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B. C. ROCKWELL.

DOWEL JOINT.

APPLICATION FILED JUNE 27, 1904.

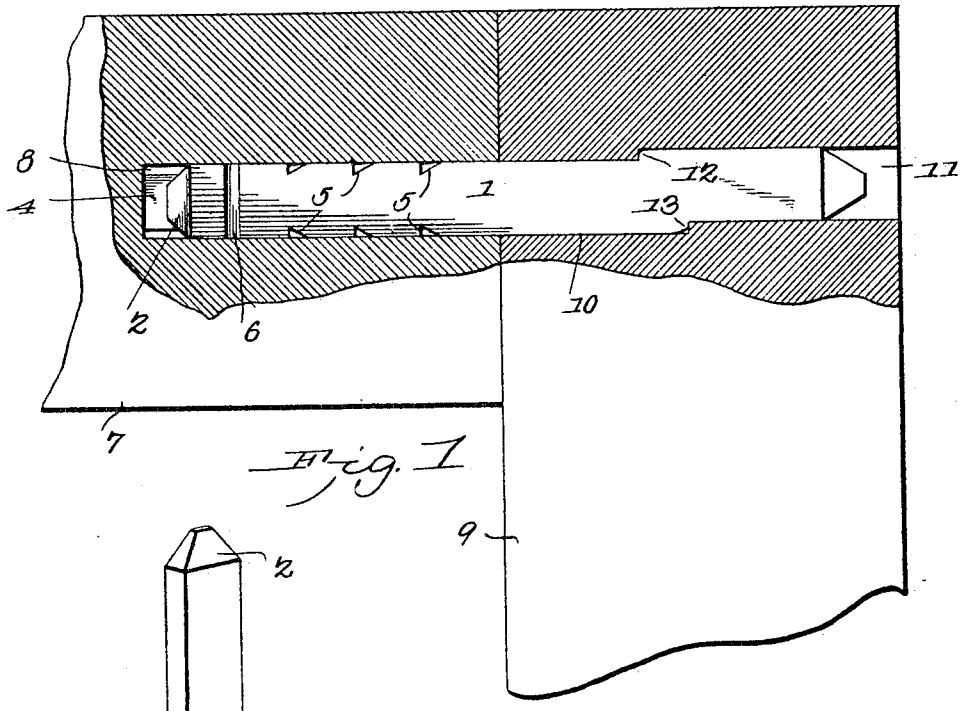


Fig. 1

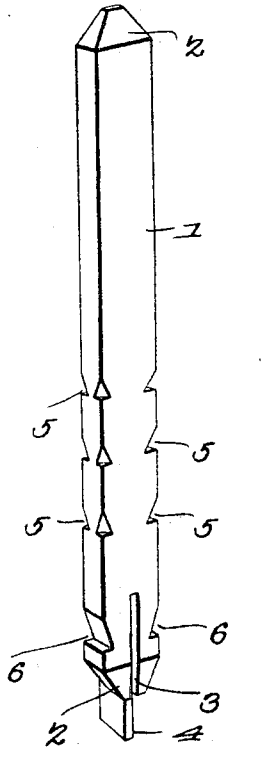


Fig. 2.

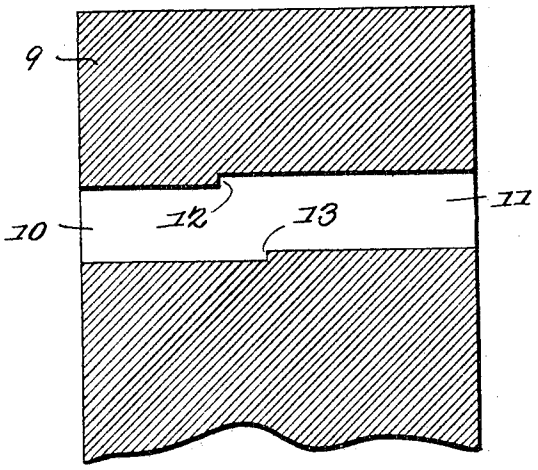


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

BYRD C. ROCKWELL, OF PERLA, ARKANSAS, ASSIGNOR TO ROCKWELL MANUFACTURING CO., A CORPORATION OF ARKANSAS.

DOWEL-JOINT.

No. 798,706. Specification of Letters Patent. Patented Sept. 5, 1905.

Application filed June 27, 1904. Serial No. 214,410.

To all whom it may concern:

Be it known that I, BYRD C. ROCKWELL, a citizen of the United States, residing at Perla, in the county of Hot Springs and State of Arkansas, have invented a new and useful Dowel-Joint, of which the following is a specification.

This invention relates to dowel-joints, and has for its object to provide an improved joint of this character which is capable of being conveniently assembled and does not require the employment of any fastening means additional to the mortise and the dowel.

While the present joint has been especially designed for use in the manufacture of wooden doors, frames, and the like, it is of course capable of use in various relations.

With these and other objects in view the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation of a corner-joint having parts broken away to show the present form of joint. Fig. 2 is a detail perspective view of the dowel. Fig. 3 is a sectional view illustrating one of the mortises employed in connection with the present invention.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The dowel 1 of the present invention is formed of wood and substantially rectangular in cross-section, so as to prevent turning of the same within the stock to which it is applied and in some instances is square and in other instances oblong. Each end of the dowel is tapered, as at 2, to facilitate the entrance thereof into a mortise, and one end is, furthermore, split or provided with a longitudinal bifurcation 3 for the reception of a wedge 4 to spread the split terminal of the dowel and insure a snug engagement thereof with the walls of the mortise. That half of the dowel which is split or bifurcated is provided with edge notches 5, with their abrupt faces or shoulders facing toward the middle of the dowel and their beveled walls inclining toward the split end of the dowel. Face-notches 6 are formed in the dowel at opposite sides of the bifurcation 3 and intermediate of the ends thereof.

In employing the present invention for jointing door-frames the rail 7 is provided with a longitudinal mortise 8, and the notched end of the dowel is driven into the mortise until the wedge 4 strikes the back of the mortise and spreads the split portion of the dowel, so as to insure a snug engagement of the stock of the rail 7 with the face-notches 6, the stock also expanding into the notches 5, thereby to prevent endwise looseness of the dowel. The stile 9 is provided with a mortise consisting of offset members 10 and 11, the member 10 being cut from the inner edge of the stock and the member 11 cut from the outer edge thereof, thereby producing shoulders 12 and 13, and when the smooth end portion of the dowel is driven into the mortise in the stile the beveled end of the dowel will be deflected by the shoulder 13 and directed into the outer mortise member 11, whereby the dowel will be bent, as indicated in Fig. 1, and expanded into the notches produced by the shoulders 12 and 13, whereby the dowel will be held against endwise looseness in the stile.

From the foregoing description it will be understood that the dowel is locked in the mortises by reason of the stock of the rail expanding into the notches of the dowel and by reason of the dowel being bent and expanded into the notches in the mortises of the stile, whereby the dowel is locked against endwise looseness without the employment of extraneous fastenings. The wedge 4 can be employed in the rail only for the reason that the inner end of the mortise 8 is closed, and therefore has a wall against which the wedge may engage, while the mortise in the stile is open at opposite ends by reason of the fact that it is necessary to cut the mortise from opposite edges of the stile to produce the offset mortise members. The wooden dowels should be formed of stock which has been thoroughly dried to prevent shrinkage of the dowel, so that whatever shrinkage may occur will be in the stock having the mortise, which will tend to grip the dowel more snugly, and thereby maintain a rigid assemblage of the parts regardless of climatic conditions and changes. Under these circumstances if the rail and stile

do not shrink the dowel may swell, which will bring about the same result and maintain a tight joint.

Ordinarily that end of the dowel which is not bifurcated will be smooth and free from notches; but I contemplate providing notches arranged for engagement with the shoulders 12 and 13 of the mortise in the stile.

The mortises in the rail and stile are set square with the stock and are angular in shape, as is the dowel that engages them, to permit the dowel to be so seated in the rail that the maximum resistance offered to the wedge either by the growth of the grain or width of the stock in the rail is easily obtained without effecting the assemblage of the stile members.

In forming the mortise in the stile care should be taken that the mortise members 10 and 11 be offset longitudinally of the stile in order that the maximum lateral resistance of the stile may be obtained.

Having fully described the invention, what is claimed is—

1. A mortise and dowel-joint including a mortise having an offset portion and a dowel driven into the mortise and bent by an offset portion thereof to grip the dowel against the shoulders produced by said offset portion.

2. A dowel-joint comprising a member having offset communicating mortises intersecting opposite edges of the member, and a dowel driven into the mortise and bent by the offset portions thereof to grip the dowel against the shoulders produced by the offset portions.

3. The combination of a rail having a mortise in one end thereof, a stile having offset communicating mortises intersecting opposite edges thereof with the outer end of one of the mortises communicating with the mortise in the rail, and a dowel-pin having one end portion notched and driven into the mortise of the rail and its opposite end portion smooth and driven into the mortise of the stile and bent by the offset portion thereof to grip the tenon against the shoulders produced by the offset portion.

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

BYRD C. ROCKWELL.

Witnesses:
D. D. MADDRY,
GROVER B. SMITH.