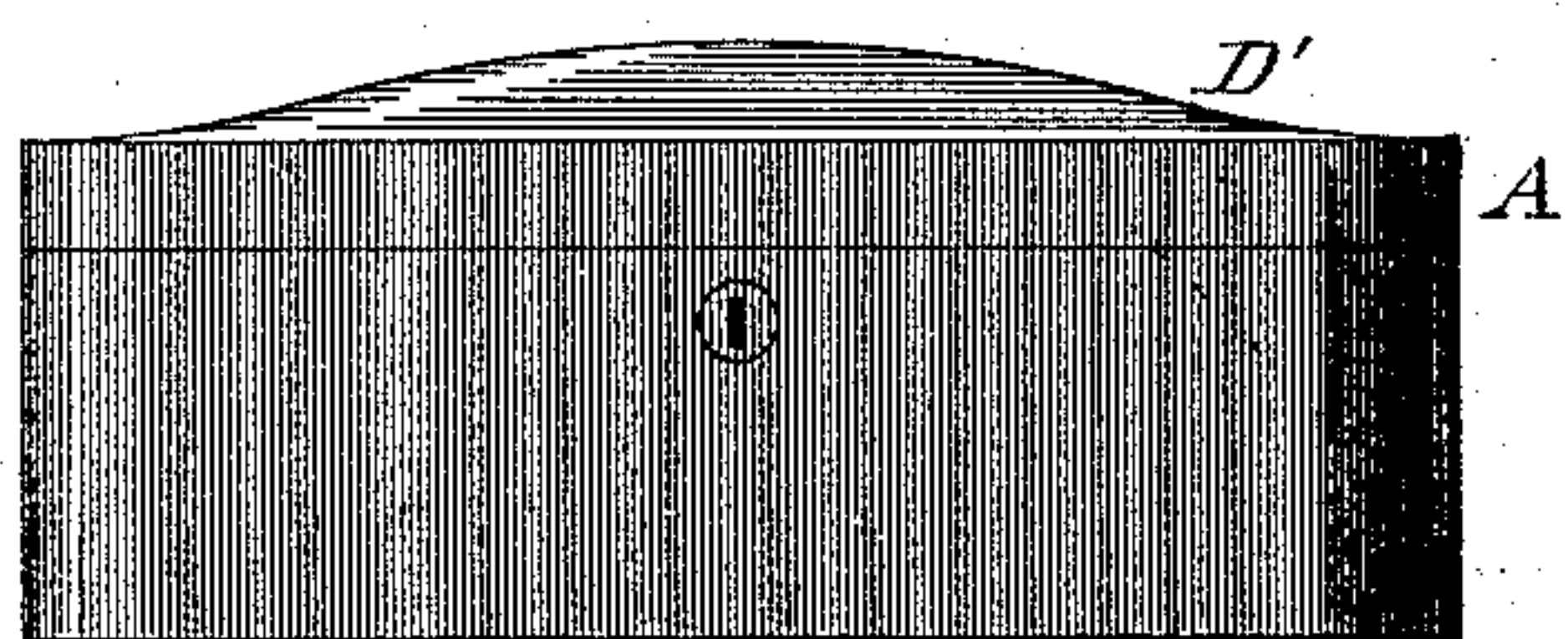
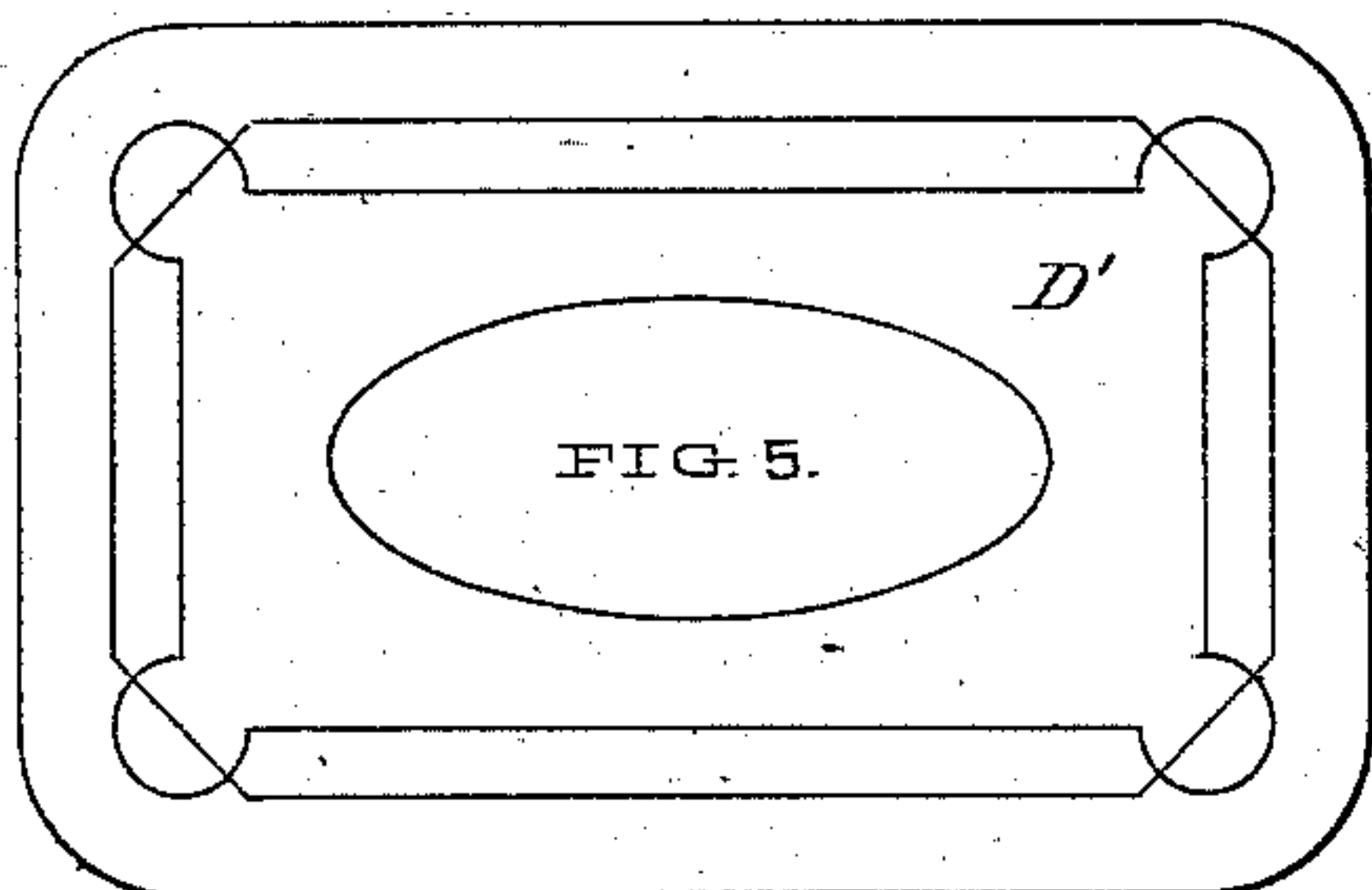
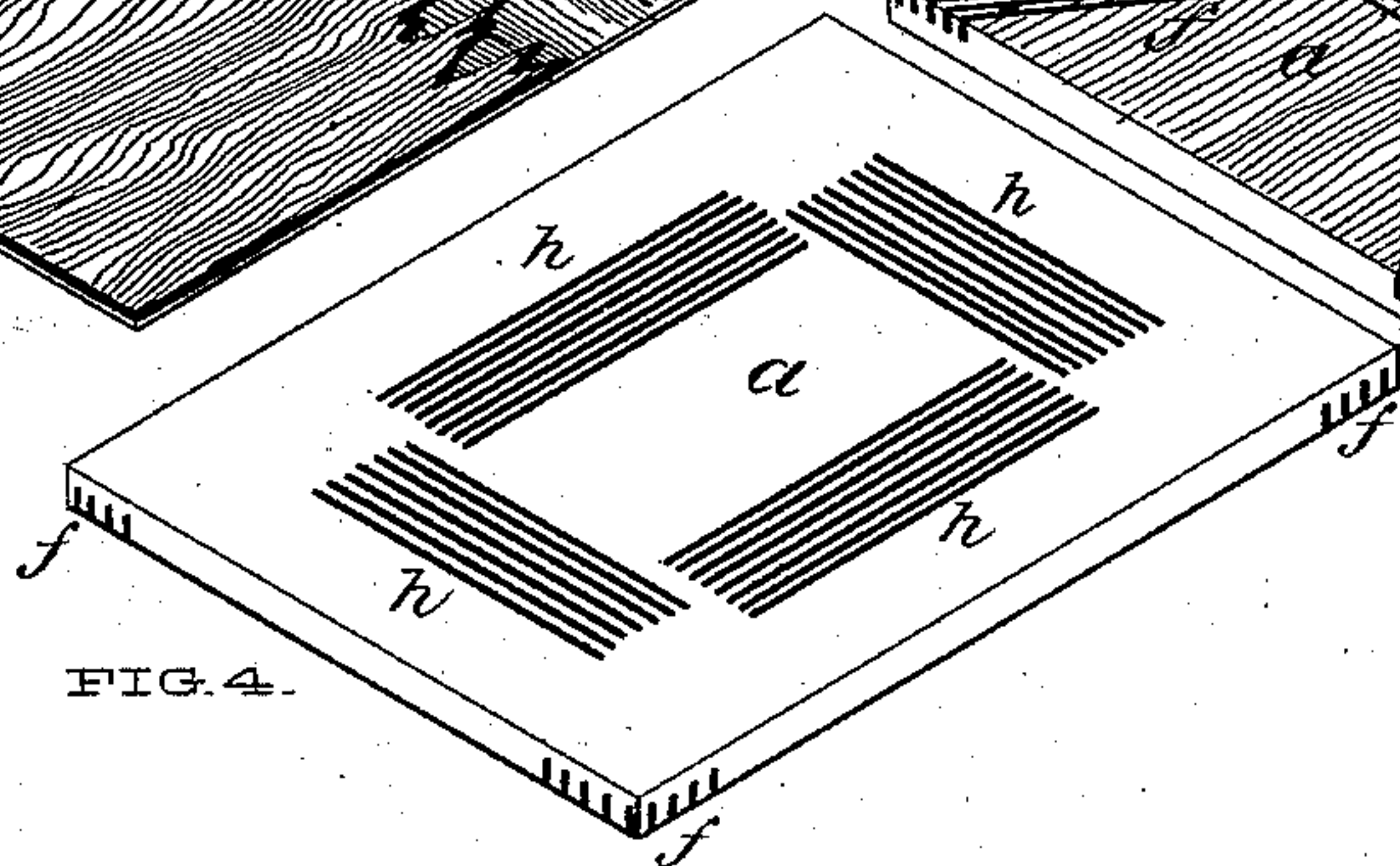
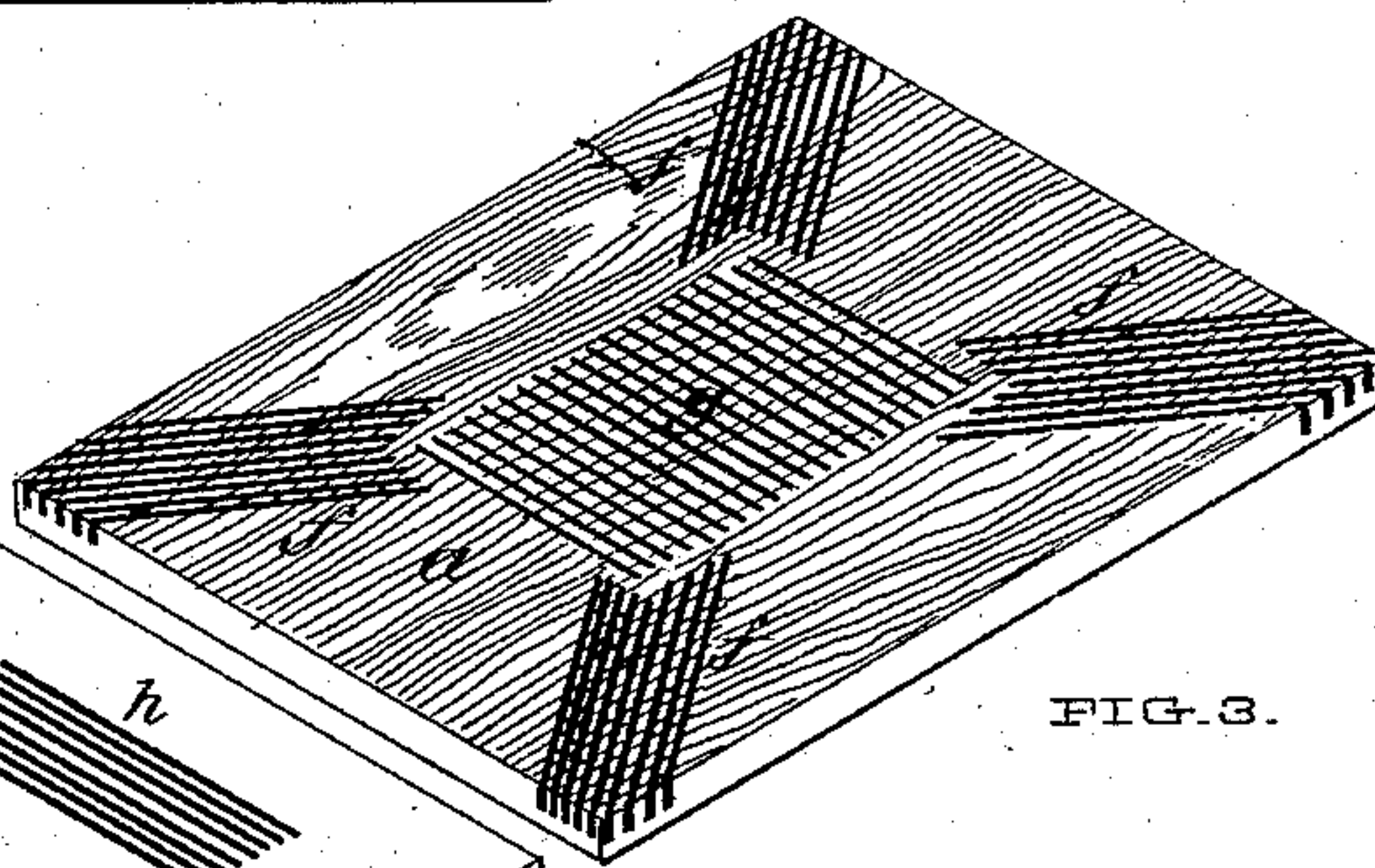
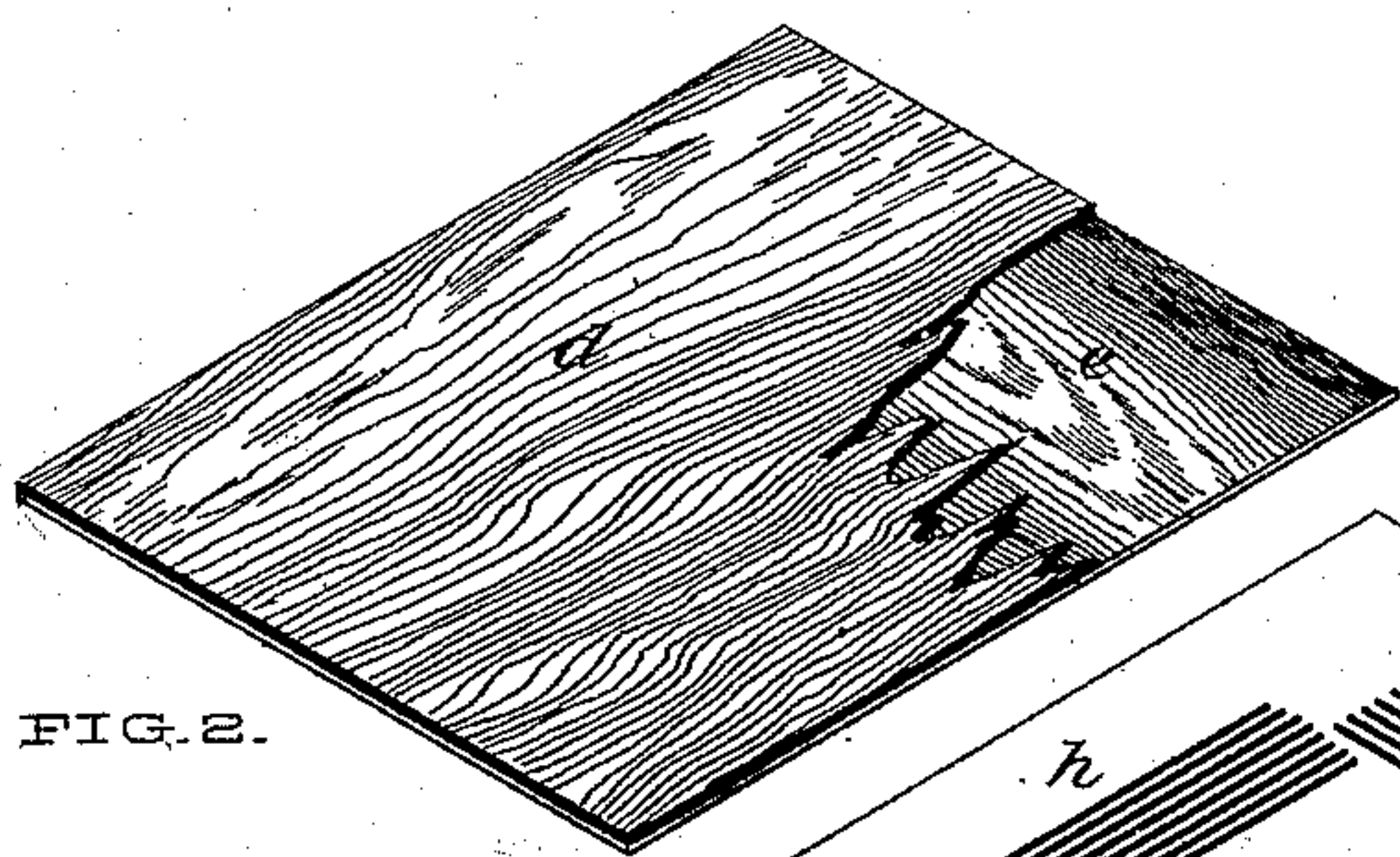
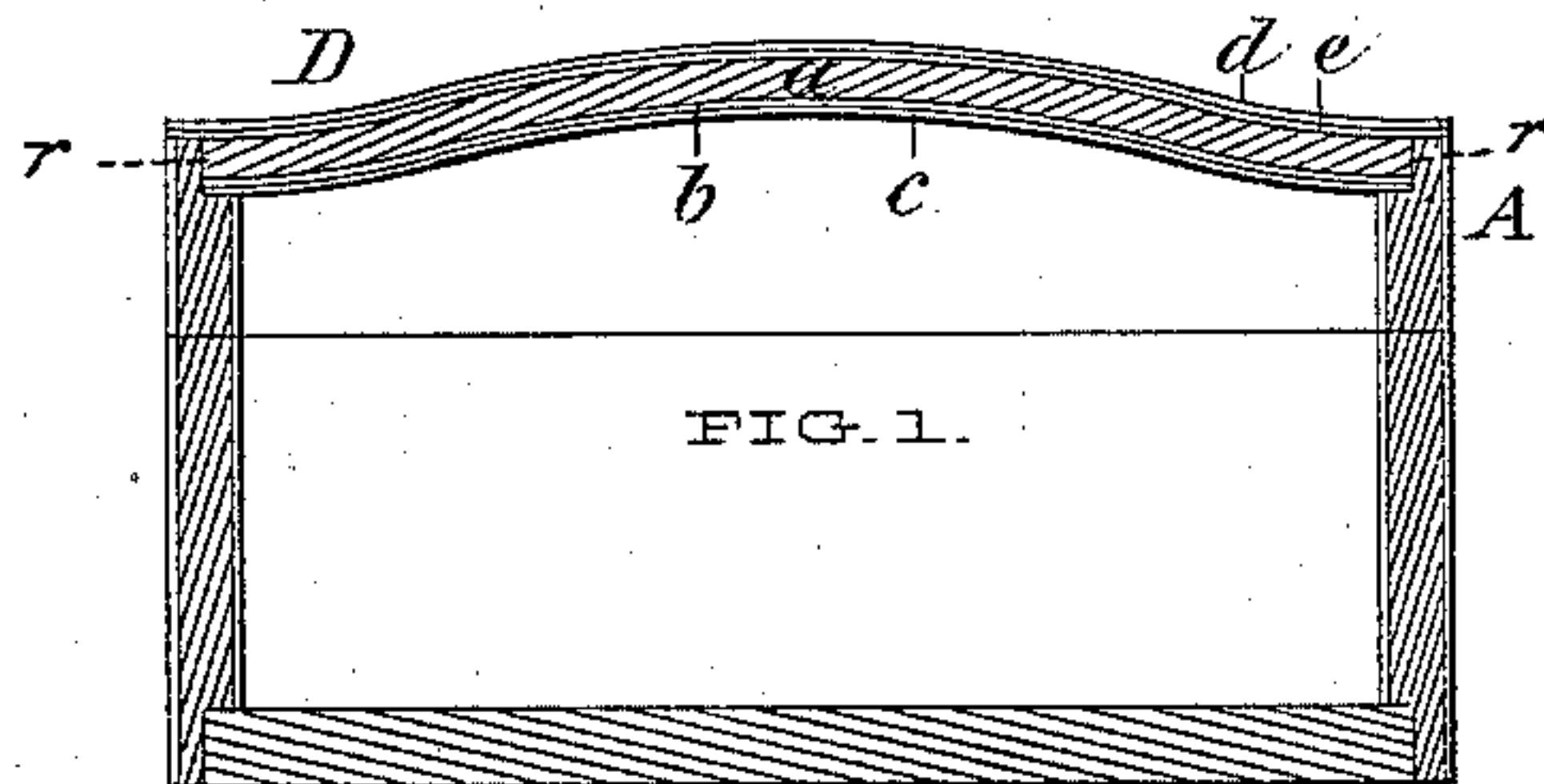


H. C. WHITE.
Veneer-Box.

No. 219,373.

Patented Sept. 9, 1879.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HAWLEY C. WHITE, OF NORTH BENNINGTON, VERMONT.

IMPROVEMENT IN VENEER BOXES.

Specification forming part of Letters Patent No. **219,373**, dated September 9, 1879; application filed May 31, 1879.

To all whom it may concern:

Be it known that I, HAWLEY C. WHITE, of North Bennington, in the county of Bennington and State of Vermont, have invented certain Improvements in Boxes made in part from Composite Veneers, which invention forms the complement of the invention for which United States Letters Patent No. 207,635 were granted to me September 3, 1878, that invention relating, among other things, to the construction of the rims or walls of boxes, and the boxes so formed possess the characteristics of having a practically integral rim or body, with bent or rounded corners and an ornamentally swelled or corrugated top, which top is made up of a scored body-piece overlaid on each side with two or more thin veneers, the grain of each of which and of the central or scored body-piece is disposed transversely with reference to that of its adjacent piece.

In the accompanying sheet of drawings, Figure 1 exhibits a view, in vertical cross-section, of a box constructed in accordance with my invention. Fig. 2 is a perspective view of two veneers as glued together preparatory to being applied to the scored body-piece of a top of a box. A portion of the upper one is broken away so as to show the relative disposition of the grain of the wood in the two pieces. Figs. 3 and 4 are perspective views of opposite sides of the scored piece, which constitutes the interior or body piece of the top, and to which the composite veneers, as shown in Fig. 2, are applied. Fig. 5 shows the contour of the top of a finished box, exhibiting the round corners thereof. Fig. 6 exhibits a front elevation of a finished box, showing one style of configuration of the swelled top.

For the process of constructing the walls or rims of said boxes having rounded or bent corners reference is hereby made to my said Letters Patent No. 207,635.

It is well known that male and female dies have heretofore been used for pressing wood and other material into irregular shapes.

The formation of structures from thin veneers of wood by disposing the grain of the adjacent layers transversely, and laying up the several layers with glue or other adhesive material, and confining the whole while the

glue is in a plastic state between forms under pressure, is also well understood.

Great difficulty has hitherto been encountered in bending or pressing thin layers of wood having a refractory grain, or which are cut or sawed so that they are "cross-grained," as it is termed, into shapes or forms known or termed "double warped" without splitting such veneers where the excessive strain in the binding process was athwart the grain, or breaking them in two across the grain when such excessive strain happened to be exerted in the same direction as or parallel with the grain. One object which this invention has in view is to so re-enforce the veneer against tendency to split or break across the grain in process of reduction to any form having compound curves or double-warped surfaces prior to the binding or pressing process that such process may be safely carried through without risk of injury or damage to the veneers by splitting or breaking, however cross-grained, and without calling in the aid of steam, moisture, or any other agency to mollify the refractory tendencies of the several parts which are submitted to the ordeal of the bending or warping process.

The several parts of which the top is composed are shown in combination in section in Fig. 1, and in detail in Figs. 2, 3, and 4.

In Fig. 2 is shown such a composite veneer as I employ to cover the upper and under surface of the body portion *a* of the top. (Shown in Figs. 3 and 4.)

The method of constructing a top is as follows: All the material is first thoroughly seasoned, and no moisture or steam is used to facilitate the bending or pressing. The outside and inside composite veneers are each prepared by gluing the ornamental veneer, or one designed to receive the final finish, to a cheaper one, which I term the "intermediate veneer." The grain of these two is arranged transversely, as seen in Fig. 2, and each pair is glued together and allowed to thoroughly dry. By this means all slip of one veneer upon another in the bending process is prevented, and the tendency either to split or break is thwarted.

As ordinarily done, where these several parts—body-piece and veneers—are all glued at the

same time, and go to the press in that condition, the glue between the layers acts as a lubricant and facilitates "slip" wherever a tendency in that direction exists, so that each separate piece or veneer, however fragile, is dependent on its own strength and integrity, unassisted and unsupported, to resist the impulse either to split, crimp, or break, as the case may be.

Body-piece *a* may be of any cheap material, as of bass-wood, and is scored on its opposite sides, as seen at *f f*, *g*, and *h h*, wherever curvature is to occur in the subsequent bending process.

Body-piece *a* is heated to such a temperature as will best conduce to the proper working of the glue and the bending of the parts.

The composite veneers are then coated with glue on the intermediate-veneer side, and are laid up with the body-piece so that the grain of the intermediate veneer shall cross the grain of the body-piece *a*. The top of the cover thus formed is next removed from the dies, its edges shaped, as shown at *r r*, Fig. 1, so as to enter the rabbet of the rim or body of the box and allow the upper veneer to cover the top edge of the rim. The edge so prepared is then glued, and it is entered in the rabbet of the edge of the rim prepared for its reception. At the same time the bottom piece is similarly put in position, and the whole confined in a clamp or press until both top and bottom have been firmly set. When dry the slightly-projecting edge of the top veneer is smoothed down flush with the surface of the rim, and the box can then be finished up in the usual way.

This system of constructing a box with a veneered top, or having the upper surface of the top covered or finished with a veneer, differs from the usual mode of construction in many essential things. By one of the commonest ways of construction the body or frame of the box is first built, and subsequently the sides and top are veneered. By this mode of construction there are several difficulties encountered. By reason of the yielding nature of the unsupported sides and top of such a hollow structure there is great liability that the veneer will not properly adhere in the middle of the top or of each side by reason of such yielding nature, and hence blistering results. Again, unless the several parts are separately veneered before being put together, difficulties arise in properly varnishing, rubbing, and finishing the inside of a box so constructed.

The externals of the composite veneers may be leveled, rubbed, and the finishing process carried forward to an approximate stage of completion before they are applied to the body-piece or are pressed into form. This cannot be well done with single veneers, nor by any of the ordinary processes of making.

My invention furnishes novel and important facilities for the application of marquetry, buhl, or reisner work, when such work is ex-

ecuted in the form of thin inlaid veneers to swelled and curved surfaces.

As is well known, such veneers are made up of a great variety and number of separate pieces; hence the entire veneer has little or no inherent strength or integrity, and is easily broken or ruined by bending or contortion of any kind; but by simply superposing such inlaid veneers upon my composite veneer, and gluing and pressing the whole together, and allowing them to first thoroughly dry in a level or true condition, such triple composite veneer can then be manipulated between the dies without any difficulty, and with no danger of cracking, breaking, or displacing the smallest piece in the mosaic or other design. Such a specimen of pressed inlaid-work accompanies this specification, and a simple design of such work is shown in Fig. 5 of the drawings.

It is obvious to persons skilled in the art to which this invention relates that other material may be substituted for some or many of the constituent parts of the structures hereinbefore described—as, for instance, a strong cloth could be substituted for the intermediate veneer, the fiber either of the warp or woof of which would cross the fiber of the grain of the veneer, and would, when so applied, re-enforce and sustain the veneer to which it might be applied; but I regard the use of cloth or any similar or analogous material in such relation as a substitution merely of one binding device for another, without in any way departing from the principle of that part of my invention, it being immaterial what substance is used as an intermediate veneer, provided it will protect the outside veneer from splitting or breaking in the bending process. Again, wood-pulp, papier-maché, leather, press-board, straw-board, and possibly many other substances could be substituted for the scored central body-piece, which could be bent or manipulated between the dies without scoring, on account of their peculiar porous cellular or other structure.

In every such instance I regard such attribute of the material used as a well-known substitute for the feature of scoring, as previously described, and the use of any such material in said relation as merely substitutionary in its character, the mode of use and function performed being the same in each instance. Hence I do not restrict myself to a scored central body-piece alone.

For purposes of ornamentation or otherwise, it is sometimes desirable to construct the box with either raised or sunken panels in the rim of the box, at the ends, or on the sides thereof. This is accomplished by scoring that portion of the rim of the box where it is desired to introduce the raised or depressed panel ornament before the top and bottom have been put in place, then superposing on the opposite sides the composite veneers which are to constitute external or finished surfaces, and then submitting such portion of the rim so treated

to pressure between the male and female dies provided therefor, in precisely the same way as the top is pressed or formed. In this way boxes may be constructed having ornamentally swelled tops and paneled sides, and possessing many attributes of superiority over boxes constructed with angular joints, in that they are much stronger, more durable, and cheaper.

Boxes so constructed have no joints exposed to the action or influence of either heat or moisture where such action or influence can in any way tend to disorganize the structure.

The superior strength of cylindrical, curved, or corrugated structures over flat or angular constructions being well known, the manifest superiority of my improved box over boxes constructed with flat sides and angular corners is at once apparent. Hence

I claim as my invention—

1. As a new article of manufacture, a box having its walls constructed of a central thick body-piece interposed and cemented between two thin veneers formed with round corners, said veneers being of such length as to extend entirely around the inside and outside of

the walls of the box respectively, and form a lap, substantially as shown in said Letters Patent No. 207,635, and having a swelled, warped, or corrugated top composed of a central body-piece veneered internally and externally with composite veneers, of which the component layers have their grain crossed, said walls and swelled top being combined in the same structure substantially as shown, and for the purposes set forth.

2. As a novel component part of a box, trunk, vessel, or other receptacle, a bent or pressed swelled top, composed of interior thick body-piece and internal and external composite veneers, of which the several component layers have their grain transversely arranged with respect to the grain of said body-piece and to each other, all united or combined substantially as shown, and for the purposes specified.

In testimony whereof I have hereto set my hand at North Bennington, Vermont, this 26th day of June, A. D. 1879.

HAWLEY C. WHITE.

In presence of—

ROBERT CHAMBERS,
FRANKLIN SCOTT.