

No. 656,772.

Patented Aug. 28, 1900.

J. M. LEAVER.

DOOR.

(Application filed Nov. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 4.

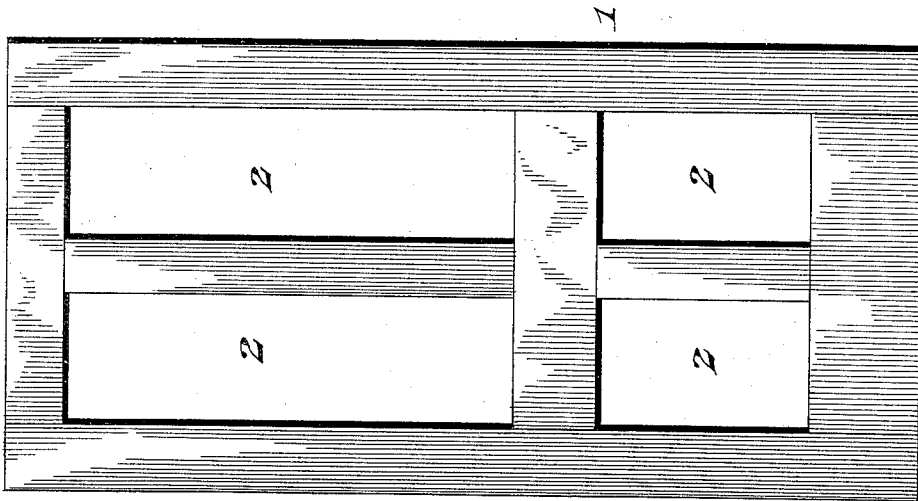


Fig. 2.

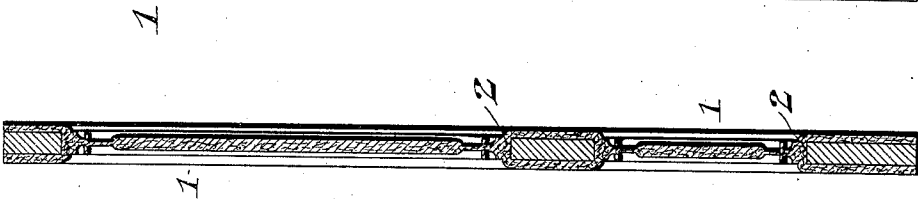
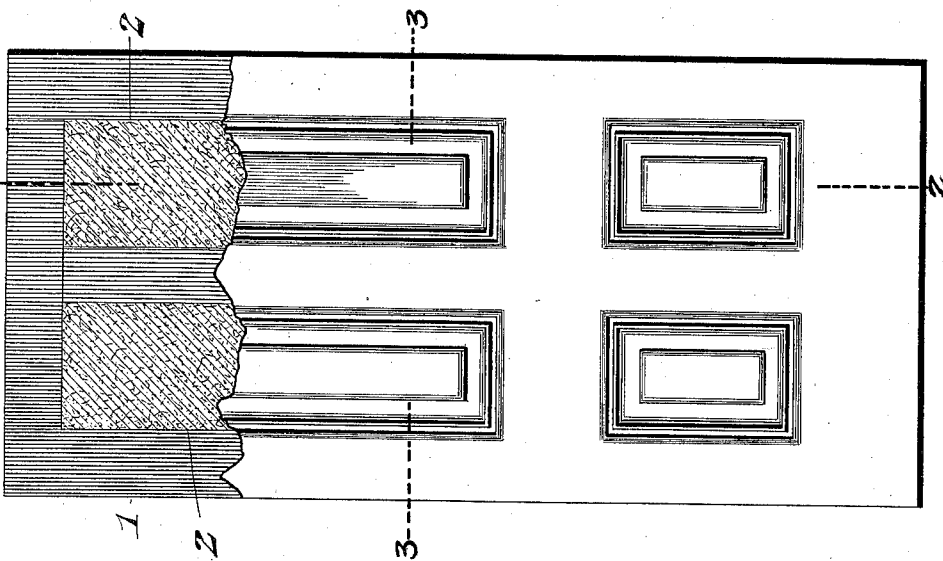


Fig. 1.



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2 Sheets—Sheet 2.

Fig. 7.

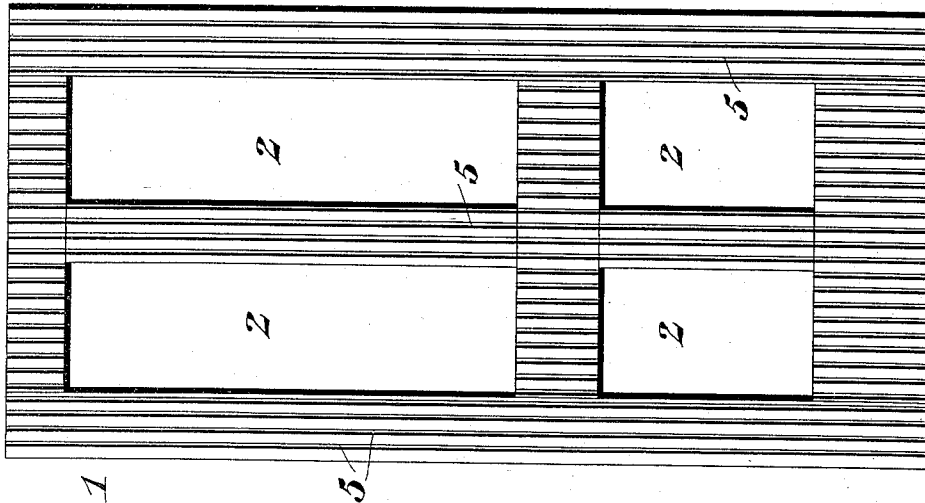


Fig. 3.

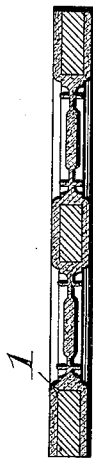


Fig. 5.

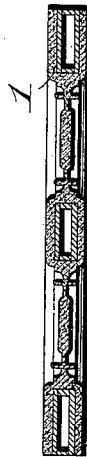
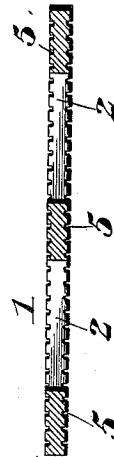


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES MARSHALL LEAVER, OF BAY MILLS, MICHIGAN, ASSIGNOR TO LEWIS A. HALL AND ROBERT H. MUNSON, OF SAME PLACE.

DOOR.

SPECIFICATION forming part of Letters Patent No. 656,772, dated August 28, 1900.

Application filed November 8, 1899. Serial No. 736,275. (No model.)

To all whom it may concern:

Be it known that I, JAMES MARSHALL LEAVER, a citizen of the United States, residing at Bay Mills, in the county of Chippewa and State of Michigan, have invented a new and useful Door, Shutter, or Analogous Article, of which the following is a specification.

This invention relates to the construction of doors, shutters, or analogous articles; and it has for one object to provide an improved structure which will greatly cheapen the manufacture of articles made from pulp materials and which are ordinarily constructed entirely of wood or of pulp.

Heretofore some types of doors or like articles have been of laminated formation, and in the construction of articles such as disclosed in my former patent, No. 629,448, the article is composed of sheets of pulp-board, suitably embossed or ornamented, in combination with a skeleton frame or core, said embossed sheets being attached to each other and also to the core.

It is the purpose of the present invention to obviate the expense incident to the manufacture of articles constructed in this manner, which manufacture necessarily involves the preparation of the sheets or laminæ upon a plan analogous to that of paper-making, which requires considerable labor and expensive machinery.

It is also the object of the present invention to obviate the necessity of using powerful stamping-presses to properly emboss the sheet material forming a part of the known construction above referred to, while at the same time providing a door, shutter, or analogous article which shall be entirely practical and durable and susceptible to a wide range of ornamentation and decoration, which is limited only by the configuration of the dies employed and the nature of the foreign matter which it may be desired to introduce into the pulp material to produce the desired result.

To this end the invention contemplates a solid homogeneous door, shutter, or analogous article possessing all of the practical requirements of such an article, while at the same time greatly simplifying and cheapening the construction thereof.

With these and other objects in view the invention consists of the novel construction and combination of parts hereinafter more fully described, illustrated, and claimed.

The essential features forming a part of the invention are necessarily susceptible to some modification without departing from the spirit or scope thereof; but the preferred embodiment of the improvement is shown in the accompanying drawings, in which—

Figure 1 is an elevation, partly in section, of a door constructed with pulp material in accordance with the present invention. Fig. 2 is a longitudinal sectional view thereof on the line 2 2 of Fig. 1. Fig. 3 is a cross-sectional view on the line 3 3 of Fig. 1. Fig. 4 is a plan view of the form of skeleton core used in constructing the door. Fig. 5 is a cross-sectional view of a modified form of core of a hollow formation. Figs. 6 and 7 are detail views of another modification of the core, showing the same provided with anchoring-recesses to receive the pulp material which is pressed upon the core.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In constructing the article it is necessary to use in every case a core of some description. This core may be of metal or any other material suitable for the purpose, but is preferably constructed of wood on account of the pulp material more readily adhering thereto than to metallic or other dense surfaces. The core of the article constitutes a base or binder for the pulp material forming the main body thereof, and said core is necessarily shaped to conform to the configuration of the completed article, whether this article be a door, shutter, or other analogous structure. While the general shape or form of the core will depend upon the nature of the article, still an essential feature of the core in all instances is to construct the same with panel-openings, and for illustrative purposes a door structure is shown in the drawings, which structure involves the use of a rectangular skeleton core 1, provided with panel-openings 2, conforming in size, shape, and disposition to the panels of the completed door. Many articles—such as doors, blinds, sash

and window frames, door-frames, interior finish for houses, furniture, and the like—are provided with plain as well as ornamental panel portions, and the present invention is therefore applicable to all of such articles for the reason that a core may be employed which is provided with panel-openings piercing the same and adapted to be completely filled by a solid homogeneous mass of the pulp material forming the body 3 of the article.

In the manufacture of the article the core 1, forming the binder or base for the main body 3, is enveloped in the pulp material, and this material is pressed upon the core from opposite sides thereof, so as not only to closely adhere to the opposite faces of the core, but also to entirely fill the panel-openings and form a solid homogeneous mass in said panel-openings, as plainly shown in Figs. 2 and 3 of the drawings. At the time the pulp material is pressed about the core, on opposite sides thereof, and into the panel-openings 2, by means of suitable dies, the desired ornamentation is impressed upon and into the surfaces of pulp material. In the formation of such articles as doors the panel-beading or other ornamentation is impressed upon the pulp materials simultaneously with its compression into a solid homogeneous mass within the panel-openings.

From the foregoing it will be observed that by reason of constructing the article in the manner explained the same will be provided with solid homogeneous panels of pulp material which are susceptible to a wide range of ornamentation and decoration, while at the same time possessing sufficient strength and rigidity to adapt the article to the use for which it is designed. At this point it may be explained that any suitable coloring-matter may be introduced into the pulp material before it is pressed upon the core should it be desired to give a certain color to the article, and while almost any configuration or design may be impressed upon the pulp material at the time it is compressed upon the core, still if a higher degree of finish is desired than is possible by the process of making the article the latter after completion may be placed in any ordinary stamping-press with dies and by the action of pressure or heat, or both, may be given a very attractive and durable finish. Also, if desired, the completed door may be decorated or embellished by paints, stains, varnishes, or other known processes.

It has already been explained that the core may be of any configuration or construction provided the same is constructed with panel-openings corresponding in shape, size, and disposition to the ornamented or plain panels of the completed article. So it will be understood that various modifications of the core may be resorted to without departing from the invention. For instance, in Fig. 5 of the drawings is shown a core of a hollow formation in which the stile and rail portions are hollow, but

which is provided with the necessary panel-openings, and in Figs. 6 and 7 of the drawings the core is shown provided upon the opposite faces thereof with a plurality of anchor recesses, slots, or indentations, into which the pulp material is pressed and which therefore serve to securely anchor the pulp material to the core. Also should it be desired to cause the pulp material to more firmly attach itself to the core without regard to the use of the anchor-recesses a suitable adhesive compound may be incorporated in the pulp material prior to its being pressed upon the core.

With reference to the incorporation of the adhesive compound into the pulp material prior to its being pressed upon the core, it may be explained that this is only an alternative use of such compound, as substantially the same result can be obtained by applying the adhesive compound to the surfaces of the core itself prior to the application of the pulp material thereto. In either case the adhesive compound would serve to cause the firm adherence of the pulp material to the core, and thus reduce to a minimum the possibility of an imperfect or insecure union between the pulp material and the core of the structure. Although it is obvious that the firm adherence of the pulp material to the core may be secured by introducing an adhesive compound into the pulp material prior to its being pressed upon the core or by applying the adhesive compound or substance directly to the core itself prior to the application of the pulp material thereto, still an additional function is secured by incorporating the adhesive compound or substance with the pulp material. The additional function of the adhesive compound or substance when thus incorporated in the pulp material is that the said compound or substance serves to cement more closely and solidly together the particles of the pulp material. It may therefore be found desirable, under certain conditions, to resort to both methods of using the adhesive compound or substance. It is not important, as far as the present invention is concerned, what particular adhesive compound or substance is employed; but where this substance or compound is designed to be incorporated directly in the pulp material a suitable mucilaginous, resinous, elastic, or equivalent adhesive compound or substance must be selected that will not adhere to the heating-dies used in the manufacture of the article and which will at the same time provide a smooth finish for the article.

Various other modifications will readily suggest themselves to those skilled in the art without further description, and I would have it understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention. In this connection it may be observed that the article may be modified so as to have provision for leaving

a panel or panels blank for the insertion of glass; but this would not affect the essential features of the invention herein pointed out.

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

1. A door, shutter, or analogous article, consisting of a core having panel-openings, and a body of pulp material pressed about the core and having solid homogeneous panel portions completely filling the said openings of the core.

2. A door, shutter, or analogous article, consisting of a core having panel-openings conforming to the size, shape, and disposition of the panels, and a body of pulp material pressed upon both sides of the core and having solid homogeneous panel portions completely filling the openings thereof.

3. A door, shutter, or analogous article, consisting of a skeleton wooden core having panel-openings therein, and a body of pulp material pressed upon both sides of the core and having solid homogeneous panel portions filling the panel-openings thereof.

4. A door, shutter, or analogous article, consisting of a core having openings, and a body of pulp material having adhesive material incorporated therein and pressed upon both

sides of the core, said body having solid homogeneous portions filling the openings of the core.

5. A door, shutter, or analogous article, consisting of a core having openings therein, a body of pulp material pressed upon both sides of the core and having solid homogeneous portions filling the openings thereof, and an adhesive substance or compound, in addition to the pulp material, for causing the firm adherence of the latter to the core.

6. A door, shutter, or analogous article, consisting of a core having panel-openings, and anchor-recesses upon its faces, and a body of pulp material pressed about the core and filling said panel-openings and anchor-recesses thereof.

7. A door, shutter, or analogous article, consisting of a core having openings, and anchor-recesses upon its faces, and a body of pulp material pressed about the core and filling the openings and anchor-recesses thereof.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAS. MARSHALL LEAVER.

Witnesses:

WM. M. DRAKE,

WM. H. FULLER.