracket.

5. The combination of claim 4, said guide wheels and said inserter being mounted equidistant from each other.

6. A device for assembling a tubular plastic binder having a backbone and spaced curved fingers extending from one side of the backbone, with a member having slots to receive said fingers, said device comprising a tip adapted to be inserted into one end of the binder, and a tubular member attached at its front end to the rear end of the tip and having means to spread open the fingers as the binder moves longitudinally of said tubular member, and said tubular member being open longitudinally at its rear end to receive a slotted portion of the slotted member as said member moves with the binder whereby the free ends of the opened up fingers may snap toward said slotted member beyond said inserter.

7. A device for assembling a tubular plastic binder having a backbone and spaced curved fingers extending from one side of the backbone, with a member having slots to receive said fingers, said device comprising a tip adapted to be inserted into one end of the binder, and a tubular member attached at its front end to the rear end of the tip and having means to spread open the fingers as the binder moves longitudinally of said tubular member, and said tubular member being open longitudinally at its rear end to receive a slotted portion of the slotted member as said member moves with the binder whereby the free ends of the opened up fingers may snap toward said slotted member beyond said inserter, and a guide flange extending from the rear end of the tubular member and disposed in outwardly spaced, concentric relation to said tubular member.

8. A device for assembling a tubular plastic binder having a backbone and spaced curved fingers extending from one side of the backbone, with a member having slots to receive said fingers, said device comprising a tip adapted to be inserted into one end of the binder, and a tubular member attached at its front end to the rear end of the tip and having means to spread open the fingers as the binder moves longitudinally of said tubular member, and said tubular member being open longitudinally at its rear end to receive a slotted portion of the slotted member as said member moves with the binder whereby the free ends of the opened up fingers may snap toward said slotted member beyond said inserter, and a guide flange extending from the rear end of the tubular member and disposed in outwardly spaced, concentric relation to said tubular member, and means at the rear end of the tubular member for attachment to a support for said inserter.

9. An inserter comprising a member having a part tubular portion, a longitudinal radial flange extending

from one side of said part tubular portion, a flange extending from the other side of said part tubular portion, and contacting at its front end, the front end of the first flange to close the front end of said part tubular portion, a tapered tip fixed to the front closed end of the said part tubular member, said second flange diverging away from the first flange, rearwardly, to form a space of increasing width between said flanges, said second flange being radial at its front end and gradually curving outwardly toward concentric outwardly spaced relation relative to said part tubular member.

10. An inserter comprising a member having a part tubular portion, a longitudinal radial flange extending from one side of said part tubular portion, a flange extending from the other side of said part tubular portion, and contacting at its front end, the front end of the first flange to close the front end of said part tubular portion, a tapered tip fixed to the front closed end of the said part tubular member, said second flange diverging away from the first flange, rearwardly, to form a space of increasing width between said flanges, said second flange being radial at its front end and gradually curving outwardly toward concentric outwardly spaced relation relative to said part tubular member and having at its rear end, a tongue spaced outwardly and concentric with the rear end of said part tubular member.

11. An inserter comprising a member having a part tubular portion, a longitudinal radial flange extending from one side of said part tubular portion, a flange extending from the other side of said part tubular portion, and contacting at its front end, the front end of the first flange to close the front end of said part tubular portion, a tapered tip fixed to the front closed end of the said part tubular member, said second flange diverging away from the first flange, rearwardly, to form a space of increasing width between said flanges, said second flange being radial at its front end and gradually curving outwardly toward concentric outwardly spaced relation relative to said part tubular member and having at its rear end a tongue spaced outwardly and concentric with the rear end of said part tubular member, and means at the rear end of the first flange to mount said inserter on a support.

12. In combination, a base, means on the base extending upwardly therefrom to support the lower edge of an article having spaced slots adjacent its lower edge for edgewise movement of said article, means to assemble a tubular binder having a backbone and curved similarly spaced resilient fingers extending from one side of the binder, with said article, said assembly means comprising a split tubular member attached at its rear end tot said support means and being closed at its forward end and having a longitudinal opening increasing in width from its front to its rear end, to receive the lower edge of the article, and a tapered tip attached to the forward closed end of the tubular member for insertion into one end of the binder, and means on said tubular member at opposite sides of the longitudinal opening therein for spreading the fingers as the binder is moved onto said tubular member so that said fingers can become aligned with said slots in said article for engagement with said slots.

13. In combination, a base, means on the base extending upwardly therefrom to support the lower edge of an article having spaced slots adjacent its lower edge for edgewise movement of said article, means to assemble a tubular binder having a backbone and curved similarly spaced resilient fingers extending from one side of the binder, with said article, said assembly means comprising a split tubular member attached at its rear end to said support means and being closed at its forward end and having a longitudinal opening increasing in width from its front to its rear end, to receive the lower edge of the article, and a tapered tip attached to the forward closed end of the tubular member for insertion into one end of the binder, and means on said tubular member at opposite sides of the longitudinal opening therein for spreading the fingers as the binder is moved onto said tubular member so that said fingers can become aligned with said slots in said article for engagement with said slots, and means on the rear end of the tubular member concentrically spaced outwardly of said member to form a space through which said binder moves.

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