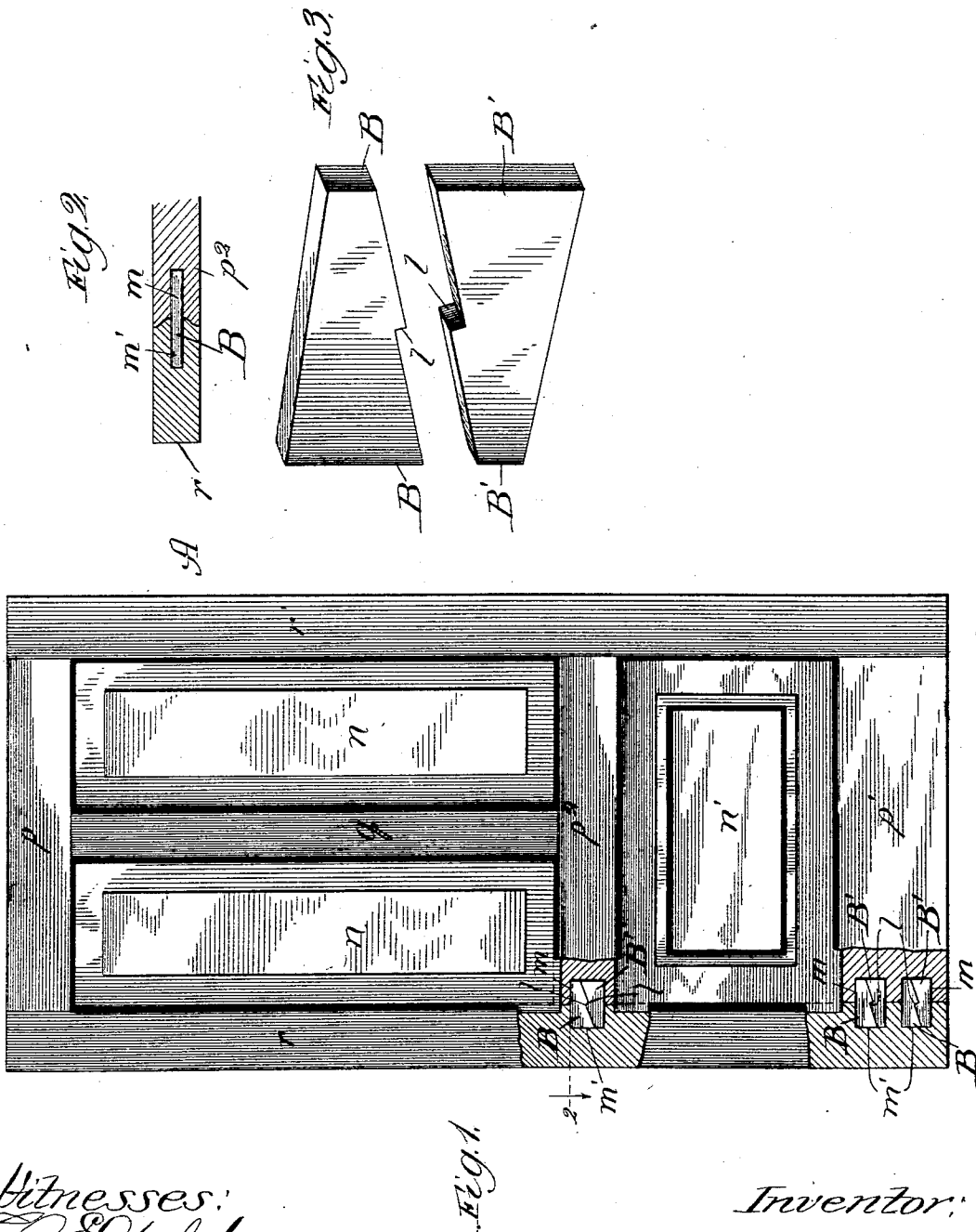


(No Model.)

R. WEIDAUER.
DOOR.

No. 520,174.

Patented May 22, 1894.



Witnesses:
E. S. Gaylord,
Lute J. Allen.

Fig. 1.

Inventor:
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UNITED STATES PATENT OFFICE.

RUDOLPH WEIDAUER, OF MERRILL, WISCONSIN, ASSIGNOR OF ONE-HALF
TO CHARLES J. ALBRECHT, OF SAME PLACE.

DOOR.

SPECIFICATION forming part of Letters Patent No. 520,174, dated May 22, 1894.

Application filed January 27, 1894. Serial No. 498,217. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH WEIDAUER, a citizen of the United States, residing at Merrill, in the county of Lincoln and State of Wisconsin, have invented a new and useful Improvement in Doors, of which the following is a specification.

My invention relates, more definitely stated, to an improvement in the joint-structure between the ends of the transverse rails and the side-pieces or stiles of a door. Doors, particularly those of the cheaper variety, for which my improvement is more especially designed, commonly have the rails provided with tenons adapted to fit tightly in mortises formed to receive them in the stiles and which are sometimes provided as blind mortises and otherwise extend entirely through the stiles, in which latter case the tenons are fastened in place with wedges to hold them while the glue is setting. Where the mortises are of the blind variety, the tenons are formed to fit therein tightly to hold the parts together while the glue is setting. As the joints are thus constructed, it is not an uncommon occurrence for them to spread before the glue, for fastening them, has set. Where the parts for several hundred such doors are put together per day by a regular routine-system rendered necessary to turn them out with the least possible expense, such spreading at the joints interrupts the work and accordingly tends to increase the expense of manufacture more or less according to the number of doors requiring to be laid aside for overhauling by reason of faultiness in the joints. Moreover, the formation of tenons on the rails involves material waste of lumber—as much as three feet to each of some kinds of door—which also adds to the cost of production.

The object of my improvement is to provide a construction of joint which shall firmly wedge together the rails and stiles of a door while the glue is setting; and whereby, furthermore, the formation of tenons on the ends of the rails shall be dispensed with. To this end I form in the ends of each rail one or more mortises (according to the width of the rail) and corresponding mortises in the stiles; and for each pair of coincident mortises I

provide a pair of similar wedges, which may be made out of refuse lumber, and after dipping them in glue, I drive one, at its wider end, partway into and to the base of each of the two corresponding mortises, so that their oblique edges will oppose each other by extending in contrary directions. By then driving the stiles and rails together (which may be done by squeezing them in a suitable press in which they are properly set) the coincident wedges crowd their way, at their protruding portions, into the respectively opposite mortises and thus tighten each other in place against separation of the parts of the door at the joints. As an additional precaution against such separation, moreover, I prefer to provide the opposing oblique faces of the wedges with mutually interlocking shoulders. Thus, instead of forming tenons on the rails with the objectionable consequences referred to, what I practically do is to provide for each joint a substitute for a tenon, which may be made out of refuse-material, and comprises two co-operating wedges, one extending from the rail-mortise to engage therein the other, which extends from the stile-mortise.

Referring to the accompanying drawings—Figure 1 shows, by a view in elevation, a door having parts broken away at the rail and stile joints to show my improvement according to which the joints are made. Fig. 2 is a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow. Fig. 3 shows, by a perspective view on an enlarged scale, the wedges formed in producing the joint.

A is a wooden door, that shown being of the variety formed with stiles r and r' connected by upper and lower rails p and p' and an intermediate rail p^2 , with a muntin q extending between the two uppermost rails and flanked by panels n , while a panel n' fills the space between the intermediate and bottom rails. In the ends of each rail I form mortises m , one in each end of the narrower rails and preferably two in each end of the wider ones, as in the bottom-rail p' ; and at proper places in the inner edge of each stile I form similar mortises m' , with which to cause those on the rails to coincide. The depth of the mortises in the stiles and rails should be alike.

B, B' are wooden wedges of a thickness adapting them to fit tightly in the mortises, they being preferably twice the length of the depth of the latter, so that when they are driven at their wider ends one into each mortise they may protrude beyond the same to the extent of one-half their length, or thereabout. The manner of the insertion of the wedges is such as to cause those driven into the stile-mortises and those driven into the rail-mortises to extend with their oblique faces or edges in opposite directions to oppose each other. Near the center of each wedge, in its oblique face, I form a slight transverse shoulder *l*. The wedges should be adjusted in the mortises just before the parts of the door are to be put together; and before such adjustment the wedges should be dipped in glue. The stiles and rails are then assembled in proper relative positions, preferably in a suitable press, when they are forced together. The co-operating members of each pair of wedges are thus driven into the respectively opposite mortises, crowding each other therein sufficiently to produce the desired mutual tightening effect; and when the shoulders *l* have passed each other, the material being somewhat elastic, they spring out again after compression and mutually op-

pose and thus lock one another against withdrawal, whereby there can be no spreading or separating of the joints.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a door, a joint between a rail and stile thereof, comprising mortises in the stile and adjacent end of the rail, and a tenon-substitute formed of wedges fastened in said mortises to protrude beyond the same with their oblique faces opposing each other and crowded at their protruding portions against one another in the respectively opposite mortises, substantially as described.

2. In a door, a joint between a rail and stile thereof, comprising mortises in the stile and adjacent end of the rail, and a tenon-substitute formed of wedges having shoulders and fastened in said mortises to protrude beyond the same with their oblique faces opposing each other and crowded at their protruding portions against one another in their respectively opposite mortises with their shoulders interlocked, substantially as described.

RUDOLPH WEIDAUER.

In presence of—

R. C. SCHULZ,

R. F. HANOVER.