

(No Model.)

F. CURTIS.

APPARATUS FOR SECURING BLOCKS OF PLASTIC MATERIAL WHILE
PLANING THEM INTO SHEETS.

No. 386,110.

Patented July 17, 1888.

Fig. 1.

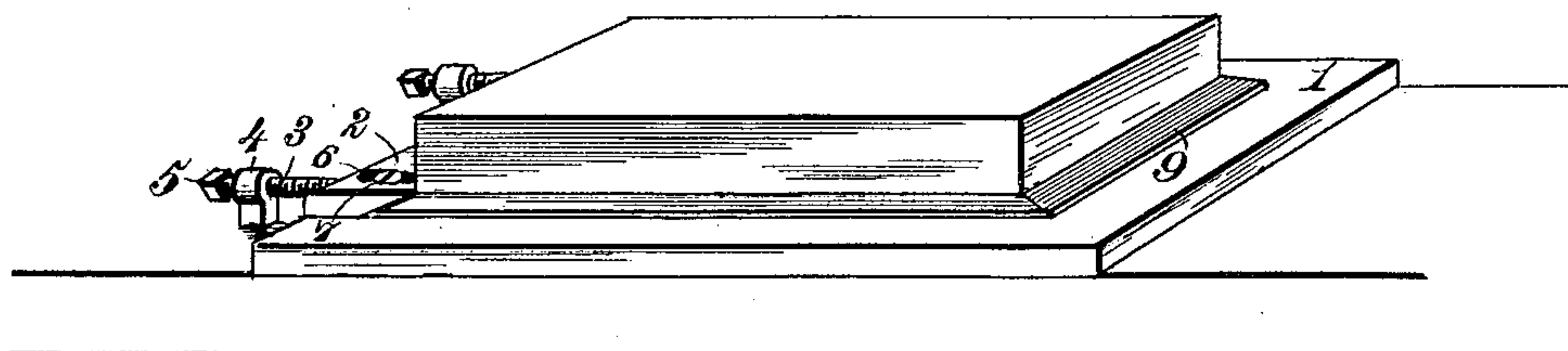


Fig. 2.

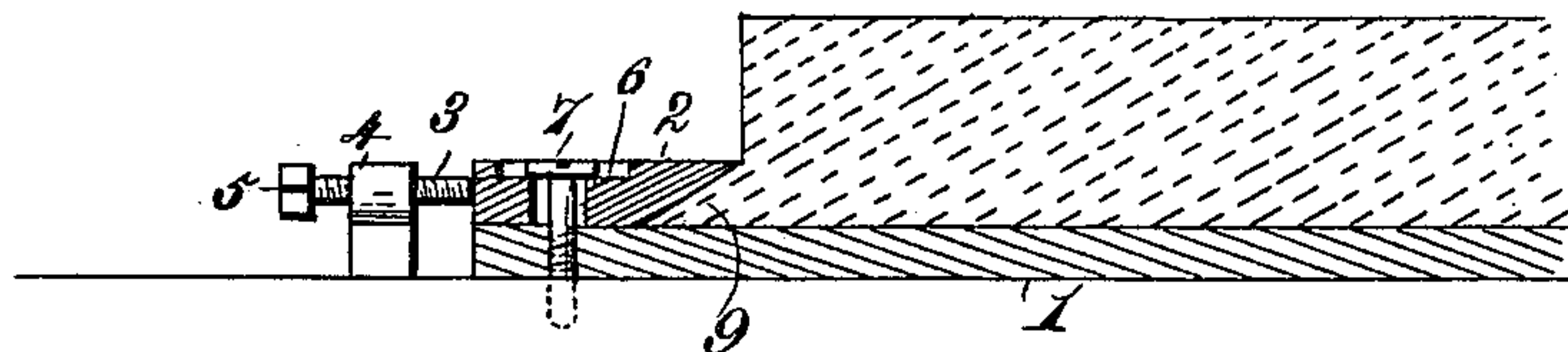


Fig. 3.

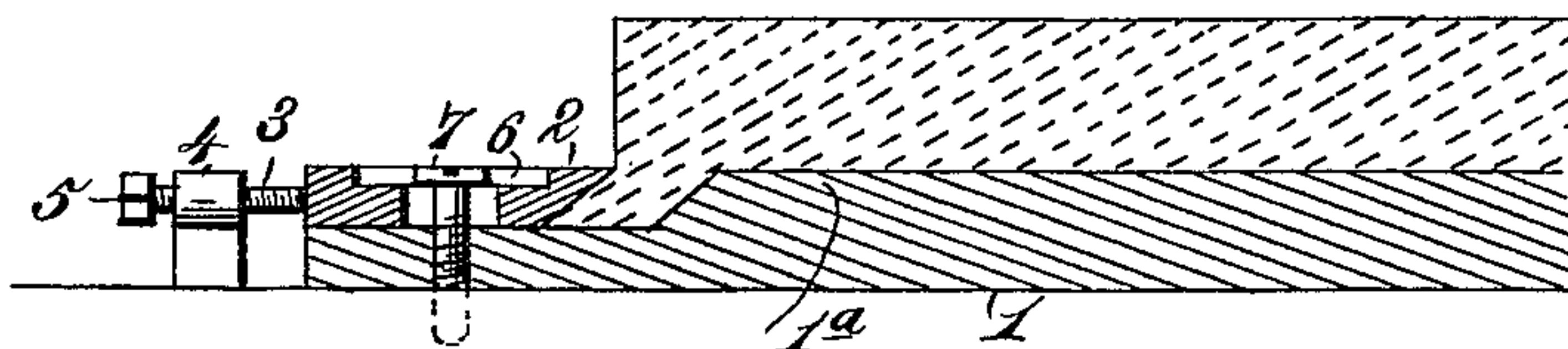
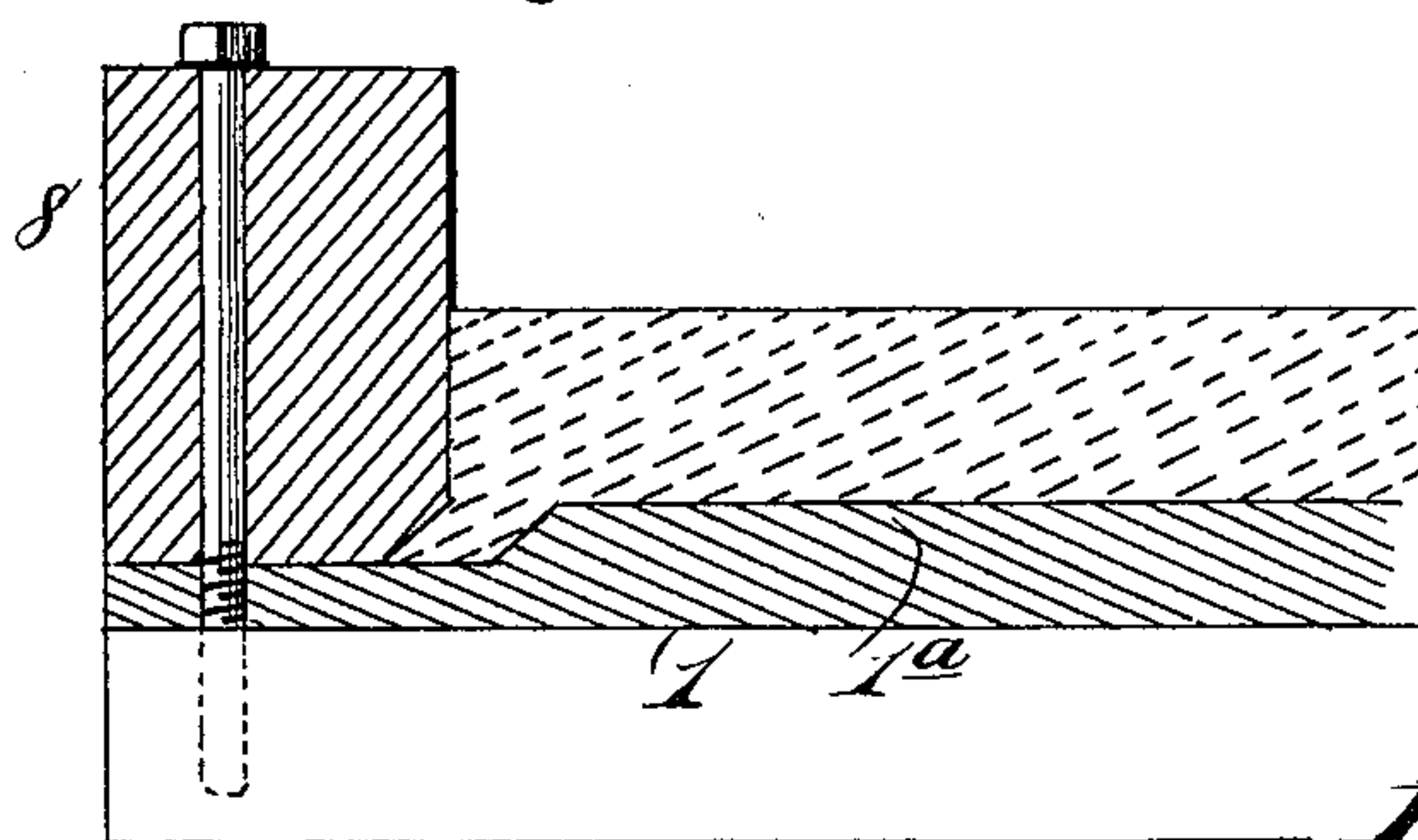


Fig. 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SECURING BLOCKS OF PLASTIC MATERIAL WHILE PLANING THEM INTO SHEETS.

SPECIFICATION forming part of Letters Patent No. 336,110, dated July 17, 1888.

Application filed December 17, 1887. Serial No. 258,217. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS CURTIS, a citizen of the United States, residing at Newburyport, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Apparatus for Securing Blocks of Plastic Material While Planing Them into Sheets, of which the following is a specification.

It is the purpose of my invention to provide suitable means for securing blocks of plastic material upon a sustaining-base or movable support during the operation of planing or slicing the block into thin sheets, the invention being especially adapted to the manipulation of celluloid or other compounds of nitro-cellulose. Heretofore and prior to my invention this result has been attained by uniting a number of sheets of celluloid in a single mass or block, amalgamating them by means of pressure and heat, and simultaneously forcing the lower portion of the block into grooves in the surface of a plate, whereby the block is secured in place during the process of cutting it into sheets.

It is the purpose of my present invention to wholly do away with the grooved plate or support and enable the manufacturer to use a perfectly smooth-surfaced plate whereupon the block is held by atmospheric pressure and adhesion only.

The invention consists in the several novel features of construction and new combinations of parts, hereinafter fully set forth, and specifically defined in the claims.

In the accompanying drawings, Figure 1 is a perspective view illustrating an apparatus embodying my invention. Fig. 2 is a vertical section of Fig. 1. Fig. 3 is a sectional view showing a modified form. Fig. 4 is a sectional view showing the manner of preparing and attaching the block.

In practice I proceed substantially as follows:

The numeral 1 in the drawings denotes a bed-plate, constructed of any suitable material, such as iron or steel, the latter being preferable, which may be plated with nickel, aluminum, or other metal not subject to oxidation, or with an alloy of such metals. Upon its upper surface this bed-plate is perfectly

smooth, and is so constructed that it may be attached to the traveling bed of a planer of the kind usually employed in cutting celluloid blocks into thin sheets.

The plate 1 is provided at or near its ends with clamps 2, which are longitudinally adjustable upon the surface of the plate by means of screws 3, tapped through supports 4, which are swiveled in the bed-plate. These screws rest against the outer edges of the clamps and have angular heads 5, by which they may be turned. The longitudinal movement is provided for by forming slots 6 in each clamp, through which screws 7 pass into the bed-plate, the heads of the screws holding the clamps down, but permitting their adjustment. The inner edge of each clamp is undercut or beveled to have an overhanging upper edge, for a purpose to be presently shown.

The celluloid or other plastic block, formed in any suitable manner, is laid upon the surface of the bed-plate, the clamps 2 being removed and chases 8 substituted, as shown in Fig. 4, each chase having its lower inner angle beveled off to correspond substantially with the undercut bevel of the clamps. The bed-plate 1 being placed upon a steam-table and heat and pressure applied in the ordinary manner, portions of the material forming the block are forced into the space between the bed-plate and the beveled edge of the chase, forming a flange, 9, which may extend entirely around the block, although it is only essential that it be formed upon the ends, and it may be confined to one end only. During the operation of molding the block under heat and powerful pressure it will be brought into such intimate contact with the surface of the bed-plate on which it rests that all or substantially all the air between the block and plate will be expelled, forming a practical vacuum. The block will now be held in place by atmospheric pressure added to its natural adhesion. The chases 8 being now removed, the clamps 2 are attached and their beveled edges are forced by the set-screws 3 against the flanges 9, binding the latter down upon the surface of the plate 1, and thereby preventing the entrance of air by the lifting of the edge of the material through shrinkage or other causes. As long as the air can be excluded from enter-

ing between the bed-plate and the block the latter will be firmly held by atmospheric pressure and adhesion, and may be cut into sheets in a planer in any suitable manner.

5 I may raise the supporting portion 1^a of the bed-plate, as shown in Fig. 3, making its surface as high as or even higher than the upper surface of the clamps 2. In this case the flange 9 will project outward and downward, as shown, 10 but will be formed in the same manner and by the same means as already set forth.

The sole function of the clamps 2 is to prevent the edge or edges from being raised and the vacuum thereby broken. The only advantage of employing the modified construction shown in Fig. 3 is, that it permits the knife to slice the entire block into sheets, as the planer can then work down to the supporting-surface of the bed-plate.

20 The use of a grooved plate as heretofore practiced is objectionable for several reasons, that portion of the celluloid forced into the grooves becoming dirty and damaged and unfit to be mingled with clean material. It is therefore 25 put aside among the "scrap," entailing a loss of stock, as well as waste of time and labor in removing it from the grooves in the plate. Moreover, as the material shrinks as it cools, it is liable, as the cake or block is cut down, 30 to become less rigid and to pull up from the plate to which it is secured. These objections do not exist in my invention, in which the force binding the block upon the bed-plate is constantly the same, and wherein, also, there need 35 be no waste either of material, time, or labor from the causes mentioned above.

I have shown the raised central portion, 1^a, as having its edges sloping down to the marginal parts; but this is not an essential feature, 40 as they may descend vertically without in any manner departing from my invention.

What I claim is—

1. The combination of the plate 1, the clamps 2, resting upon the top surface of the plate and 45 provided with slots 6, the screws 7, extending through the slots in the clamps and through the plate to engage the bed-plate of a sheet-cutting machine, and horizontal screws 3, for

sliding the clamps on a top surface of the plate, substantially as described. 50

2. As a means of holding a block of pyroxyline material or other plastic composition to be cut into sheets, a plate having a smooth upper surface, and clamps bearing upon and adjustable on a top surface of the plate and undercut at their inner edges, to overlap a lateral flange on the bottom of the composition block, 55 substantially as described.

3. As a means for holding a block of pyroxyline or other plastic composition to be cut into 60 sheets, the plate 1, having a smooth upper surface, the clamps 2, bearing upon a top surface of the plate and having undercut edges to overlap a flange on the composition block, and screws 3, for sliding the clamps on an upper 65 side of the plate, substantially as described.

4. A plate provided with a smooth even surface raised above the marginal portion, in combination with one or more clamps mounted upon the marginal portion or portions of said 70 plate near the edge or edges of the raised portion, and means for operating said clamps, substantially as described.

5. The combination, with the plate having a raised portion, 1^a, provided with a smooth 75 surface, of clamps 2, arranged upon one or more of the marginal portions surrounding the raised portion, set-screws passing through slots 6 in said clamp, and set-screws 3, bearing against the edges of the same, substantially 80 as described.

6. The combination, with the plate having a smooth-surfaced raised portion, 1^a, the edges of which slope downward to the marginal parts of the plate, of the clamp or clamps 2, having 85 correspondingly-beveled edges, the set-screws 7, passing through slots 6 in said clamp, and the set-screws 3, tapped through brackets 4 and bearing against the outer edge of the clamp, 90 substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANCIS CURTIS.

Witnesses:

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WM. H. MEEKS.