(No Model.)

W. SCHNABEL.

CHAIR SEAT.

No. 416,505. Patented Dec. 3, 1889.

Fig. 1.

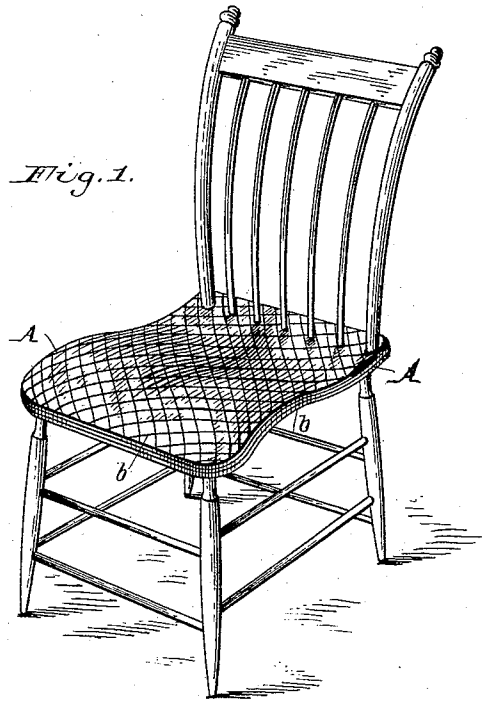


Fig. 2.

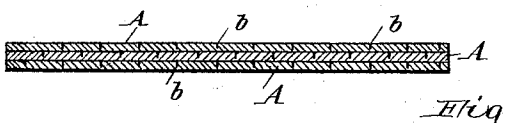


Fig. 4.



Fig. 3.

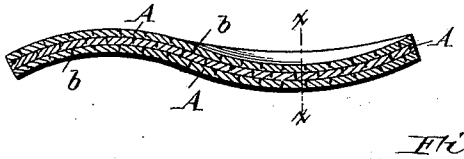
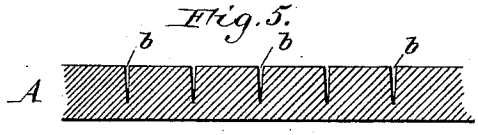


Fig. 5.



Witnesses:
Thos. L. Popp
Chas. J. Buchheit

William Schnabel Inventor.
By Wilhelm & Bonner
Attorneys.

N. PETERS. Phr >-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM SCHNABEL, OF BUFFALO, NEW YORK.

CHAIR-SEAT.

SPECIFICATION forming part of Letters Patent No. 416,505, dated December 3, 1889.

Application filed April 11, 1889. Serial No. 306,849. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHNABEL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Chair-Seats, of which the following is a specification.

This invention has for its object the production of a rigid well-shaped chair-seat which is of sufficient strength and rigidity to receive directly the legs and back without the intervention of a seat-frame, and which is light and of a comfortable shape.

Previous to my invention the frames of chair-seats have been covered with bottoms composed of several layers of veneers glued together and perforated for the purpose of ventilation. These seats require a separate rigid frame to which the legs and back are secured, and are simply covered with the veneer bottom, which is flexible and but little shaped.

Rigid seats have been constructed of a single board or thickness of wood, and have been shaped on the upper side by cutting the wood away; but these seats are heavy and liable to split, and cannot be shaped to a comfortable curvature without cutting away a large amount of wood, whereby their production is rendered comparatively expensive.

The object of my invention is to produce a rigid and strong chair-seat of uniform thickness, which is nicely shaped and which can be produced cheaply; and my invention consists of the novel construction of a chair-seat, which will be hereinafter fully set forth, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of a chair provided with my improved seat. Fig. 2 is a vertical section showing the form of the seat before the same is bent by the shaping-dies. Fig. 3 is a longitudinal section of the seat, showing the form thereof after it is bent or shaped. Fig. 4 is a cross-section of the bent seat in line *x x*, Fig. 3. Fig. 5 is a fragmentary cross-section, on an enlarged scale, of one of the grooved boards.

Like letters of reference refer to like parts in the several figures.

My improved seat is ordinarily constructed of two or three thin boards or layers of wood A, cemented or glued together and each provided on one side with cuts, grooves, or incisions *b*, whereby the several layers are rendered flexible and pliable, so that the seat can be bent to a comfortable shape by suitable cauls or shaping-dies. The grooves or incisions of the several layers are arranged at an angle to the grain of the wood, and preferably extend diagonally across the entire surface of each board in opposite directions, so as to intersect each other, as shown in Fig. 1. These grooves or incisions penetrate the boards to about two-thirds of their thickness, so as to give the boards the requisite flexibility without unduly weakening the same.

In constructing the seat two or more of these grooved boards having the desired outline are glued together, one upon the other, as shown in Fig. 2. The flat seat so built up is then bent to the proper form between the dies or cauls having shaping-faces corresponding to the curvature desired to be imparted to the seat. The grooves or incisions *b* permit the boards to yield in all directions under the pressure of the dies and to conform to the faces thereof, and they cause the bending strains to be distributed transversely to the grain of the boards, as well as parallel therewith, whereby splitting of the boards in the direction of their grain is prevented. By thus making all portions of the seat flexible before fixing the shape thereof the seat is rendered capable of receiving the peculiar concave or curved upper surface or form represented in Figs. 1, 3, and 4, which construction renders the seat very comfortable.

In order to obtain the highest degree of strength, the several boards are preferably so arranged with reference to each other that the grain of one board crosses the grain of the adjacent board or boards. The boards may be arranged with their incisions inward or outward. By placing the incisions of the upper layer of the seat outward the incisions serve as an ornamentation, which improves the appearance of the seat.

My improved seat is stronger and more durable than a seat made of a single board, and is lighter than such a seat, as it is of

uniform thickness. The chair-legs can be secured directly to the seat, as to an ordinary rigid seat made of a single board, without the use of a separate seat-frame.

The seat can be produced as cheaply as the ordinary seat, as it is composed of several thin layers of wood, which are comparatively inexpensive, and the seat is given a more comfortable shape than the ordinary thick seat, at less expense than it is possible to hollow out such an ordinary seat to the same degree of curvature, as the surface of the latter must be carved to the desired curvature either by hand or by machine.

The layers constituting the seat may be formed of boards or sheets of wood, and the boards may vary in thickness from a sixteenth to a quarter of an inch, or more, according to the thickness and strength of seat desired. The grooves or incisions in the boards may be formed by knife or saw cut.

My improved seat is especially desirable for opera and other folding chairs; but it may also be applied to chairs of other descriptions and to stools and benches. The backs of chairs and benches and curved dashboards and other curved wooden parts of vehicles may also be constructed according to my improvement.

Flexible or elastic chair-bottoms have been constructed of a single board provided with a grooved surface to render the board flexible, as in my patent, Serial No. 176,486, dated April 25, 1886, and I therefore do not herein claim such a chair-bottom.

I claim as my invention—

A rigid curved chair-seat or wooden plate composed of boards having grooved surfaces glued or cemented together and bent to the desired curved form, substantially as set forth.

Witness my hand this 5th day of April, 1889.

WILLIAM SCHNABEL.

Witnesses:
CARL F. GEYER,
FRED. C. GEYER.