2 Sheets—Sheet 1.

D. BULLOCK.

Machine for Planing Chair-Backs.

No. 206,660. Patented Aug. 6, 1878.

Fig. 1.

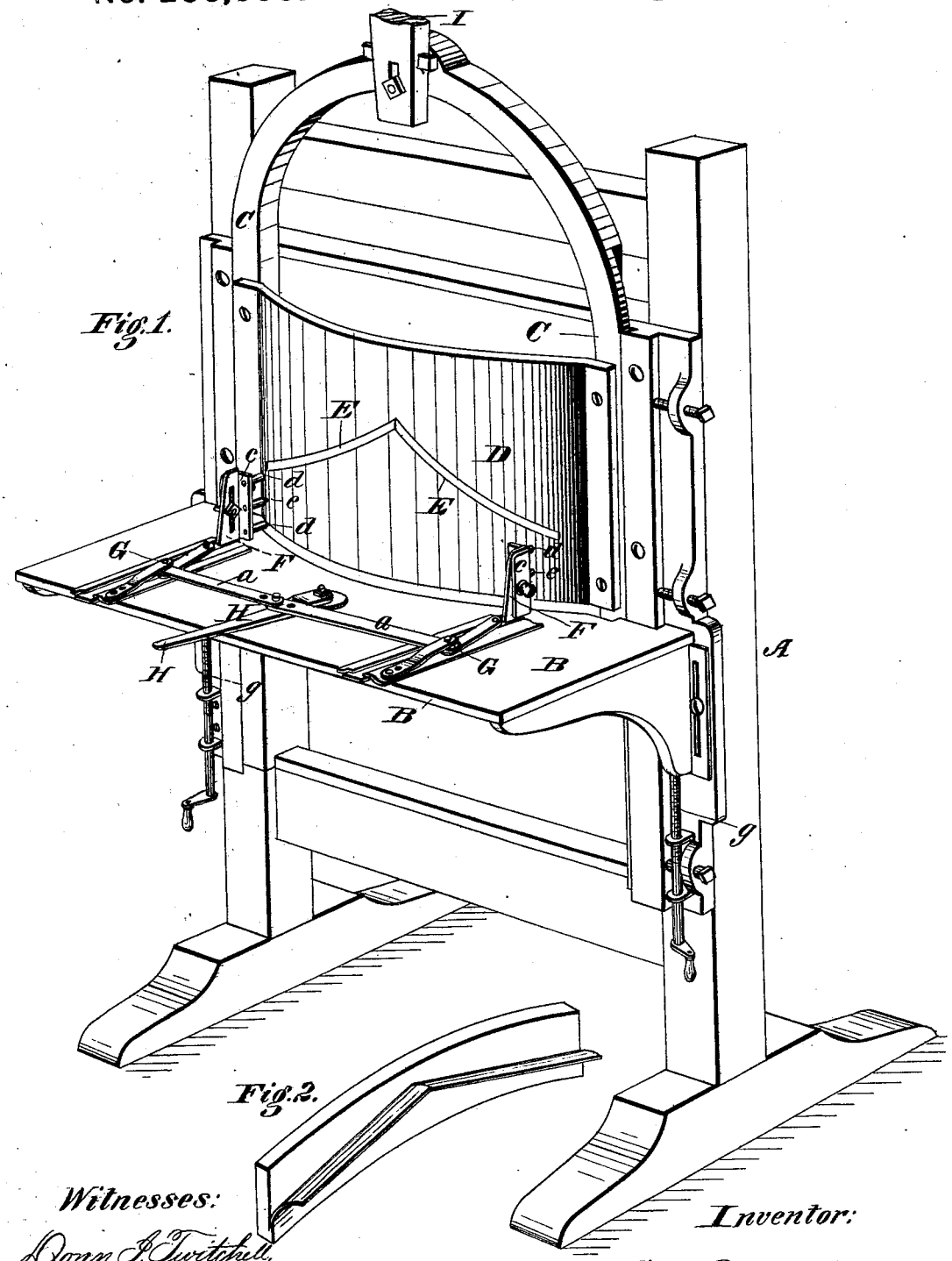

Fig. 2.

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2 Sheets—Sheet 2.

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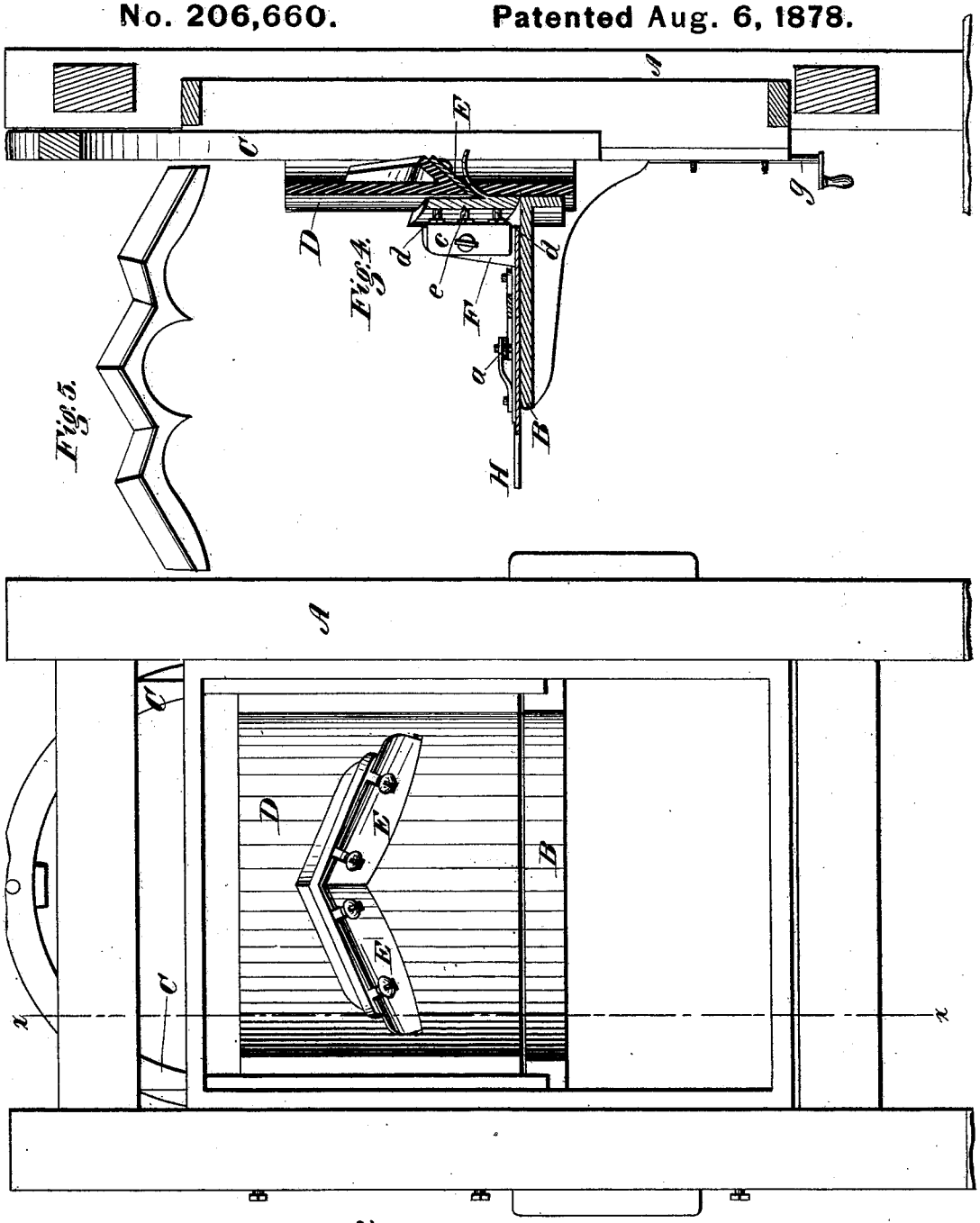

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UNITED STATES PATENT OFFICE.

DANIEL BULLOCK, OF FORT ATKINSON, WISCONSIN.

IMPROVEMENT IN MACHINES FOR PLANING CHAIR-BACKS.

Specification forming part of Letters Patent No. **206,660**, dated August 6, 1878; application filed June 23, 1877.

To all whom it may concern:

Be it known that I, D. BULLOCK, of Fort Atkinson, in the county of Jefferson and State of Wisconsin, have invented certain Improvements in Machines for and Method of Planing Chair-Backs, &c., of which the following is a specification:

My invention relates to a machine for dressing and finishing ready for use, at one operation, the curved surfaces of chair-backs; and to this end it consists in a face-plate and blade, curved and arranged for dressing and finishing with a smooth surface the entire curved face by a single continuous transverse stroke, thereby giving the same a smooth even surface without seam or break; and in an organized machine, consisting of devices for holding and presenting the backs, and inclined reciprocating blade adapted to the longitudinal curvature of the back, and a curved face-plate in which the knife is carried transversely across the back, said parts being constructed, combined, and arranged with special reference to their operation upon the chair-backs, as hereinafter fully explained.

Various machines employing rotary cutters have been hitherto devised for the purpose of finishing chair-backs, but in practice it has been found that the work produced by them is frequently untrue, and that they leave the surface of the wood so rough that it requires to be passed through a subsequent smoothing and finishing operation. It is to avoid this inaccuracy and roughness, and cheapen and expedite their manufacture, that my invention is mainly directed, although other less important advantages also result therefrom.

Figure 1 represents a perspective view of my machine, adapted for planing the inside concave faces of chair-backs, the upper end of the pitman and the driving-crank being omitted; Fig. 2, a perspective view of a chair-back, with a shaving partially cut therefrom, showing the manner in which the knife cuts obliquely across the grain of the wood; Fig. 3, a rear elevation of the machine; Fig. 4, a vertical section of the machine on the line *x x* of Fig. 3. Fig. 5 is a face view of a modified form of the cutter.

A represents a rigid upright frame provided with a table, B, to sustain the articles to be dressed, and with a vertically-reciprocating sash, C, carrying a face-plate, D, in which latter there is seated a blade, E, extending through a slot from the back and projecting slightly beyond the front face of the plate, as shown in Figs. 1 and 4, the parts being so arranged that the face-plate and the edge of the blade pass up and down behind and in close proximity to the rear edge of the table. The face-plate is made straight in its vertical section; but in horizontal section the face-plate, the cutting-edge of the blade, and the rear edge of the table are all curved to correspond exactly with the curvature of the face to be dressed.

In the present instance the curvature of the parts is such as to adapt them for dressing the inside or concave surface of the back.

In order to adapt them for dressing the outside or convex surface of the back, they are simply curved in the opposite direction, the face of the plate and the blade being made concave instead of convex. The blade is given a downward inclination in cross-section, from its rear toward the front edge, in order that it may cut during its descent.

The blade, in the present instance, consists of two pieces or halves, arranged end to end and inclined downward from the middle toward each end, as shown, so that it will commence and finish cutting at the ends before it does at the middle, the edge of the blade being thus caused to cut obliquely or with a shearing action across the grain of the wood.

To adapt the machine to dress a piece having several curves, the face-plate D will of course be made to correspond to the curves of the piece to be dressed; and in such case the blade should be made with points, as shown in Fig. 5, so as to commence its cut at the points, and thus have an oblique cut for each separate curve.

On the table in front of the face-plate there are mounted two sliding presser-heads, F. Each head is connected to and operated by toggle-links G, and the links of the two heads connected by bars *a* to a hand-lever, H, mounted on the table, as shown, so that by means of the lever both heads may be moved toward or away from the face-plate at will. Each head F has secured to its front face, by means

of a thumb-screw, in such manner that it may be adjusted vertically, a plate, *c*, having three screw-studs, *d*, *d*, and *e*, the latter being located between the others, and pointed, so as to enter the wood, while the studs *d d* have flat ends to rest upon the surface of the same. The wooden backs to be dressed are laid one at a time on edge upon the table B, in front of the heads F, with the grain of the wood lying horizontally, and are forced by means of the hand-lever and heads against the face-plate. At each descent of the face-plate the edge of the knife, commencing at the ends of the back and cutting thence inward and downward, in the manner represented in Fig. 2, dresses off the entire inside face of the back, and by one or more cuts of this character, removing complete unbroken shavings from the back at each cut, quickly gives the same a true and smooth surface.

After one face has been thus finished, the back is placed in another and similar machine, adapted to finish the other face.

When the machine is to be adapted for cutting and finishing the convex side of the backs the knife is preferably arranged with an upward inclination from the middle toward each end, instead of the downward inclination, shown in the drawing, for concave work.

Fair results may be obtained both in concave and convex work by giving the blade an inclination in one direction from end to end; but it is preferred to use the blades with the double inclination, as the results attained are much better than under either of the other arrangements.

In order to adapt the same machine for concave and convex work, and work generally of different forms, the face-plate and the rear edge of the table may be made detachable, so that they may be replaced by others. The frame or sash to which the face-plate is attached may be operated by any suitable arrangement of mechanism, but ordinarily it will be connected to a pitman, I, which will be attached to and driven by a crank.

In order that the height of the table may be varied according to width of the backs to be dressed, it is sustained by arms or brackets seated in guides and bearing upon hand-screws *g*, seated in fixed bearings on the frame, as shown in Figs. 1 and 4. The knife may be seated and secured to the face-plate in any suitable manner; but it is preferred to slot the knife and fasten it by bolts to an inclined bearing cast on the back of the plate, as shown in Figs. 3 and 4.

I am aware that concave and convex hand-planes are old; that it has been proposed to operate such planes by machinery for the purpose of dressing barrel-staves from end to end lengthwise of the grain; also, that it has been proposed to cut flat veneer by means of a reciprocating blade and face-plate from the side of a block placed loosely on a bed or table, and also that an angular-curved blade has been secured, without a face-plate or other gage, in a reciprocating sash, to trim the edge of barrel-staves; but neither of said devices or machines are intended or adapted to finish chair-backs; and, although known for many years, they have not suggested or caused the production of a machine for that purpose, the universal method of dressing backs being by means of rotary cutters, which necessitate a subsequent smoothing and finish that are avoided by my arrangement.

My method and machine are both wholly new to the art to which they relate, and in the manufacture of chairs on an extensive scale I have found my improvements to be of great value and importance.

Having thus described my invention, what I claim is—

1. In an organized machine for dressing and finishing curved chair-backs, the combination, substantially as shown and described, of devices adapted to support the chair-back, a face-plate curved to correspond with the curvature of the back and arranged to reciprocate transversely across the same, and a cutting-blade mounted in the face-plate, with its edge inclined and curved to correspond with the face-plate and back.

2. The presser-heads F, arranged as and for the purpose described, in combination with the links G, bars *a*, and lever H.

3. In combination with the heads F, the vertically-adjustable plates *c*, provided with the studs *d*, *d*, and *e*, constructed and arranged to operate substantially as herein described.

DANIEL BULLOCK.

Witnesses:
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