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H. F. WATERS

2,109,558

SHEET MATERIAL AND ARTICLES MADE THEREFROM

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Fig. 1

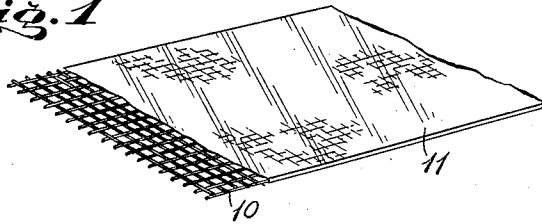


Fig. 2



Fig. 3



Fig. 4



Fig. 5

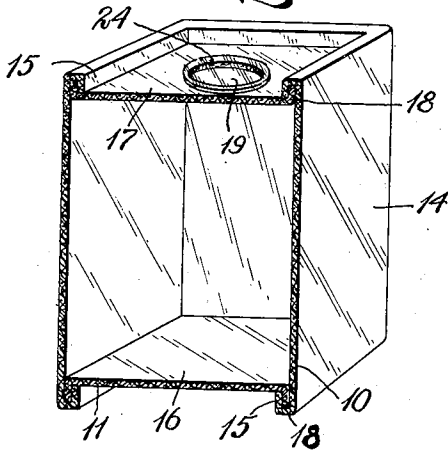


Fig. 7

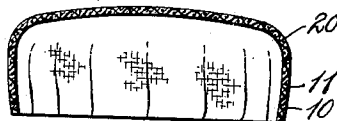


Fig. 9

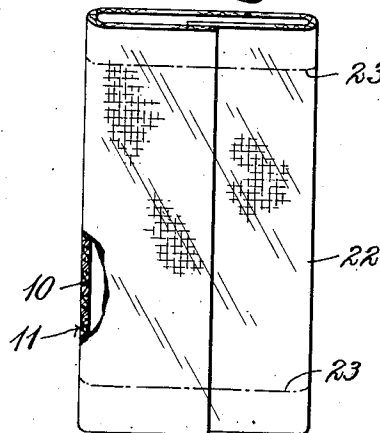
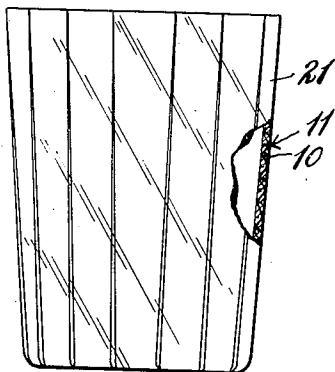


Fig. 8



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SHEET MATERIAL AND ARTICLES MADE THEREFROM

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3 Claims. (Cl. 91-68)

This invention relates to a sheet material and articles formed therefrom.

One of the objects of the invention is to provide a material of sheet formation from which containers of various sizes and conformations may be made, so that the goods displayed therein are visible, or through which labels and other indicia may be visible where applied to containers of a more permanent form such as glass or heavy cardboard.

A further object of the invention is to provide a sheet material of a regenerated cellulose base having associated therewith a re-inforcing element or elements, so that the sheet is re-inforced to the end, first, that it will retain the goods or merchandise packed therein without danger of the package breaking and, second, so that when the edges or other part of the sheet are bent into a desired form the re-inforcement is of sufficient rigidity that the sheet retains the form into which it is bent. It is intended that the re-inforcement be of such nature that it have an inherent rigidity sufficient to that end.

A further object of the invention is to form such a sheet for forming a container of a body, made of fibrous or metallic material, and/or, when made of the fibrous material to coat the threads of fibrous material with a metallic, preferably powdered, body for the purpose of making the same sufficiently strong to resist the strains of the packaged body and to have an inherent stiffness to retain the same in any shape into which it is formed.

A further object of the invention is to provide a formed article or container made from a re-inforced sheet of material which is translucent or transparent enough to permit the goods or merchandise to be viewed, or through which may be read a label or other indicia which may be applied to a container.

The invention consists of the construction, combination and arrangement of parts, as herein illustrated, described and claimed.

In the accompanying drawing, forming a part hereof, is illustrated a form of embodiment of the invention and its application to a plurality of containers, in which drawings similar reference numerals designate corresponding parts, and in which:

Figure 1 is a perspective view, partly broken away to show the cellulose sheet and its re-inforcement;

Figure 2 is a section taken at a right angle through the construction shown in Figure 1;

Figure 3 is a section through a modified form

in which the cellulose base is applied on one side only of the re-inforcing element;

Figure 4 is a section through a sheet of material, where the re-inforcing element is of a fibrous nature and to which a metallic powder has been added for the purpose of adding rigidity and strength;

Figure 5 is a perspective, partly in section, showing the construction of an oblong, rectangular container, formed from the sheet material herein described;

Figure 6 is a perspective of a milk bottle cap formed of the sheet material herein described;

Figure 7 is a transverse section taken through Figure 6;

Figure 8 is an elevation, partly broken away to show a section showing the application of the sheet herein described, as applied to a cup or container; and,

Figure 9 is an elevation, partly broken away to show a section illustrating the application of the sheet to an ordinary bag or sack.

Referring to the drawing, 10 designates a reticulated or foraminated metallic or textile sheet of sufficient rigidity to retain its shape when bent into a particularly desired shape, and particularly where it is associated with a covering of a product 11 made from a regenerated cellulose base, such as the product known on the market as "Cellophane".

In Figure 2 is illustrated a construction in which the re-inforcing element 10 is covered on both sides by the regenerated cellulose base product 11, and in Figure 3 the regenerated cellulose is applied to one side only of the re-inforcing element 10.

In Figure 4 there is illustrated the re-inforcing element 10 which may be made of a wide mesh textile fibrous body such as cheesecloth. To add rigidity and strength the strands 12 are impregnated with a liquid covering and metallic powder 13.

Products made from sheets of a regenerated cellulose base are transparent, so that merchandise packed therein may be viewed and such products are protected from deterioration by reason of dampness or atmospheric action. The re-inforcements 10 or 12 add sufficient strength so that the package will not break open under ordinary usage, and there is sufficient rigidity to the sheet that when it is bent into a particular shape it will retain that shape.

In Figures 5 to 9 are illustrated a number of different applications of the product to various containers.

In Figure 5 the container is the usual rectangular or oblong package having a side wall 14 provided at the top and bottom with inwardly bent flanges 15, and in association therewith a bottom 16 and a top 17, the latter of which are provided with outwardly turned flanges 18 to be engaged by the flanges 15. The side wall 14 may be formed with the ordinary press and the bottom 16 and the top 17 likewise separately formed and the parts assembled. Pressure by the ordinary press on the flanges 15 effectively secures the parts together and they will remain secured owing to the inherent rigidity of the re-inforcement element 19.

The top 17 may be provided with an opening 19 so that after the goods are packed by the application of suction the air inside of the container may be exhausted and the container sealed with an ordinary sealing cap 24, which also may be formed of the same material as the body of the container.

In containers such as bottle caps as shown in Figures 6 and 7, the cap 20 may be formed with a die from the material described and when so formed will retain its shape by reason of the inherent rigidity of the material, and at the same time will permit sufficient visibility so that the inside cap bearing indicia, as to date of packing, etc., may be viewed through the cap 20.

The cup 21 illustrated in Figure 8 may be formed from a single die pressing operation and experiment has shown that the cup so formed will retain its shape under trying conditions of use, even where hot liquids are served therein.

The ordinary paper sack form of containers shown in Figure 9 may be readily formed from the material described, the body 22 thereof being made from a single sheet and the ends thereof bent down along the lines 23, and when the overlapped ends are pressed together the material has sufficient inherent rigidity to retain its closed position.

Experiment has further shown that an extremely open mesh textile, fibrous body, such as wide mesh cheese cloth, may be used as the re-inforcing element, and for lighter articles of mer-

chandise is entirely effective. However, to add weight, strength and greater rigidity, the fibrous strands of such textile may be impregnated with a liquid carrying a metallic powder 13. When so re-inforced the product is capable of use with merchandise of almost indefinite weight and contour.

Where the material is used to cover glass containers the labels thereof are clearly discernible through the material and at the same time the material acts as a cushion and protective element to the glass container, and when the ends of the material are forced around the bottom and neck of the glass container, the material retains its shape without further or other fastening means.

Where a container is formed of the material described and the meeting edges are not overlapped, a suitable cementitious material may be used where it is desired to make the container moisture-proof.

It is contemplated that the product will be used for an indefinite number of purposes in packaging merchandise and the applications shown in the drawing are merely for illustration and not for the purpose of limiting the disclosure as to use.

Having thus fully described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A material for forming articles of commerce comprising a sheet of regenerated cellulose and a fibrous re-inforcing element impregnated with a metallic powder stiffening medium associated therewith.

2. A material for forming transparent, semi-rigid containers comprising a sheet of bendable regenerated cellulose, said sheet having incorporated therein a fibrous mesh re-inforcement, the fibers of said mesh being impregnated with a metallic powder.

3. A transparent, semi-rigid container formed of a sheet of bendable regenerated cellulose, said sheet having incorporated therein a fibrous mesh re-inforcement, the fibers of said mesh being impregnated with a metallic powder.

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