No. 754,067. PATENTED MAR. 8, 1904.

J. B. HOUGH.

JOINT FOR CHAIR SEAT SECTIONS OR SIMILAR PURPOSES.

APPLICATION FILED MAY 1, 1903.

NO MODEL.

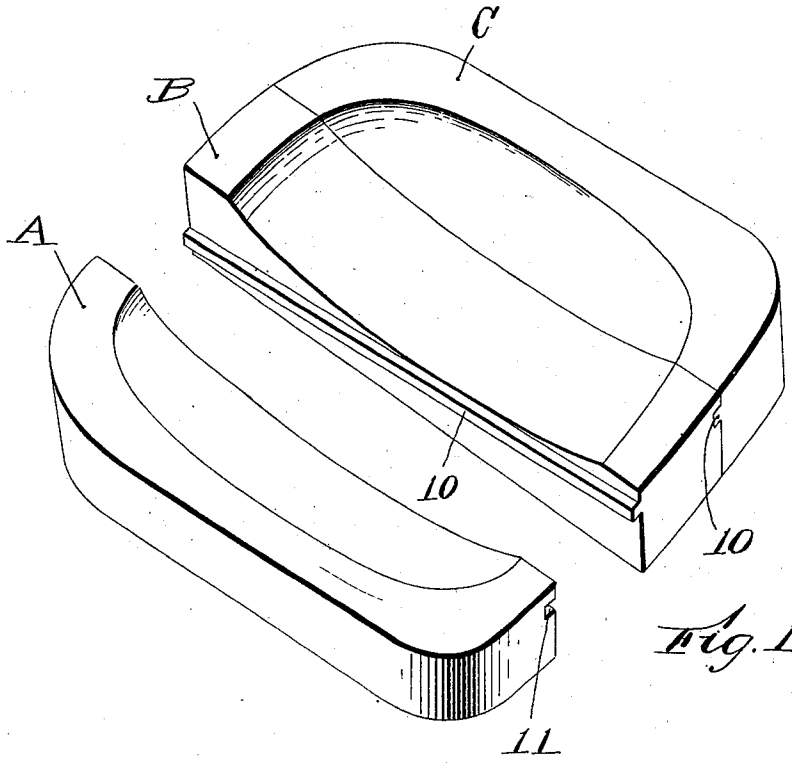


Fig. 1.



Fig. 2.

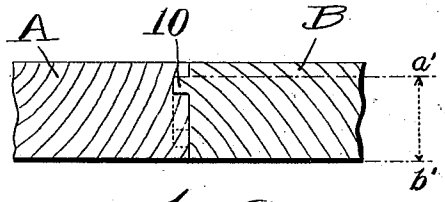


Fig. 3.

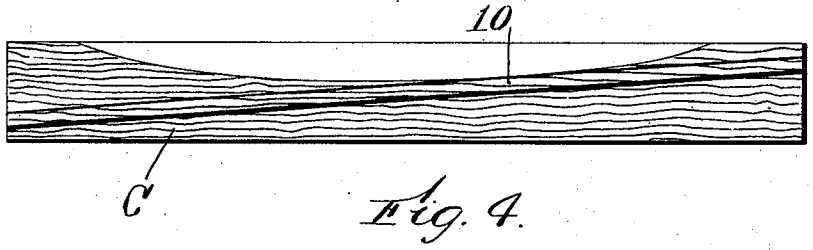


Fig. 4.

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No. 754,067. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

JOHN BRUCE HOUGH, OF ERVING, MASSACHUSETTS.

JOINT FOR CHAIR-SEAT SECTIONS OR SIMILAR PURPOSES.

SPECIFICATION forming part of Letters Patent No. 754,067, dated March 8, 1904.

Application filed May 1, 1903. Serial No. 155,135. (No model.)

To all whom it may concern:

Be it known that I, JOHN BRUCE HOUGH, a citizen of the United States, residing at Erving, in the county of Franklin and State of Massachusetts, have invented a new and useful Joint for Chair-Seat Sections or Similar Purposes, of which the following is a specification.

This invention relates to an improved joint especially designed for uniting the pieces which are glued together in manufacturing chair-seats and which can also be employed for other purposes.

The especial object of this invention is to provide a strong, simple, and efficient form of tongue-and-groove joint which may be used to make stronger and more efficient connection between wooden sections without materially increasing the expense of making the same.

To these ends this invention consists of an improved joint of a chair-seat as an article of manufacture having its parts connected by such joints and of the combinations of parts therein, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view of the parts which may be employed in making up a chair-seat according to this invention. Fig. 2 is a transverse sectional view illustrating the breaking leverage of an ordinary tongue-and-groove joint. Fig. 3 is a transverse sectional view of a joint constructed according to this invention, and Fig. 4 is a side view of one of the chair-seat pieces.

In manufacturing wooden chair-seats of that class to which this invention relates wooden strips or pieces are first glued together to form a chair-seat blank. This blank is afterward rounded to proper outline and is molded or concaved and bored to receive the chair-legs or other fixtures which support the same.

One objection to a glued-up chair-seat arises from the difficulty of securing sufficiently strong joints to unite the pieces or strips which make up such a chair-seat.

In practice chair-seat pieces have sometimes been matched together with ordinary tongue-and-groove joints. Usually, however, plain glued joints are relied upon to fasten the chair-seat pieces together. This in practice has been found to be objectionable, as the glued joints are liable to give way, so that the chair-seat pieces may break by permitting the chair to come to pieces.

In practicing this invention it has been found that by uniting pieces of a chair-seat by tongue-and-groove joints which extend diagonally across the contact-faces of such pieces the strength of the chair-seats of the class referred to may be materially increased without greatly increasing the cost of manufacturing the same.

The strength of a joint constructed according to this invention may be attributed to the fact that the diagonal location of the tongue and groove increases the breaking leverage of the joint and also to the fact that the tongue, which is preferably integral with one of the pieces, has its grain running across the same at an angle.

The accompanying drawings illustrate the application of joints constructed according to this invention in the manufacture of a three-piece chair-seat. It is to be understood, however, that this invention is also applicable to other constructions besides that of a chair-seat, as such joints may be used with advantage in tight cooperage, barrel-heads, table-tops, box-boards, and, in fact, in nearly all structures where wooden pieces are joined together and require to withstand any considerable degree of breaking strains.

Referring to the drawings and in detail, the chair-seat therein illustrated comprises the sections A, B, and C. Extending from the faces of the sections B and C are integral diagonally-arranged tongues 10, which fit into corresponding diagonally-arranged grooves 11. The increased strength secured by this form of joint can be understood from a consideration of the sectional view, Figs. 2 and 3.

In Fig. 2 two wooden pieces are illustrated as connected by an ordinary tongue-and-groove joint located near the bottom, as is sometimes the practice in making chair-seats. In an ordinary joint of this kind the greatest leverage that the tongue and groove have in resisting the breaking or bending of the parts to the position illustrated by dotted lines is

the distance $a\,b$, whereas in a joint constructed according to this invention, as illustrated in Fig. 3, at some point along the joint the tongue and groove have a breaking leverage equal to the length $a'\,b'$—that is to say, at some point along the length of a joint constructed according to this invention, no matter from which side the strain is applied, the tongue and groove will have a breaking leverage of substantially the entire width of the meeting faces. In addition to this the breaking strength of the integral tongue or projection 10 is considerably more than in ordinary joints in which the tongue is parallel with the grain of the wood. This is best illustrated in Fig. 4, from which it will be seen that the grain of the wood crosses the tongue at an angle, so that before the tongue can be broken or sheared off a greater number of wood fibers will have to be pulled apart than would be torn apart in shearing off an ordinary tongue.

I am aware that joints constructed according to my invention may be applied and used to advantage in many other constructions besides that of the chair-seat which I have herein shown and described and that numerous changes may be made by skilled mechanics, according to the special use which is desired to be made of the joints. For example, while I have illustrated a single diagonally-arranged tongue-and-groove connection between each of the adjacent pieces, for some purposes it may be desirable to use two or more diagonal tongues, and the pitch or relative inclination of the tongues may be changed according to the special location to which the joints are to be applied. I do not wish, therefore, to be limited to the construction I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. As an article of manufacture, a wooden structure comprising a plurality of separate pieces or strips connected together by tongues, each of which extends diagonally across the engaging face of a section, and which projects a uniform distance from the surface thereof, and which is seated in a groove of uniform depth extending diagonally across the meeting face of an adjacent section.

2. As an article of manufacture, a wooden chair-seat comprising a plurality of separate pieces, the joint between adjacent pieces comprising an integral tongue projecting a uniform distance at all points in its length from a meeting face of one of said pieces, and extending obliquely across said meeting face, and fitting into a groove of uniform depth which extends obliquely across the meeting face of an adjacent piece.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN BRUCE HOUGH.

Witnesses:
HARRY N. BLACKMER,
ELBERT J. HOLLAND.