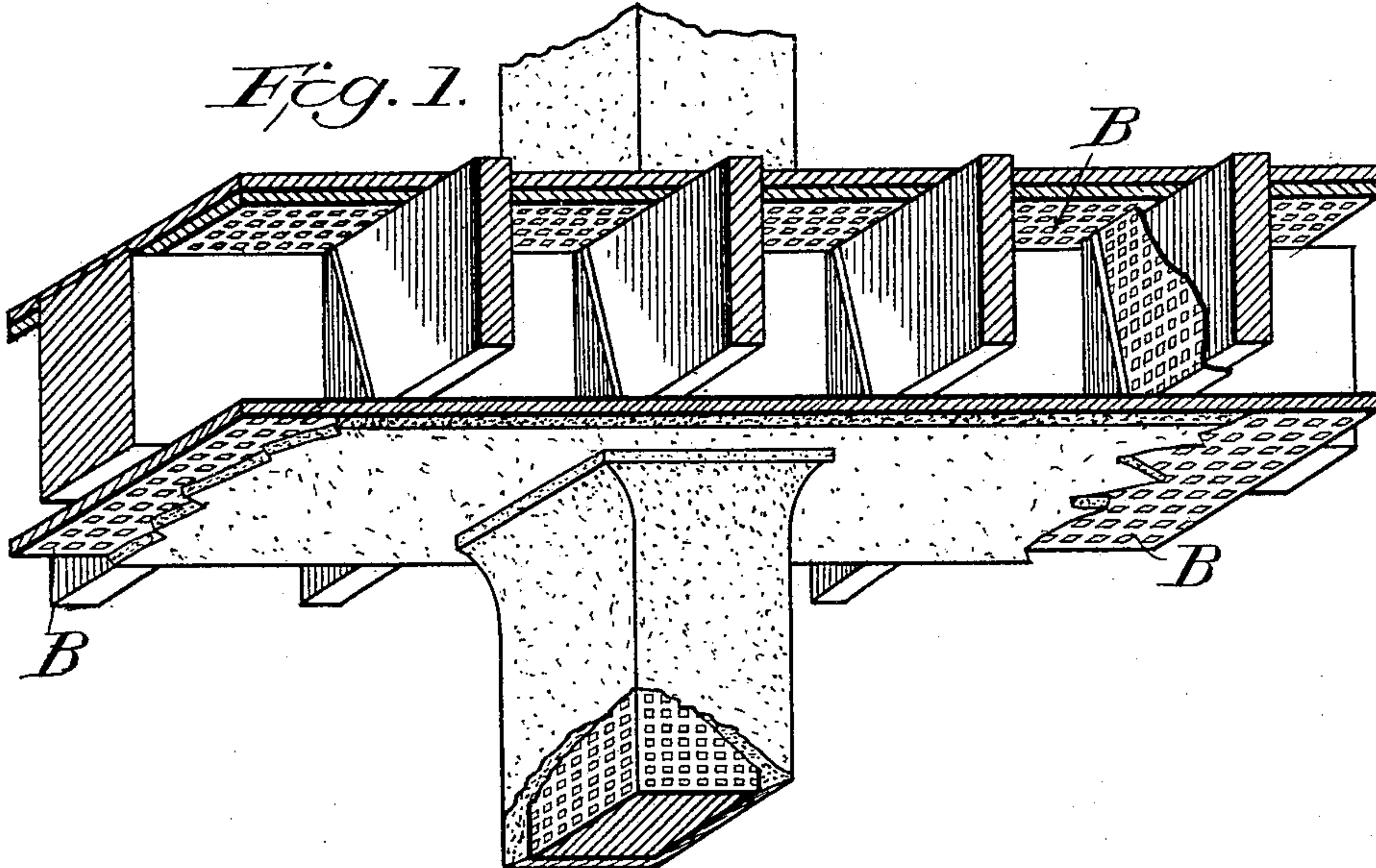


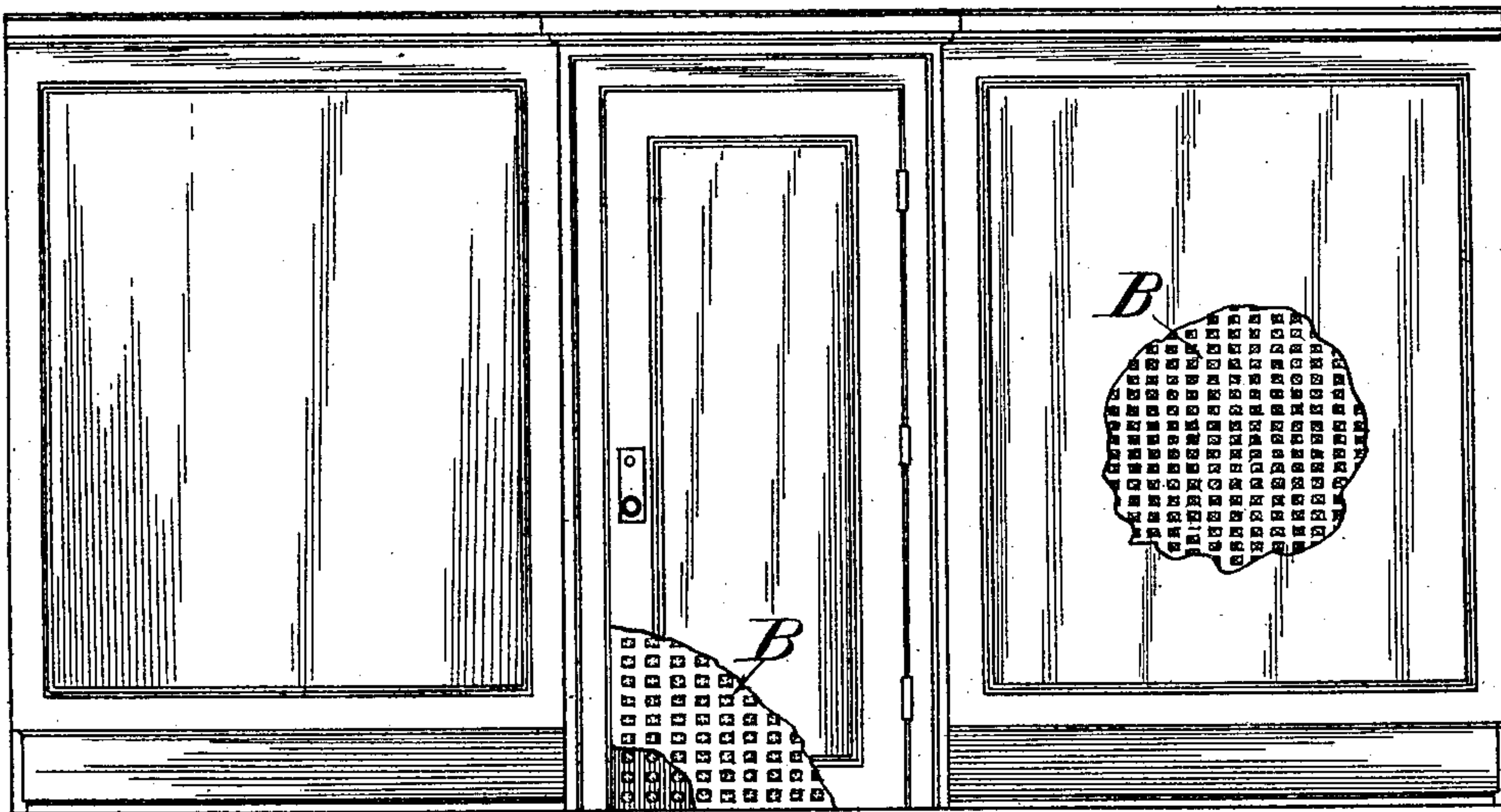
D. C. MEEHAN.  
METHOD OF PROTECTING WOOD.  
APPLICATION FILED JULY 21, 1908.

912,013.

Patented Feb. 9, 1909.



*Fig. 2.*



Inventor

Witnesses

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# UNITED STATES PATENT OFFICE.

DAVID C. MEEHAN, OF COLUMBUS, OHIO.

## METHOD OF PROTECTING WOOD.

No. 912,013.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed July 21, 1908. Serial No. 444,592.

*To all whom it may concern:*

Be it known that I, DAVID C. MEEHAN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Methods of Protecting Wood, of which the following is a specification.

My invention relates to a new and useful method of protecting wood surfaces from the objectionable results of swelling or expanding due to exposure of the same to the moisture carried in the atmosphere, or otherwise, and my invention consists, essentially, in covering the surface or piece to be protected with a sheet adapted to receive a facing layer, said sheet being united to said piece by an adhesive and certain parts of the sheet and corresponding parts of the piece being coördinately displaced while *in situ* and the displaced portions being intimately interlocked or bonded whereby the sheet and surface to be protected are maintained in constant contact along their plane surfaces and also at their displaced portions.

It is well known to those familiar with the characteristics of wood, that there is a natural tendency of fibrous material when so closely bonded thereto as to be capable of excluding ordinary air, to buckle outwardly or draw away from the wood to which it may be attached by an adhesive merely.

For many and important reasons it is desirable to protect certain materials, such as wood, from the detrimental influences of atmospheric moisture, which can only be by the practical if not absolute and complete exclusion of the ordinary air, with its vapor of water. This faculty of absorbing moisture so contained, while variable, is so great in many of the woods in common use that a structure, say a door, made from kiln-dried lumber in the winter season, will, in many instances, absorb so much moisture in the following summer, that it will become too large for its frame or casing, and will require refitting. This condition or physical characteristic has been known to continue for a period of years.

The essential object of the present invention is to prevent, as far as may be possible, the admission of atmospheric moisture to structures composed of materials made practically dry in the first instance, by any of the known processes, and before assembling, and long continued trials have shown

that in structures thus protected the wood fibers are not subject to the usual swelling or expansion, and contraction, so common in unprotected wood, and that the fibers must remain practically stationary, for an increase or decrease in size is absolutely imperceptible, thus keeping the joints intact, where two or more pieces are joined together, as well as preserving the wood from all forms of decay.

Extensive experiment made by me has shown the futility of the use of nails in the attempt to hold thin fibrous material in place, for the very driving of these nails through any kind of sheet material produces a "buckled" effect around the nail-hole thus formed, thereby raising the surface of the sheet and creating an air-space back of the sheet, and permitting access thereto of the moisture with which the air is more or less heavily charged. Other tests made with thin fibrous materials and an adhesive alone have proved equally ineffective owing to the varying absorptive qualities of the wood to be protected; if the sheet is not held by substantially the same tension over the whole surface, those portions held the less tightly will soon become released from their before-intimate contact, thereby making it possible for air-bodies to form beneath the protected sheet, and to progressively grow in size and influence until the whole fabric is ultimately substantially released, or made practically worthless for any kind of protection. It has therefore become quite manifest to me that intimate and constant contact is a prerequisite to the successful protection of wood surfaces from moisture and atmospheric influences; this essential and most important result I have been able to obtain by my new method of attaching the protecting sheet or medium which I will now describe.

In the accompanying drawing:—Figure 1, represents a building construction embodying my invention and showing a portion of a ceiling and supporting column, with parts broken away. Fig. 2, illustrates the wood cores of a door and paneled wainscot with the protecting sheet bounded thereto.

While my method is herein shown as applied to a building construction and the frame work thereof and to a door and wainscot construction, I wish it to be understood that the invention is by no means limited thereto, but said invention comprehends and



includes generally and broadly the protection of any wood or other surface or element, as a door, shutter, beam, scantling, ceiling, floor interior trim column, wainscot, article  
5 of furniture, or of ornament or utility, in fact any element, article, or member which is composed in whole or in part of wood or other like material and which is susceptible of expansion under the influence of moisture-laden air.

In carrying out my invention, I overlay the wood, which may represent the "core" of a door, or other form, with a coating of adhesive, and place over this a thin (preferably) fibrous material, B, of such natural  
15 property as will, or which may be rendered capable of, excluding air when it is once united with said "core" or form. Some kind of fastening in addition to the adhesive being absolutely necessary to keep this fibrous material in place, and individual tacks or nails being useless and detrimental to any fine veneer or outer covering which may subsequently serve as a finish for the article, I  
20 have found it feasible to utilize portions of the fibrous sheet or sheathing itself for the purpose and this is successfully accomplished as follows: By means of a roller or other pressure device having points, spurs or the like on its surface, the adhesive-attached fibrous material is subjected to pressure to depress or displace the material at numerous points and to coördinately depress or displace the fibers of the wood beneath.  
35 Depressions or pits are thus formed in the wood and fibrous material, the ridge or offset on the reverse side of the fibrous material, and resulting from the displacement or depression of this material, being driven into the corresponding depressions in the wood below and being intimately locked to the fibers of the wood. This, plus the presence of the adhesive which has been carried down into the pits or depressions in the wood, constitutes in the aggregate a considerable number of relatively small holding-points at frequent intervals into and through the surface of the wood.

By actual experiment I have discovered  
50 that the foregoing operation results in drawing taut the outer surface of the fibrous material or sheathing sheet, and which may be composed of any waterproof or substantially air-proof fabric, and in loosening up the  
55 fibers of the inner portion and outstanding them from the plane of the inner surface of the sheet, which fibers are driven inward substantially into the wood fibers, thus joining the plain and broken adjacent surfaces  
60 of the wood and fibrous material with the adhesive placed under the fibrous sheet, on the face of the wood to be protected, to the practically entire exclusion of air from between their surfaces. As the process of depression described removes or displaces and

carries over to the other or under side a very large portion of the original outer surface, this inner surface thus becomes very much greater in weight and in adhesive-carrying capacity, and these two causes seem to aid  
70 materially in keeping the protecting sheet in place and excluding air from between the surfaces, for it is manifestly impossible for this now smaller outer surface, the original strength of which has been broken by so  
75 many depressions, to "lift" the heavier, and now larger under side.

The depression or "pits" made in the outer surface of the fibrous material may be readily filled by pigments, adhesives or  
80 any suitable plastic material, depending on whether the exterior finish of the structure so protected is to be paint, enamel, paper, wood or other substance; and such unevenness or irregularity in the fibrous sheet as  
85 may be caused by passing the puncturing-roller or pressure device over the sheet, may be corrected by a brush or roller applied before the adhesive hardens.

I sometimes prefer, especially where veneers for door "cores" are used, to size the fibrous sheet with a thin adhesive after applying to the wood core and fastening by displacement of fibers before described. Upon this sized surface, a finishing coat of  
95 paint, enamel, paper or other material may be applied.

The foregoing method fully protects the wood "core" against the common form of damage, swelling and shrinking, due to the  
100 absorption of moisture, and its partial expulsion under varying conditions, resulting first in the expansion and then the contraction of the wood fibers, and provides a most satisfactory way, heretofore impracticable,  
105 to place and maintain veneers or other forms of exterior finish on doors, wainscots, walls, ceilings, articles of furniture, etc., and on large surfaces, wherever needed.

Having thus described my invention what  
110 I claim as new and desire to secure by Letters Patent, is:—

1. The method herein described of protecting wood, said method consisting in so closely applying a fabric as to exclude air  
115 from the wood, and bonding the fabric to the wood by coördinately displacing parts of the fabric and corresponding parts of the wood to form numerous and independent attaching agencies substantially throughout  
120 the area of the wood and its protecting fabric.

2. The method herein described of protecting wood, said method consisting in so closely applying a fabric as to exclude air  
125 from the wood, and attaching said fabric to the wood by adhesive, and further bonding the fabric to the wood by coördinately displacing parts of the fabric and corresponding parts of the wood to form supplemental  
130



holding agents substantially throughout the contacting surfaces of the wood and fabric.

3. The method herein described of protecting wood, said method consisting in so  
5 closely applying a fabric as to exclude air from the wood, and attaching said fabric to the wood by adhesive, and further bonding the fabric to the wood by coördinately dis-  
10 placing parts of the fabric and corresponding parts of the wood to form supplemental holding agents substantially throughout the contacting surfaces of the wood and fabric, and then sizing the exposed surface of the fabric.

15 4. The method herein described of protecting wood, said method consisting in so closely applying a fabric as to exclude air

from the wood, and attaching said fabric to the wood by adhesive, and further bonding the fabric to the wood by coördinately dis- 20  
placing parts of the fabric and corresponding parts of the wood to form supplemental holding agents substantially throughout the contacting surfaces of the wood and fabric, then sizing the exposed surface of the fabric, 25  
and then applying a finishing surface to said fabric.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID C. MEEHAN.

Witnesses:

JOHN A. CONNOR,  
MATTIE M. HEADLEY.