G. J. MANSON.

PULP BOARD.

APPLICATION FILED NOV. 24, 1911.

1,067,825.

Patented July 22, 1913.

FIG. 3.

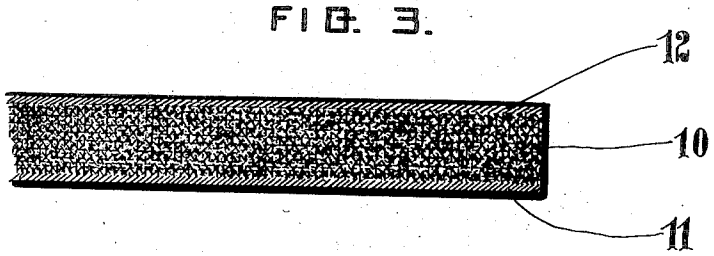
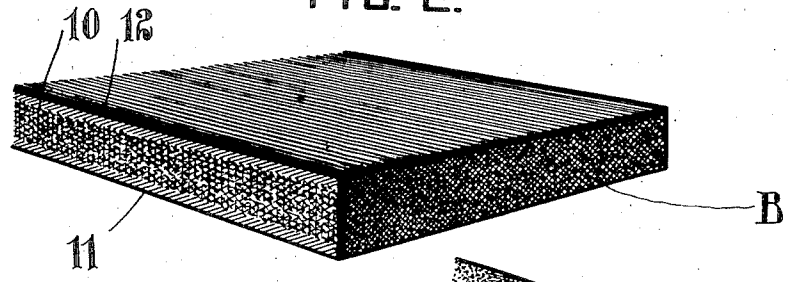


FIG. 2.



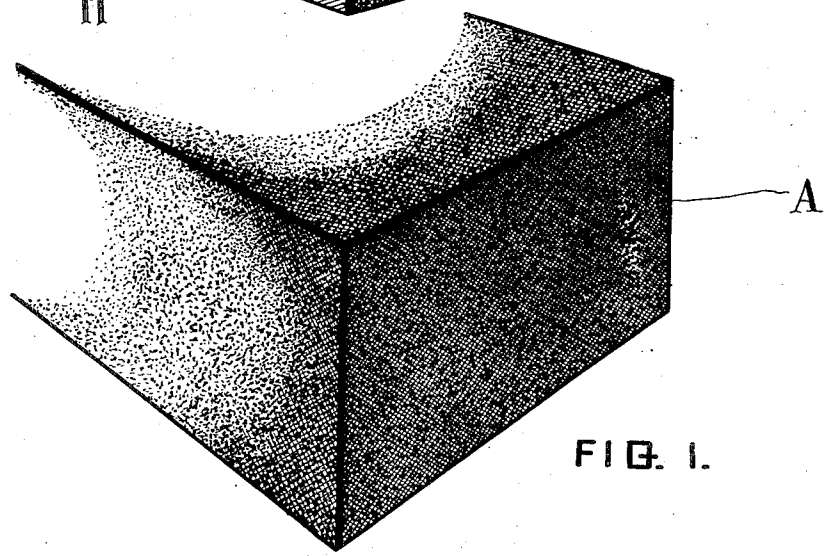


FIG. 1.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE JAMES MANSON, OF THOROLD, ONTARIO, CANADA.

PULP-BOARD.

1,067,825. Specification of Letters Patent. Patented July 22, 1913.

Application filed November 24, 1911. Serial No. 662,198.

To all whom it may concern:

Be it known that I, GEORGE JAMES MANSON, of the town of Thorold, in the county of Welland, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Pulp-Boards, of which the following is a specification.

This invention relates to improvements in pulp boards such as are at present used for a variety of purposes in the arts, such for example, as the lining of the inner walls of buildings, the manufacture of doors, windows, articles of furniture and the like.

The objects of the invention are to provide a light but strong board without interior grain which will not split or warp during use and possessing sound deadening and insulating qualities.

Further objects are to provide an improved surface on the pulp board adapted to take a variety of kinds of finish, and to itself possess a finish which will possess utility for certain purposes.

In the ordinary manufacture of pulp and paper board, it is the usual practice to produce a more or less laminated structure; a structure in which there are several more or less distinct layers in which the fibers are more or less parallel or felted. This effect is due to the manner of manufacture in which the sheets are produced with more or less extension, as in working over wire cloth, etc. As the result of these treatments, the ordinary pulp boards are structures in which the fibers in the body of the material extend more or less parallel to each other and with the surface of the board. Because of this stratified or lamellar arrangement and of the parallel disposition of the interiorly located fibers there are usually distinct lines of cleavage or separation; the material is more or less foliated in structure and can be separated into leaves or sheets. Such a board is therefore apt in use to peel or exfoliate. And because of the non-homogeneous or non-integral structure, the board is apt to warp and change in shape.

The present invention aims to provide a relatively thin light board free of stratification or lamellar structure, in which the fibers will be in irregular or random arrangement and extending in practically all directions, with many of the fibers extending crosswise of the thickness of the sheet. With this interior structure, the board is an integral body instead of being foliated or laminated. To accomplish this result, in the present invention fluid pulp stock such as paper pulp, wood pulp, or pulp screening, is run into suitable dies or molding mechanism of a character adapted to form a block or slab, is pressed to the compactness desired, and is then dried in a suitable kiln until it is quite dry. In this operation the pulp fibers retain their original irregular or random arrangement. It is found that the surface of the pulp board produced in this manner is more or less irregular because of the disposition of the surface fibers, and not very well adapted to receive a coat of plaster or other finishing material. To overcome this defect and produce an improved surface effect it is proposed to first press a relatively thick slab or sheet of pulp board and then to saw or finish this into sheets of less thickness thereby obtaining a final sheet or board of any desired predetermined thickness. It is found that the sawing action produces a grained surface, that is to say, one in which the fibers lie more or less in one direction giving a flattened nap. The saw also serves to polish the fibers or give a glaze thereto. This effect may also be produced to a certain extent by sanding or grinding the surface, and in certain cases the surface may be sand-papered or ground even after it has been sawed.

In order that the method of manufacturing may be more readily understood the references should be added to the accompanying drawing in which—

Figure 1 is a perspective view of an end of one of the slabs of pulp board as it comes from the press and before sawing; Fig. 2 is a perspective view of the end of one of the sawed sheets; Fig. 3 is a sectional view through one of the sawed sheets.

In the drawings like figures of reference indicate corresponding parts in all the figures. The relative thickness of surface layers is exaggerated for the sake of clarity.

Referring to the drawings: A represents a large slab of relatively thick pulp board as it comes from the press and the fibers in which are irregularly arranged.

B represents one of the smaller sheets sawed from the larger slab after it has been dried. Thus for example, if the large sheet

were three inches in thickness the smaller sheet might be half an inch in thickness. It will be appreciated, however, that these dimensions are given for the sake of illustration only.

The center portion 10 of the sheet will be formed of the irregularly arranged fiber, a number of which will extend transversally across the sheet and thus prevent longitudinal splitting. The fibers forming the surface 11 and 12 will extend all more or less in the same inclined direction into which they have been forced by the saw blades and such fibers will possess more or less of a polish which may be increased by sand papering or grinding to give a mottled or stippled effect. This surface is well adapted to receive any finishing material desired or in many instances may be used with any finishing layer.

While the product herein illustrated is a sheet of pulp board it will be appreciated from the nature of the pulp stock and method of forming the same that it might be molded into a great variety of shapes to suit the purpose to which it is to be put.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention, within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:—

1. A new article of manufacture comprising an unlaminated pulp sheet having the fibers in the center irregularly arranged and projecting surface fibers laid over to form a flattened nap.

2. A new article of manufacture, comprising an unlaminated pulp sheet having the fibers in the center irregularly arranged and having the projecting surface fibers laid over and flattened in the direction of the surface of the board to form a nap and polished.

3. A new article of manufacture, comprising a substantially non-laminated pulp board of integral structure and composed of assembled fibers, the interiorly located fibers being in irregular arrangement while exteriorly presented fibers and portions of fibers are in substantially parallel arrangement in the same general direction and in the plane of the surface of the board to form a nap.

4. A new article of manufacture, comprising a sheet formed from pulp screenings in which the partially free projecting fibers of a raw surface have been laid in one direction to form a flattened nap.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

GEORGE JAMES MANSON.

Witnesses:
RUSSEL S. SMART,
WM. A. OZMARY.