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C. J. CHAPLIN
MOLDED FIBER ARTICLE
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2,348,725

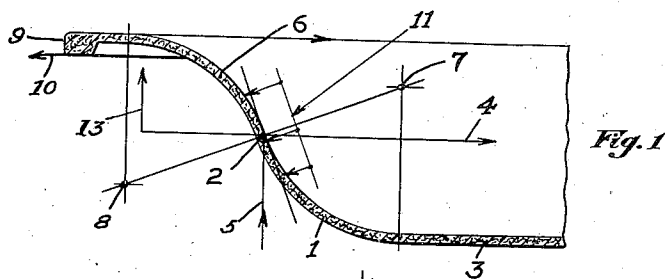


Fig. 1

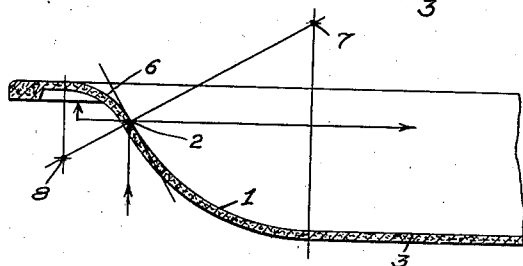


Fig. 2

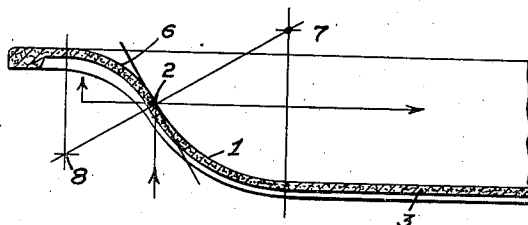


Fig. 3

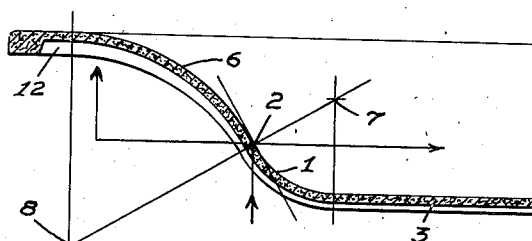


Fig. 4

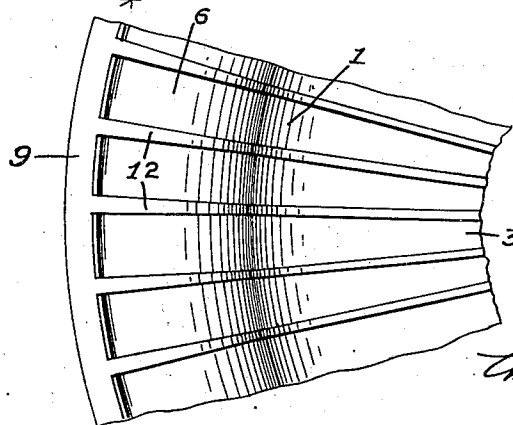


Fig. 5

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MOLDED FIBER ARTICLE

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4 Claims. (Cl. 229—2.5)

This invention has to do with the structural shape of a molded fiber article.

Articles such as this invention contemplates are felted on foraminous dies to a definite size and shape. After drying, the felted fiber form retains its shape within the limits of the fiber strength and the structural design given to any particular article.

Many attempts have been made to produce a felted and molded shape which would be light in weight, inexpensive to manufacture, and still have sufficient strength and rigidity to resist breaking or bending under all conditions of normal use. Many elaborate and complicated structures have been suggested. Attempts have been made in certain of these to employ structural shapes commonly used for steel structures, namely, angles, Z's, channels, etc., or some combination thereof. The application of these steel structural shapes to molded fiber wear frequently results in peculiar and unattractive articles, and frequently the space required to employ and apply such steel shapes is necessarily wasteful of useful space or storage area, particularly in the central portion of the article.

To provide an article with the greatest utility and capacity, as well as one of pleasing appearance, I have found it necessary to forego the use of structural steel shapes, but rather employ an arch structure, as shown by the following figures.

Fig. 1, a structural shape made of two intersecting curves or arches of substantially equal arc or radius.

Fig. 2, a structural shape made of two intersecting curves or arches of different arcs, with the larger nearer the central portion of the article, and the smaller nearer the edge or rim of the article.

Fig. 3, a structural shape made of two intersecting arches of approximately the same arc, both being reinforced by ribs.

Fig. 4, a structural shape made of two intersecting arches of different arcs, the smaller being nearer the central portion of the article, and the larger being nearer the edge or rim, both being reinforced by ribs integral therewith.

Fig. 5, a bottom plan view of the structure of Fig. 4.

In all of the structures herein disclosed, the enclosing portion of the article is made up of two intersecting arcs or arches merging with each other at their point of tangency, with no intervening structure either curved or straight, therebetween. The inner arch, by curving upwardly and inwardly forms a natural, strong, rigid struc-

ture. This inner arch is shown at 1 and curves upwardly from the bottom portion 3 of the article to a point 2 where it joins directly with the outer arch 6. It will be obvious that such a design provides an inherently strong and rigid article section, as the upper arch terminus 2 is held rigidly in the directions of arrows 4 by virtue of the fact that it is circular, which, in turn, holds point 2 in its upright position in the direction of arrow 5, thereby forming a firm, rigid abutment for the outer arch 6.

The outer arch 6 is directly joined to the inner arch 1 at point 2 as has been previously described and curves upwardly and outwardly as shown in Figs. 1 to 4. Preferably, the outer end of this arch merges with a reinforcing edge portion 9, which, being curved in plan, resists any outward movement in the direction of arrow 10. It will, therefore, be seen that the arch 6 is supported by abutments 2 and 9. Abutment 9 cannot move outwardly to allow the arch 6 to collapse by virtue of the fact that it is circular, as shown in Fig. 5. Abutment 2 is fixed in all directions, as before described, and the greater the pressure of article contents in the direction of arrow 11, the more firmly abutment 2 is held in position, both by the rigidity along line 4 and the natural tendency of the forces acting along arrows 11 to further fix the abutment 2 in position and, therefore, prevent any tendency of the arch 6 to collapse.

The center of the inner arch is indicated in all cases at 7 and the center of the outer arch at 8. The line between these points 7 and 8 passes through point 2, or the meeting point of the two arch portions 1 and 6. It will thus be seen that these two arch portions, joined as they are, form a shape, attractive in appearance and devoid of sharp bends and angles which are not only unattractive, but form a weak point in the structure. Each arch directly reinforces the other, thereby affording maximum strength and stiffness.

The depth, shape and appearance of the article may be varied widely by varying the relative arch radii without departing in any way from the structural design. In Fig. 1 the radii are shown as equal, thereby providing an article of considerable depth and with a comparatively high and steep side wall. In Fig. 2, the inner arch radius is made considerably greater than the outer arch radius, thereby increasing useful space in the central portion of the article. In Fig. 4 the relative arch radii lengths are reversed from that shown in Fig. 2, thereby providing a wide,

sloping, enclosing rim about the article, and useful in the display of certain products or materials.

Mention is made of the reinforced edge portion 9 about the extreme edge portion of the article. While not absolutely necessary, such reinforcement does provide greater strength and rigidity to arch 6 by more firmly and strongly fixing its outer abutment in position. While a reinforced edge abutment is preferable, it is not, however, absolutely essential.

In Figs. 3 and 4 there is shown reinforcing ribs on the under side of the article extending throughout the length of both arches and across the bottom surface of the article. These ribs are advantageous in providing additional stiffness to the arch structures without adding materially to the weight of the article or the cost of its manufacture. These ribs 12 may be of uniform size throughout or their thickness and depth may be increased throughout a portion or all of the outer arch and merge with the reinforced edge 9 thereby forming a bracing and stiffening effect of the entire arch structure.

Where articles can be made of metal, porcelain, plastics, or some material having in itself great stiffness and rigidity, many of the herein-disclosed features, outside of those of appearance, are quite unnecessary. However, for molded fiber wear, designed to be used once and discarded, cost becomes an important item, therefore, neither expensive materials nor great thickness and weight are in any way permissible. It will, therefore, be seen that I have devised a novel and attractive shape for molded fiber wear, and yet one which is extremely simple to manufacture and, consequently, can be inexpensive and economically produced.

What I claim is:

1. An article of the class described comprising a bottom portion, a thickened reinforced edge 40

portion, two reversely curved tangentially joined enclosing rim portions, the outer of which merges into the thickened reinforced edge portion, and external reinforcing ribs integral with all of said portions.

2. An article of the class described having a bottom portion, two reversely curved enclosing portions joining each other and the bottom portion tangentially, an integral foldless thickened reinforcing edge about the periphery of the outer enclosing portion, and foldless exterior ribs formed integral with the bottom and the reversely curved enclosing portions and with the thickened reinforcing edge and merging into said thickened reinforcing edge.

3. As a new article of manufacture, a contoured fibrous pulp article having a foldless body wall provided with an integral foldless thickened reinforcing edge about its periphery, and solid foldless exterior ribs formed integral with said body wall and thickened reinforcing edge and merging into said thickened reinforcing edge, said body wall comprising a bottom merging into a side wall successive portions of which are reversely curved and the outermost curved portion of which merges into the thickened reinforcing edge.

4. A molded pulp article having a bottom portion, a thickened reinforced edge portion spaced therefrom, a side wall portion composed of two integral reversely curved arches integral with and consecutively interposed between said bottom and edge portions and tangential therewith and with one another, and external reinforcing ribs formed integral with said bottom and side wall portions and with the thickened reinforced edge portion and merging into said thickened reinforced edge portion.

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