May 9, 1933. A. H. J. WRIGHT 1,908,395

PANEL AND SHEET FOR BUILDING AND OTHER CONSTRUCTIONAL PURPOSES

Filed Feb. 12, 1931

Fig. 1.

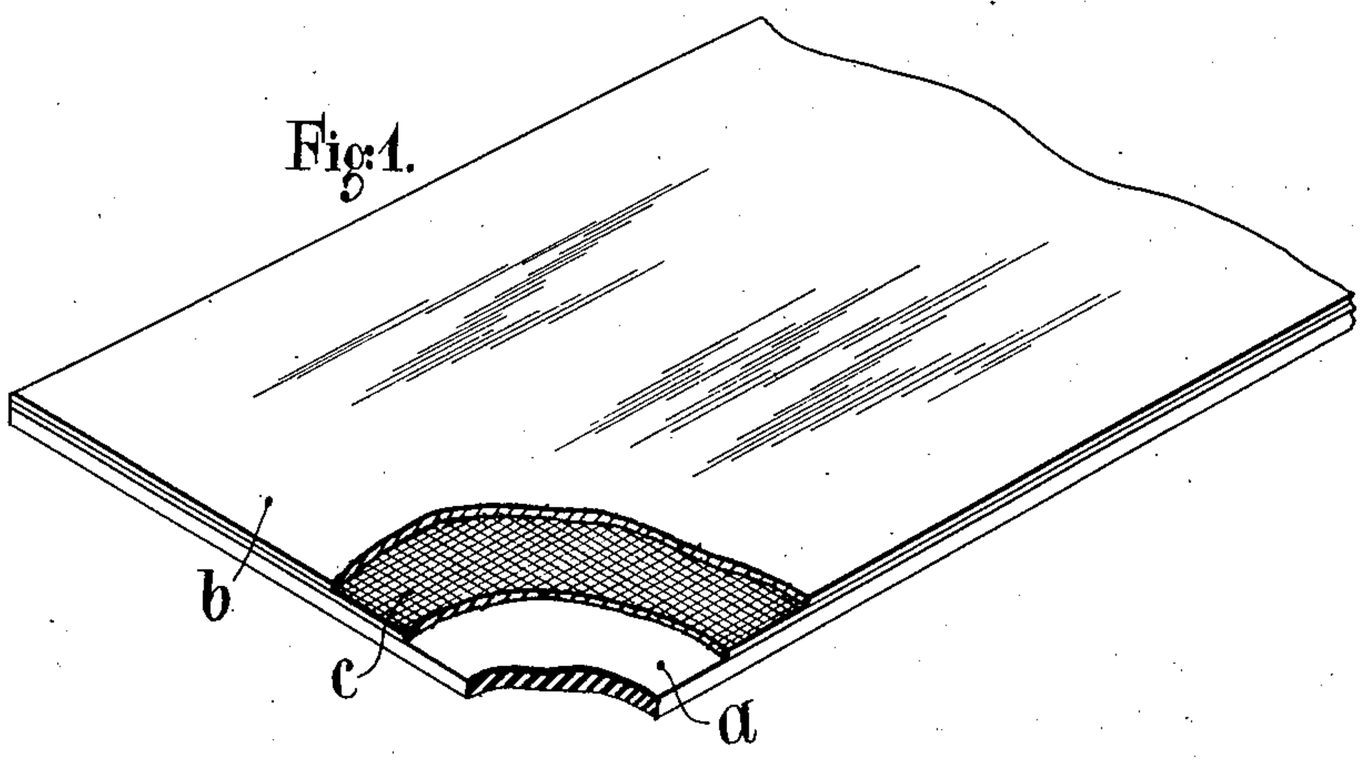
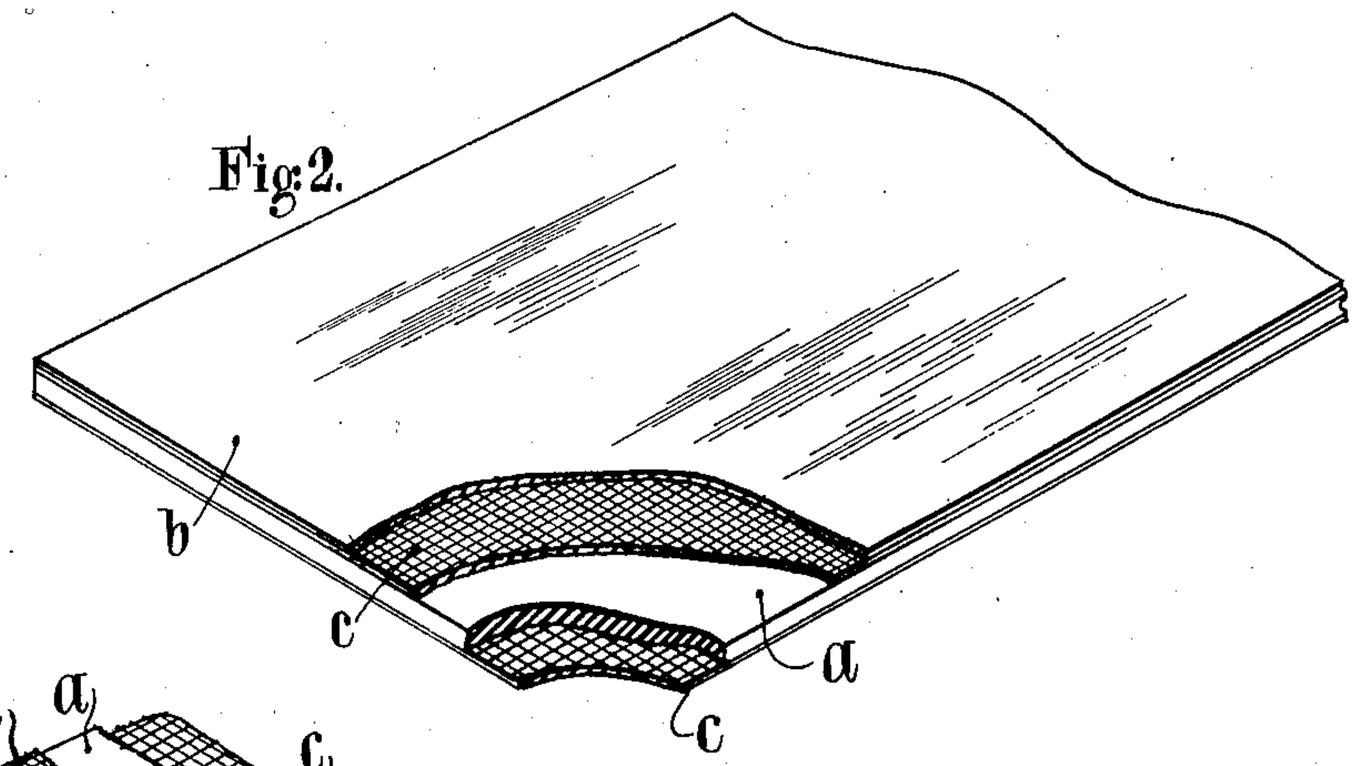


Fig. 2.



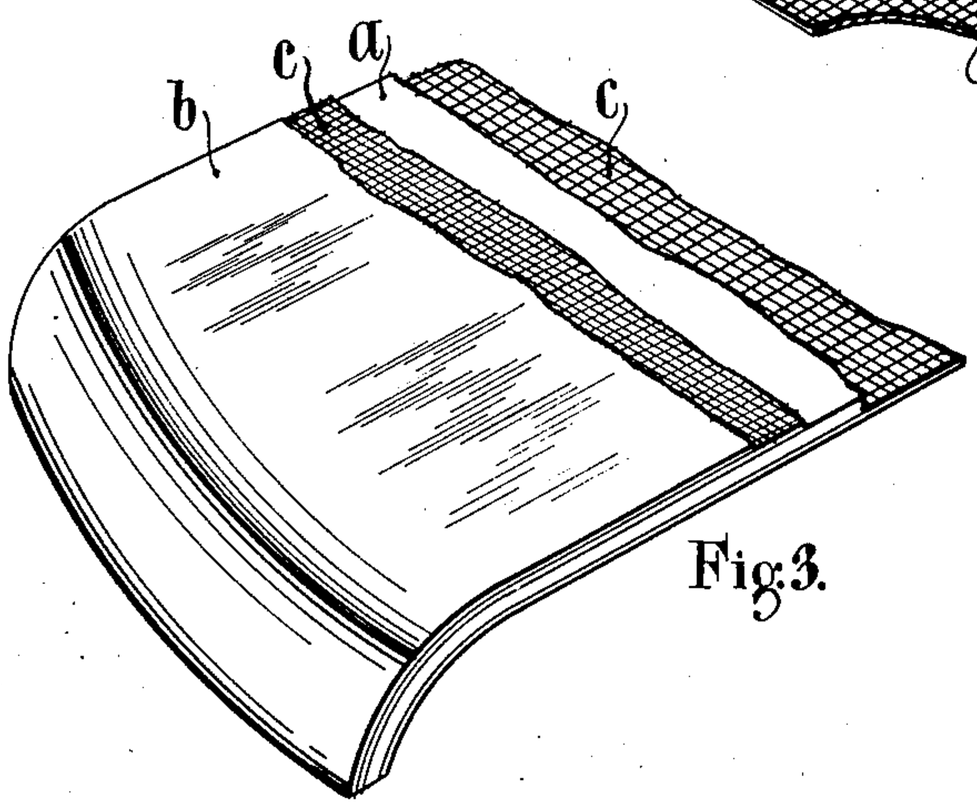


Fig. 3.

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UNITED STATES PATENT OFFICE

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PANEL AND SHEET FOR BUILDING AND OTHER CONSTRUCTIONAL PURPOSES

Application filed February 12, 1931, Serial No 515,425, and in Great Britain January 15, 1931.

This invention relates to the manufacture of panels and sheets for building and other constructional purposes and has for object to provide improvements therein.

A panel or sheet made according to the present invention is made in at least three layers, namely an outer layer consisting primarily of a cellulose derivative, as for example celluloid or cellulose acetate, a backing or core made of asbestos-cement, and a sheet of fabric as for example linen, calico, silk, or other woven fabric, disposed between the cellulose layer and the asbestos-cement backing, and serving as a medium for permitting adhesion between the said cellulosic layer and the backing.

The cellulosic layer may be applied in sheet form or it may be applied as a spray or varnish. The cellulosic layer further may consist of celluloid or cellulose acetate, or any suitable derivative of cellulose, as for example that cellulose derivative sold under the registered trade mark "Rhodoid".

If the panels are intended for use in the construction of vehicles, for example, automobiles, railway vehicles and the like, the backing may consist of a sheet of asbestos having high fibrous composition or the backing may consist of a laminated structure consisting of a number of sheets of asbestos impregnated with bitumen and glued together.

In carrying out the invention with the cellulose derivative in the form of a sheet the fabric may first be applied to one side of the sheet and the structure thus formed may be glued to the backing. If the cellulosic derivative is applied as a spray or paint the fabric would first be applied to the backing.

In general it may be said that if the cellulosic derivative is to be of a plain color then spraying or painting would be a suitable way of applying it to the fabric-covered surface of the backing. If on the other hand it is desired to have a multi-color or other effect then the cellulosic derivative may be applied in sheets to which has been imparted the desired multi-color or other effect.

The accompanying drawing illustrates by way of example various forms of panel made according to the invention, wherein Figs. 1 and 2 are perspective views of flat panels, and Fig. 3 is a similar view of a curved panel. Fig. 1 illustrates the construction of a wall panel. It comprises a backing *a* consisting of a sheet of asbestos cement to which a sheet *b* of celluloid or other desired cellulosic derivative is applied through the medium of a sheet of fabric *c*. The asbestos sheet may be about ¼″ thick and may consist approximately of 75% cement and 25% asbestos fibre. After the composition sheet is felted it is pressed or faced so that one side is quite smooth and flat. After maturing for about 12 hours the backing sheet is immersed in water for approximately 5 days and then allowed to dry for about seven days. One surface of the celluloid is first softened with amyl acetate and the calico is then pressed on to the softened surface. The contacting or smooth surface of the asbestos cement is then treated with a coating of diluted adhesive and allowed to dry. This preliminary coating will assist adhesion and prevent impurities from reaching the facing sheet when the facing sheet is secured to the backing sheet. Casein glue in the form of paste, prepared by dissolving casein in a cold saturated solution of borax, is now applied either to the smoothed surface of the asbestos cement or to the calico on the celluloid sheet or to both. The two glued surfaces, now tacky, are then placed together and put in a press until the glue has set.

A panel made as above described may be secured to a wall by screws.

If the cellulosic derivative is to be applied as a spray or paint the cellulosic derivative is dissolved in a suitable solvent. The surface of the asbestos cement is smoothed as before and a liquid casein glue is applied to the smooth surface and allowed to dry. A sheet of fabric is now dipped in a liquid casein glue, applied to the asbestos cement and allowed to dry. The paint or varnish consisting of the dissolved cellulosic derivative can now be applied by spraying or painting on the free surface of the fabric.

The panel is then dried and is ready for fitting.

The panel shown in Fig. 2 is to be used in the construction of coachwork of automobiles and other vehicles and consists of a backing or core *a* of asbestos of high fibrous composition covered on both sides with sheets of fabric *c*, *c*, the glueing being effected in the manner above described. The panel thus obtained is covered with a cellulosic derivative *b* either as a spray or paint or as a sheet.

Fig. 3 shows a curved panel made according to the invention consisting of asbestos core *a*, a sheet of fabric *c*, *c* on each side of the core *a*, and a layer of cellulosic derivative *b*. An alternative backing or core may consist of a laminated structure consisting of one or more sheets of asbestos impregnated with bitumen and glued together in the case of a number of sheets of this material.

Casein glue used in the examples given may have approximately the following proportions, namely 20 grammes of casein dissolved in 5 grammes of borax in 140 cc. of water. Alternatively the adhesive may be prepared from a combination of approximately 80% albumen with 20% of alkaline solvents.

Panels made according to the present invention when made up may be easily cut with a saw and will not chip or crack and are practically fireproof. Such panels or the like may be washed with hot water without injury to their composition or their decorative effects. In order to add to the ornamental effect artificial silk or the like is applied to the contacting face of the backing sheet or the facing sheet. If desired the rear face of the panels or the like may be formed or provided with dovetailed grooves or lugs or with other suitable means for fixing to walls or other suitable backing.

Any desired pattern or design may be incorporated in the woven fabric, and such design may be in one color or a number of different colors. The design would be apparent through the cellulosic material constituting the surface layer.

What I claim and desire to secure by Letters Patent is:

1. A built-up panel for building and other constructional purposes, comprising a backing sheet of asbestos-cement, a facing sheet consisting primarily of a derivative of cellulose, and an intermediate sheet of woven fabric the surfaces of which are secured to one surface of the backing sheet and one surface of the facing sheet respectively.

2. A built-up panel for building and other constructional purposes comprising a backing sheet of asbestos-cement; a facing sheet consisting primarily of a derivative of cellulose, and an intermediate sheet of woven fabric glued to the backing sheet and the facing sheet respectively.

3. A built-up panel for building and other constructional purposes comprising a backing sheet of asbestos-cement, a facing sheet consisting primarily of an ester of cellulose, and an intermediate sheet of woven fabric glued to the backing sheet and the facing sheet respectively.

4. A built-up panel for building and other constructional purposes comprising an asbestos-cement core in the form of a sheet, a sheet of woven fabric glued to each surface of the core and a layer of a cellulose derivative secured to at least one of the woven fabrics.

5. A built-up panel for building and other constructional purposes comprising an asbestos-cement core in the form of a sheet, a sheet of woven fabric glued to each surface of the core and a layer of an ester of cellulose secured to at least one of the woven fabrics.

6. A built-up panel for building and other constructional purposes comprising an asbestos cement core in the form of a sheet, a sheet of woven fabric glued to each surface of the core by means of a glue consisting of a solution of casein in borax and water and a layer of a cellulose derivative glued to at least one of the woven fabrics with the same glue.

7. A built-up panel for building and other constructional purposes comprising an asbestos cement core in the form of a sheet, a sheet of woven fabric glued to each surface of the core by means of a glue consisting of approximately 80% albumen and 20% alkaline solvents and a layer of a cellulose derivative glued to at least one of the woven fabrics with the same glue.

8. A built-up panel for building and other constructional purposes comprising an asbestos cement core in the form of a sheet, a sheet of woven fabric glued to each surface of the core by means of a glue consisting of a solution of casein in borax and water and a layer of a cellulose ester glued to at least one of the woven fabrics with the same glue.

9. A built-up panel for building and other constructional purposes comprising an asbestos cement core in the form of a sheet, a sheet of woven fabric glued to each surface of the core by means of a glue consisting of approximately 80% albumen and 20% alkaline solvents and a layer of a cellulose ester glued to at least one of the woven fabrics with the same glue.

In testimony whereof, I affix my signature.

ARTHUR HENRY JAMES WRIGHT.