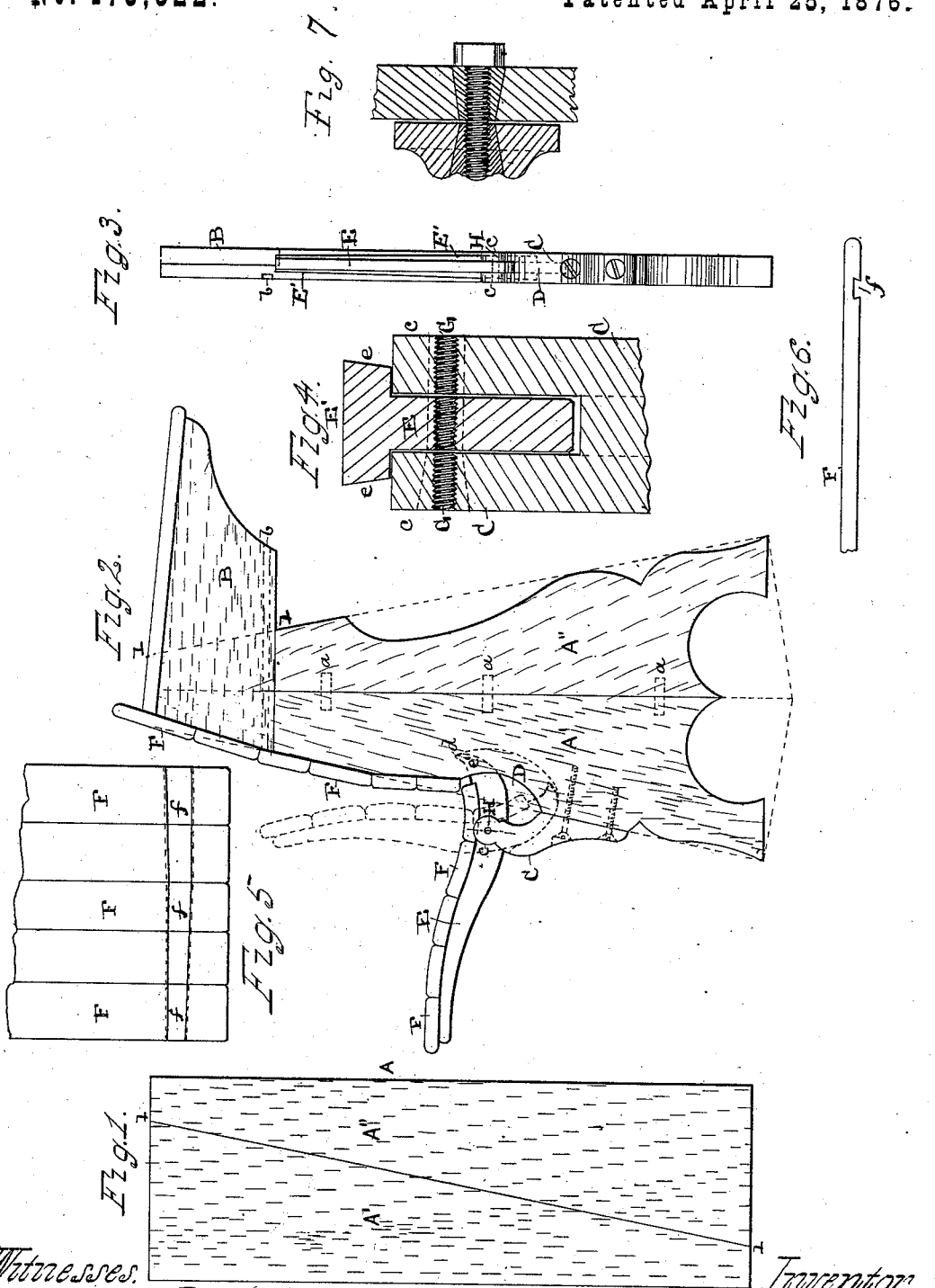


G. H. GRANT.
SCHOOL FURNITURE.

No. 176,622.

Patented April 25, 1876.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE H. GRANT, OF RICHMOND, INDIANA.

IMPROVEMENT IN SCHOOL-FURNITURE.

Specification forming part of Letters Patent No. **176,622**, dated April 25, 1876; application filed January 27, 1876.

To all whom it may concern:

Be it known that I, GEORGE H. GRANT, of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in School-Furniture; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvement in furniture, and is particularly designed for application to school desks and seats and settees.

The object of the invention is to construct a seat, or combined desk and seat, the principal parts of which are made of wood.

The invention consists, first, in a new method of constructing the standards from a single piece of timber, cut into two parts, and united so that the straight grain of the wood will be on the outer edges, thereby preserving the full strength of the wood at the exposed parts, while the cross-cut portions, being brought together on the inner side, bear against each other, and increase the strength of the whole standard.

The invention further consists in a new method of uniting the standard, constructed as described, with the bracket which forms the support for the desk-leaf, one-half of the upper portions of the standards being cut away, and a corresponding portion of the bracket being also cut away, so that, when united, the standard and bracket present an even surface on both sides; and, further, in this relation, the invention consists in forming the gain for the reception of the book-shelf partly in the standard and partly in the bracket, so that, when the shelf is placed in position, it adds to the strength of the joint between the standard and bracket, and all united together form a strong joint.

The invention further consists in a new and improved hinge for the seat-arm, which operates without noise, and is adapted to either wood or metal or combined wood and metal hinges.

The invention further consists in a new stop device for limiting the motion of the seat-arm, said stop operating in combination with the standard and arm-bracket, so that when the seat is lowered and in use, or raised out of the way, the inner end of the seat-arm bears against the standard, and releases the pivotal bolt or hinge from all forward pressure, as hereinafter more fully set forth.

Lastly, the invention consists in the peculiar wedge shape given to the flanged portion of the seat-arm and standard, upon which the slats which comprise the seat and seat-back are secured, said flanges tapering in size from the inner ends, and decreasing in size outward or upward, the gains in the slats being made of unequal sizes, so as to correspond with and fit the flanges securely, each slat having its proper position, and, when in position, all together fitting the flanges in the proper places, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 illustrates the manner in which the board is cut to form the standard of my new school desk and seat. Fig. 2 is a side elevation, showing the desk and seat as constructed. Fig. 3 is an edge view of one of the standards. Fig. 4 is a sectional view of one of the seat-arms and arm-bracket, shown detached and enlarged. Fig. 5 is a view of the under sides of a series of slats, showing the tapering form of the gains formed therein. Fig. 6 is a side elevation of a portion of one of the slats, showing the form of the gain therein. Fig. 7 is a sectional view of a portion of a standard and seat-arm of modified form, showing the hinge.

Referring to the parts by letters, A represents a board or elongated rectangular piece of straight-grained wood, from which the standard is to be constructed in the following manner: I first saw it into two parts, A' A'', on the line 1 1. The part A', or either part, is then reversed and united by screws or dowel-pins *a*, or otherwise, so as to form a piece like that shown by dotted lines in Fig. 2 of the drawings, from which the standard is constructed.

It will be seen that in this way I effect a great saving in material, as it would be impossible to make a standard of the proper

width at the lower end from a single uncut piece of timber of the same size, and if made from a piece of the required width there would be a great loss of material and a greater expenditure of labor in bringing it to the required shape.

It will also be seen that by cutting the board and again uniting it, as described, I keep the straight grain of the wood on the outer edges, and bring the cross-cut portions to bear against each other, thereby increasing the natural strength of the wood.

After uniting the parts of the standard in the manner described, I trim its edges in the manner shown by full lines in Fig. 2, so as to adapt it to the required purpose. Any desired form may be given to the standard.

B represents one of the brackets for supporting the desk-leaf. The portion between the back and the dotted line 1 1 is partially cut away, and the corresponding portion of the upper end of the standard is cut away on its inner side, so that when the bracket B is united to it the outer surfaces of both are flush or on a line. *b* is a gain for the reception of the book-shelf, formed partially in the wood of the standard and partially in the wood of the bracket B, so that when the book-shelf is placed in position it binds both together, and forms a tight joint between the bracket and standard, bracing both of the standards and the brackets, and binding all together. C is a bracket for the seat-arm, secured to the edge of the standard by long wood screw-bolts, or in any other suitable manner. The upper end of this bracket is shown forked or formed with jaws *c c*, for the reception of the seat-arm; but a single support may be used, as shown in Fig. 7 of the drawings. D is a mortise formed in the edge of the standard, and partially so on the inner side or edge of the bracket C. This mortise, or most part of the same, is in the form of an arc, with the pivot-bolt of the seat as its center. Its upper extremity is formed into an acute angle, *d*, with curved sides. E is the seat-arm, which may be made either of wood or metal, or both combined. It is pivoted to and between the forward ends or jaws of the bracket C, in manner hereinafter set forth, or as shown by Fig. 7 of the drawings. The inner end of the seat-arm is curved upward, terminating in a sharp point, which fits tightly within the acute angle *d*, at the upper termination of the mortise D, when the seat is lowered for use. The upper portion E' of the seat-arm is flanged or made wider, and its edges *e e* are beveled, as clearly shown by Fig. 4 of the drawings. This bevel-edged flange is made slightly tapering, its greatest width being at one, preferably the inner, end of the seat-arm.

The slats F, which form the seat, are gained or grooved on their under sides, so as to correspond with the flange on the seat-arm, the gains of the several slats being of different width, so that each will fit tightly in its place

on the flange, the one having the widest gain being first put in position and slid along to the wide end of the flange, followed by the one having the next widest gain, and so on, the one having the narrowest gain being the last placed in position.

The slats which form the seat-back are secured in the same manner, a suitably-formed flange being provided on the edge of the standard.

The hinge is formed by cutting a screw-thread, G, through the jaw or jaws of the bracket C, and through the portion of the seat-arm which is inserted between said jaws, or through the seat-arm and bracket, as shown in Fig. 7 of the drawings.

The seat-arm does not fit the space between the jaws closely, but so that there is sufficient room to permit of a slight lateral play of the screw of the pivot-bolt H.

The pivot consists of a screw-bolt, H, which is passed tightly through the screw-threads formed in the jaw or jaws *c* and seat-arm E, or through the seat-arm and bracket, as shown in Fig. 7.

If found more desirable, the threaded portions of the bracket and seat-arm may be formed of separate pieces of metal, of any desirable shape, and inserted therein and rigidly secured thereto, as shown by dotted lines in Fig. 4, and by full lines in Fig. 7, of the drawings.

Now, as the seat is raised and lowered, the screw H will turn and move laterally a short distance, or the seat-arm will turn on the screw with a similar lateral movement back and forth as the seat is raised or lowered—the threads G, formed in the jaws and seat-arm, either the one or the other, retaining a tight gripe on the screw H, depending on which has the greater friction, the result being always the same; and in this way I secure a perfectly noiseless hinge, and one which will not work loose, the entire friction of the hinge being confined to the screw and screw-thread, as the one moves back and forth upon the other, the movement in one direction being no greater than the return movement in the opposite direction, and the movement in either direction being less than a complete revolution or single spiral of the thread.

The mortise D, or opening within which the inner end of the seat-arm plays, forms, in connection with said end, an effective stop to limit the motion of the arm in either direction.

When the seat is lowered the pointed end *e'* is forced tightly within the acute angle *d* at the upper extremity of the mortise or opening D', thereby not only acting as a stop, but relieving the pivotal bolts from the effects of forward pressure, transferring a greater part of the strain from the pivots to the standard.

When the seat is raised for convenience of egress or other purpose, the rounded portion of the inner end of the seat-arm will come in contact and bind with the lower end of the mortise, thereby acting as a stop.

The peculiar shape of the upper part of the mortise and the corresponding shape of the stop on the rear end of the seat-arm prevents forward pressure, and obviates any tendency to strain the seat-bracket from the standard.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The standard of a school-seat or other like article of furniture, constructed of two parts, A' A'', cut from a single piece of wood, reversed, and then united, in the manner substantially as set forth.

2. The desk bracket and standard, united at the upper portion of the standard, as described, and having the gain *b*, for the reception of the book-shelf, formed partly in the bracket and partly in the standard, substantially as and for the purpose specified.

3. The seat-arm E, having the inner pointed end *e'*, constructed substantially as described,

in combination with the bracket C and standard, having the mortise D, substantially as and for the purposes specified.

4. The seat-bracket C, having one or more supports or jaws, *c*, and the seat arm or lever E, all having a screw-thread, G, to receive the screw-bolt H, and arranged to operate in combination therewith as a noiseless hinge, substantially as set forth.

5. The seat-arm and standard having continuously-tapering bevel-edged flanges E', in combination with the slats F, having correspondingly-shaped gains or grooves *f*, substantially as and for the purpose specified.

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

GEO. H. GRANT.

Witnesses:

M. M. ROHRER,
A. MCCALLUM.