

J. T. GILMER.
DOWEL PIN.
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1,150,358.

Patented Aug. 17, 1915.

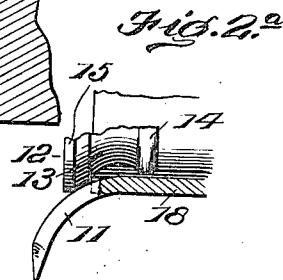
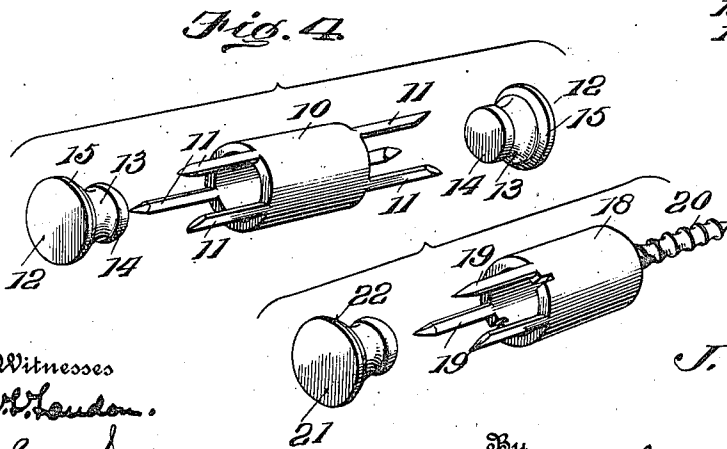
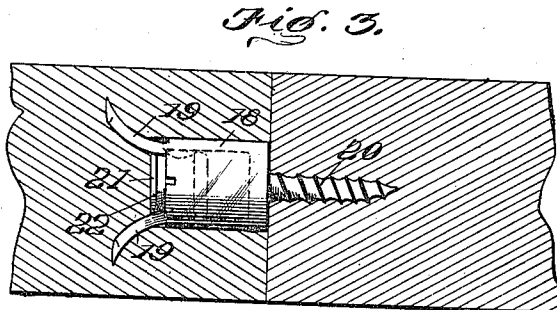
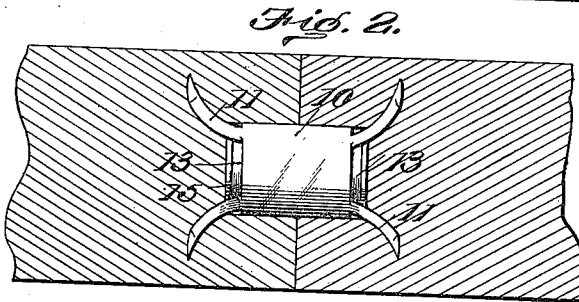
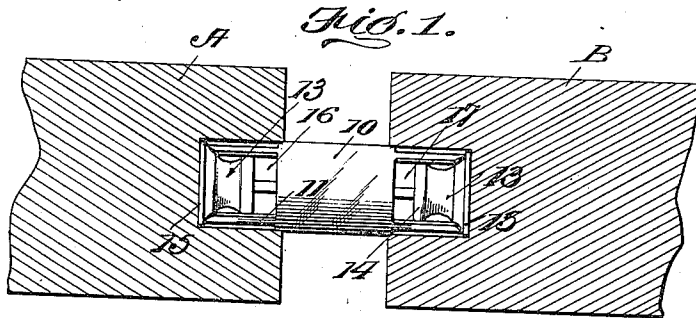


Fig. 5.

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UNITED STATES PATENT OFFICE.

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DOWEL-PIN.

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To all whom it may concern:

Be it known that I, JOHN T. GILMER, citizen of the United States, residing at Fulton, in the county of Clarke and State of Alabama, have invented certain new and useful Improvements in Dowel-Pins, of which the following is a specification.

This invention relates broadly to furniture joints, and has particular reference to dowel-pins.

As its principal object, this invention aims to provide a dowel-pin so constructed that it may be quickly and readily applied to the meeting portions of the wood stock and driven home to hold the joined elements in the desired relation without the necessity of employing glue or any other adhesive.

A further object is to provide a dowel-pin of the class described which is formed of metal and consists broadly in a tubular body portion having a number of longitudinally extending prongs projecting from its terminals, which prongs are adapted to be spread outwardly and into engagement with the material joined by means of separate spreading heads which are insertible in the bores which have been previously formed in the meeting portions of the united elements to receive the tubular body portion.

A still further object is to provide a modified form of pin so constructed that it is necessary to form a bore in only one of the joined elements.

A yet further object is to construct the dowel-pin with such regard to proportion, arrangement and number of parts that it may be cheaply manufactured, will be durable and efficient in its action, and may be applied to the meeting portions of the furniture or other article with a minimum expenditure of time and labor.

The above and additional objects are accomplished by such means as are illustrated in the accompanying drawings, described in the following specification, and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

With reference to the drawings, wherein there has been illustrated the preferred embodiment of this invention as it is reduced to practice, and throughout the several views of which similar reference numerals designate corresponding parts, Figure 1 is a sectional view of two blocks or boards showing

the dowel-pin in position before the boards have been urged toward one another to spread the prongs of the tubular body member and to dispose the body member in the receiving bores formed in the boards; Fig. 2 is a sectional view illustrating the boards in joined position, and showing the prongs as they are disposed after having been driven inwardly against the removable spreading heads; Fig. 2^a is a detail view in longitudinal section of one terminal of the body portion of the dowel pin, showing a fragmentary perspective of the head member in the position it assumes when the prongs have been spread. Fig. 3 is a sectional view showing two boards or blocks joined by means of a modified form of pin; Fig. 4 is a perspective view showing the complete dowel-pin and removable spreading heads of the preferred embodiment of the invention; and Fig. 5 is a perspective view illustrating the modified form of pin.

Proceeding now to the description of the drawings, and referring particularly to Fig. 4 in which the dowel-pin of the preferred embodiment is illustrated in detail, the numeral 10 designates the body portion of the pin. The body portion 10 is formed of any type of metal, and is preferably tubular in shape.

At each terminal of the body portion 10 are formed a number of longitudinally directed outwardly extending prongs, indicated at 11. The inner faces of these prongs are beveled upwardly so that the prongs will be spread when they are driven into engagement with the removable head member 12, as will be hereinafter more fully disclosed.

In the preferred embodiment of the invention, three prongs are formed at each terminal of the body member 10, but it is, of course, obvious that, if so desired, a greater or less number may be provided without departing from the spirit of this invention. In manufacturing the body portion 10 and its integral prongs 11, it has been found expedient to fashion the device from a sheet of metal and to then roll the sheet about a tubular mold. If found expedient, however, the pins may be cast in the well known manner.

The spreading heads 12 are concaved at their middle portions, as at 13, while at each terminal is formed an annular flange, as

indicated at 14 and 15. The member 14 is of less diameter than the member 15, being so formed for a purpose to be described hereinafter. The middle portion 13 which, as previously stated, is concaved merges into the members 14 and 15 so that when the beveled prongs of the members 11 have been forced past the smaller flange 14, they will engage against the curved face of the middle portion 13 and will ride upwardly therealong until they meet the enlarged flange 15 which will act to spread the prongs.

The actual construction of the preferred form of dowel-pin being thus described, reference will now be had particularly to Figs. 1 and 2, in which the preferred form of pin is shown in assembled position. It will be noted upon reference to Fig. 1 that the boards or blocks A and B are provided at their meeting edges with inwardly extending bores 16 and 17. The bores 16 and 17 are adapted to receive the body portion 10 of the pin when the boards A and B have been urged together with their adjacent edges contacting, as in Fig. 2.

In applying the dowel-pin to the members A and B, the heads 12 are first disposed in the bores 16 and 17, and the pin is then positioned between the adjacent edges of the boards with the prongs 11 extending into the openings 16 and 17. The members A and B are then urged toward each other to bring their adjacent edges into contact, as in Fig. 2. It will be noted upon reference to this figure that as the boards are urged together the prongs 11 will engage the flanges 15 of the spreading head, and will be directed upwardly and outwardly so that the body portion 10 of the dowel-pin will be held against movement in either direction, and the two boards or blocks A and B will, consequently, be securely joined.

Coming now to the description of the modified form of the invention, and referring particularly to Fig. 5, the numeral 18 designates the body portion of the pin. This body portion, which is substantially identical with the body portion 10 of the preferred embodiment, is similarly equipped with prongs 19. These prongs 19 are, however, formed on only one terminal of the body portion 18, the other terminal of the member 18 being equipped with the screw-shank 20. A head 21 similar to the member 12 of the preferred form is provided to spread the prongs 19 when the modified form of dowel-pin is applied to the two meeting portions of a pair of boards, as illustrated in Fig. 3. In applying this modified form of pin to the boards C and D, the screw-shank 20 is first threaded into the member C, and the head member 21 is then positioned in a bore which is formed in the other board. The body portion 18 is then inserted in the bore, and the members C and

D are driven together so that the beveled terminals of the prongs 19 will engage against the flange 22 of the head 21 and will be spread outwardly in the manner illustrated.

It is now desired to direct particular attention to the function of the flange 14. As will be observed particularly upon reference to Fig. 1, this member serves to prevent the inward yielding of the prongs when the head members are being driven inwardly. It is to be noted that the head members are provided with two flanges, one of which serves to guide the prongs and prevent the inward flexing thereof and the other of which serves to spread the terminals of the prongs when the contiguous members, to which the joint is applied, are being driven together.

In conclusion, it is desirable to direct attention to the fact that the dowel-pin of this invention is relatively simple in its construction, but is so formed that it may be quickly and readily applied to articles of furniture or the like to securely hold the meeting portions of any two separate elements in assembled relation.

In reduction to practice, it has been found that the form of this invention illustrated in the drawings, and referred to in the above description as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of this device will necessarily vary, it is desired to emphasize the fact that various minor changes in details of construction, arrangement and proportion of parts may be resorted to, when required, without sacrificing any of the advantages of this invention, as defined in the appended claims.

What is claimed is:—

1. A dowel pin including a tubular body member, prongs formed at the terminals thereof, and a separate head member for spreading the prongs, said head member having a reduced inner terminal adapted to be freely received within the tubular body member, a concave intermediate portion adapted for engagement with the free ends of the prongs, and an enlarged outer terminal, the outer terminal of the member being of greater diameter than the diameter of the tubular body member.

2. A dowel pin including a tubular body member, prongs formed at the terminals thereof, and a head member engageable with the prongs for spreading the prongs, said head member including a reduced annular flange formed at its one end, an enlarged annular flange formed at its other end, and a concave portion connecting the flanges, said concave portion merging into the enlarged flange and being of a circumference at one end greater than the distance between the

prongs whereby the prongs may engage the concave surface and be deflected thereby, said reduced flange being of a diameter less than the internal diameter of the tubular body member, said enlarged flange being of a diameter greater than the internal diameter of the tubular body member, whereby the reduced flange may be received within the said body member and the enlarged flange may engage against the terminal thereof when the prongs have been completely spread.

3. A dowel pin including a tubular body member, prongs formed at the terminals thereof, and a separate head member for spreading the prongs, said head member having a reduced annular flange formed at its inner terminal, an enlarged annular flange formed at its outer terminal, and a concave portion connecting the flanges, said reduced flange being insertible between the prongs and being engageable with the inner edges thereof for holding the prongs against inward flexing when the terminals of the

prongs are engaged with the enlarged flange and spread thereby. 25

4. A dowel pin including a tubular body member, prongs formed at the terminals thereof, the terminals of the prongs being beveled from their inner toward their outer surface, and a separate head member for separating the prongs, said head member having a reduced annular flange formed at its inner terminal and an enlarged annular outwardly beveled flange formed at its outer terminal, and a concave portion connecting the flanges, said reduced flange being insertible between the prongs and being engageable with the inner edges thereof, said enlarged flange being engageable by the beveled terminals of the prongs for separating the same. 30 35 40

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

JOHN THORNTON GILMER. [L. S.]

Witnesses:

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J. H. PETTY.