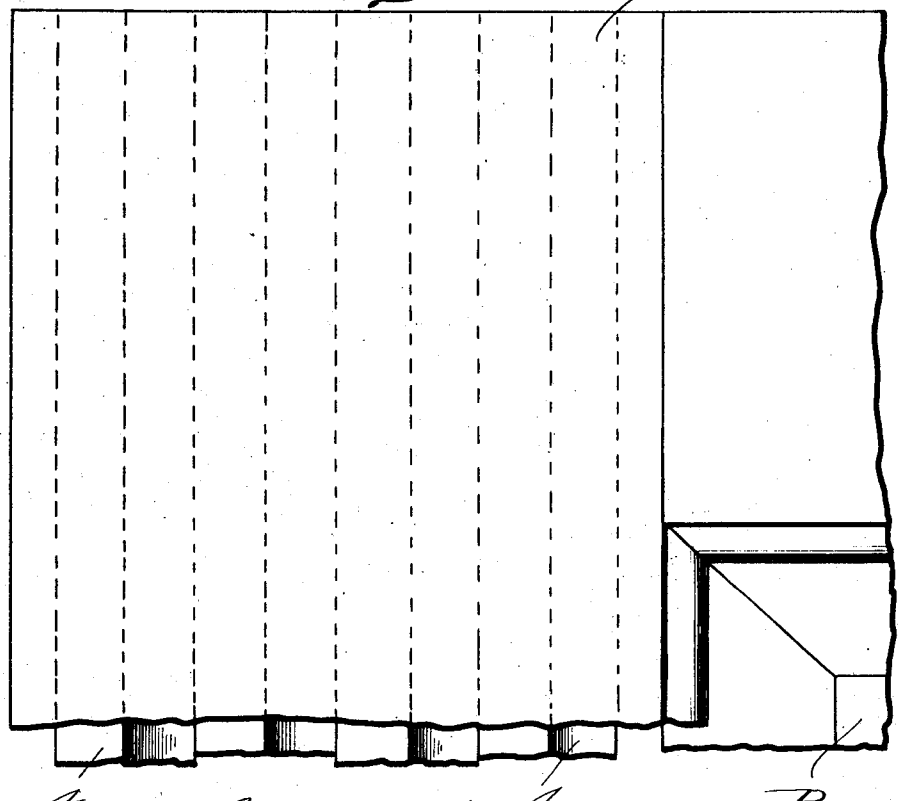
J. G. BROSIUS.

DOOR AND WINDOW CONSTRUCTION.

APPLICATION FILED AUG. 9, 1920.

1,391,608. Patented Sept. 20, 1921.

Fig. 1.



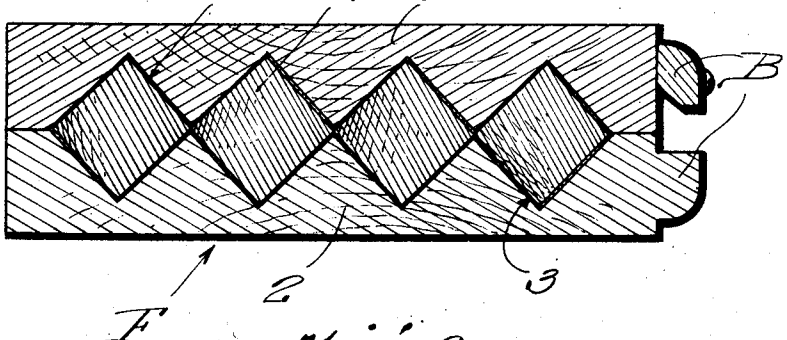




Fig. 2.

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## DOOR AND WINDOW CONSTRUCTION.

1,391,608. Specification of Letters Patent. Patented Sept. 20, 1921.

Application filed August 9, 1920. Serial No. 402,233.

*To all whom it may concern:*

Be it known that I, JOHN G. BROSIUS, a citizen of the United States, residing at Tulsa, in the county of Tulsa and State of Oklahoma, have invented certain new and useful improvements in Door and Window Constructions; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in door and window construction and it has for its object to produce a novel stile for door or window frames which is absolutely weather-proof and will not warp or twist.

Another object of the invention is to provide a structure of the above type, the frame of which is made up of two pieces of timber placed face to face and secured together, there being grooves formed in the meeting faces of the timbers, in which grooves, strips of wood are fitted and secured, this construction forming an extremely strong and durable frame which will not warp, shrink, twist or otherwise become improperly shaped as the ordinary stiles of the frames do.

A further object of the invention is to provide stiles for door or window frames which can be easily and readily assembled, the grooves in the timbers being such that they may be formed with ordinary machinery, thus obviating the necessity of employing special machines for the purpose, and decidedly reducing the cost of manufacture.

A still further object of the invention is to produce a stile of the above nature in which the grain of the reinforcing strips runs longitudinally thereof, thus enabling the strips to be so laid in the grooves that the grain thereof will extend at right angles with respect to the longitudinal grain of the timbers, thus preventing the possibility of the strips splitting, which might otherwise occur.

Still another important feature and object of the invention is to produce a stile of the above construction wherein the adjacent walls of the adjacent grooves converge into one another and these grooves cover practically the entire inner faces of the timbers, leaving only small margins which are the only points of contact between the timbers, that is, after the strips are in place in the grooves. Thus, by reducing the amount of contact between the timbers, warping and twisting is absolutely prevented.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevational view of a portion of a door constructed in accordance with my invention.

Fig. 2 is a transverse sectional view through one of the sections of the door frame.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the letter F designates a door frame, which as is usual, is provided with beading B between which the panel P, is disposed and held.

Instead of making the sections of the frame solid as is usual or forming them of a plurality of layers of veneer secured one on top of the other I make each section of two pieces or members, preferably veneer designated by numerals 1 and 2, these members being placed face to face and provided in their meeting faces with a plurality of V-shaped grooves 3 which when brought together with the like grooves on the other piece, form substantially square holes into which strips of cheap wood 4 of square cross-section are fitted and secured in any suitable way. Close examination of the drawings will disclose the fact that the walls of the adjacent grooves are connected with one another, that is, they converge into one another thus permitting the use of more reinforcing strips than could otherwise be used. It may well be stated at this point that the grooves cover practically the entire inner faces of the timbers for an important purpose which has already been set forth specifically in the objects of the invention. I also desire to call attention at this point to the fact that the reinforcing strips 4 are so laid in the grooves that the longitudinal grain of each one runs substantially at right angles to the longitudinal grain of the members 1 and 2, thus insuring against possible splitting of the parts and increasing the strength and rigidity of the door frame.

In making up the doors, I form the V-shaped grooves in the timbers with an ordinary machine and place the reinforcing

strips in the grooves in one member and glue, or otherwise secure them in place. After this, the other member is brought against the first named member and the projecting portions of the strips fitted into the grooves of this member, being likewise held therein by glue. I again wish to emphasize the fact that by employing V-shaped grooves, I am enabled to form such type of grooves with an ordinary existing machine which makes it very convenient, reduces the cost of manufacture considerably, saves much time, and insures an increased output of the stiles.

A door frame stile constructed in accordance with my invention will be found extremely advantageous and will outlast the types of stiles now in use. They will not warp and are absolutely weather-proof. Even if the exposed timber should buckle or become improperly shaped from dampness, it cannot impart such a shape to the other timber, because the two timbers are practically separated by the reinforcing strips and only a small amount of direct contact is had. The grooves for the cores or reinforcing strips are cut on an angle and will therefore reduce the degree of separation of the timbers caused by the expansion of the moisture in the glue. (All the gluing is done in one operation.) The little expansion which does occur will be in the members themselves. By arranging the reinforcing strips as shown, they will not break very easily. They also present greater surface for gluing. By building doors of this construction, considerable saving of labor will be apparent, thus the doors will be less expensive than the ordinary doors and can be retailed at a comparatively low cost.

While I have described and shown my invention as being used in connection with door frames, I wish it to be understood that it may be equally well used in connection with window frames, and the like.

A careful consideration of the foregoing description taken in connection with the accompanying drawing will enable persons skilled in the art to which this invention appertains to obtain a clear understanding of the same, therefore, further description is deemed unnecessary.

I claim:

1. A stile for sash, door, and like structures comprising a piece of timber having a plurality of parallel longitudinal grooves formed in its inner face and covering substantially the entire area of said face, said grooves being straight throughout their length and the adjacent walls of the adjacent grooves converging into one another, a plurality of reinforcing strips of a shape to snugly fit the grooves, being secured in the latter so that approximately one-half thereof projects beyond the aforesaid inner face, and a second piece of timber like said first piece, the projecting portions of said strips being received in and secured in the grooves in said second piece of timber.

2. A stile for sash, door, and like structures comprising a piece of timber having a plurality of parallel longitudinal grooves formed in its inner face, said grooves being straight throughout their length, the outermost ones being close to the edges of the timber and leaving comparatively narrow flat margins, and the adjacent walls of the adjacent grooves converging into one another, a plurality of reinforcing strips shaped to fit said grooves, being secured in the latter in abutting relation and projecting beyond the inner face of the timber, and a second piece of timber like said first piece, the inner longitudinal marginal portions of said second piece of timber being placed against the corresponding portions of the other piece, and the projecting portions of the strips being received in and secured in the grooves of said second named timber.

3. The structure set forth in claim 2, said grooves being V-shaped, the reinforcing strips being square in cross section, and the grain of each strip running longitudinally thereof and extending at right angles to the longitudinal grain of the timbers.

In testimony whereof I have hereunto set my hand.

JOHN G. BROSIUS.