

(No Model.)

2 Sheets—Sheet 1.

G. T. SMALLWOOD & R. M. SMITH.
DRAWING BOARD.

No. 449,006.

Patented Mar. 24, 1891.

FIG. 1.

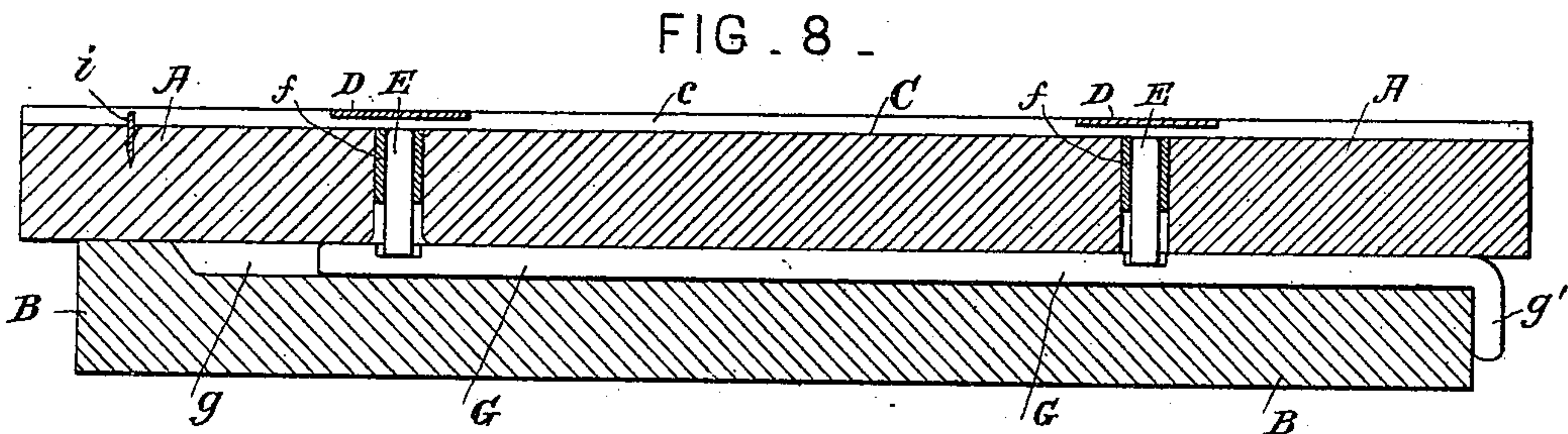
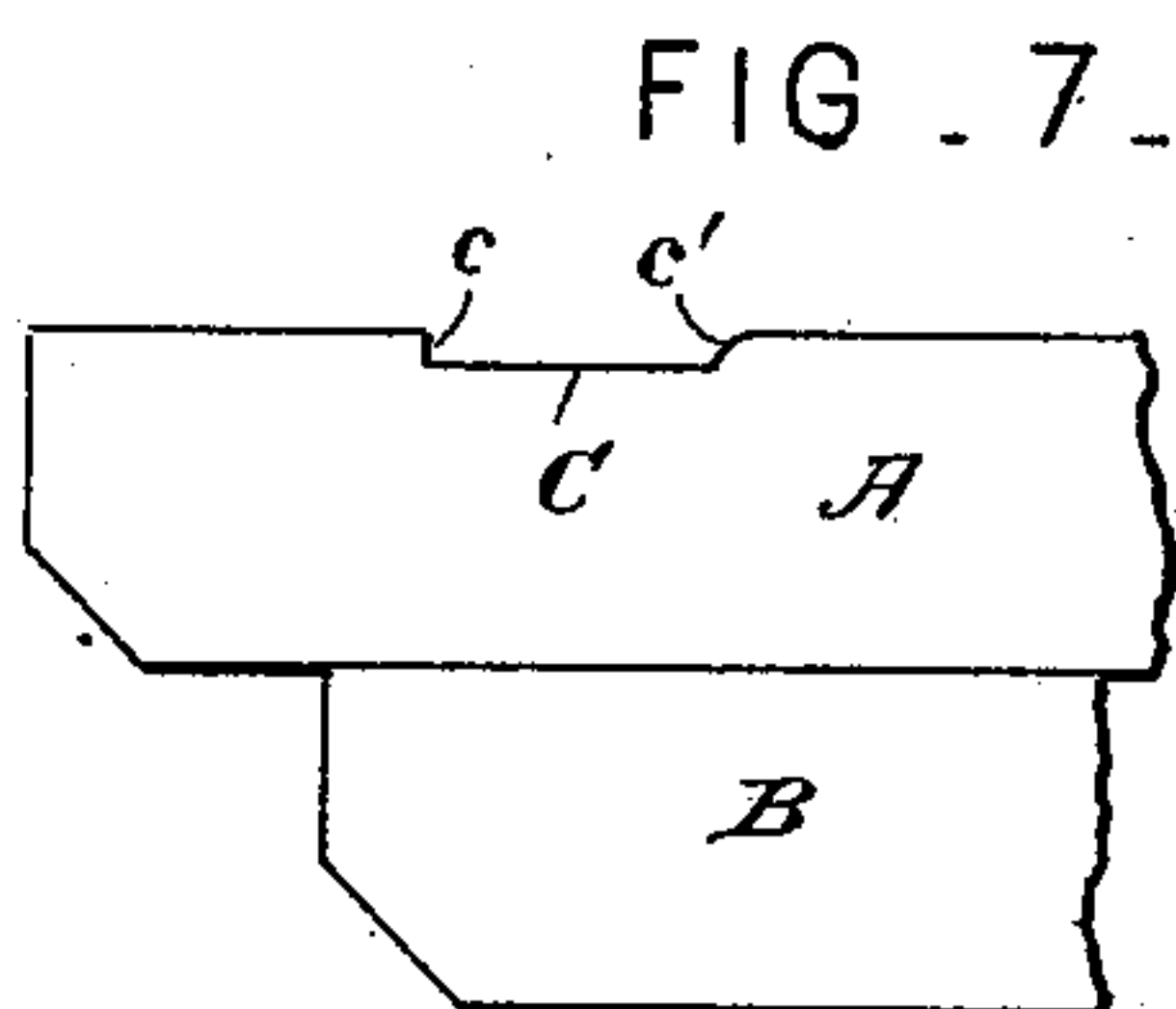
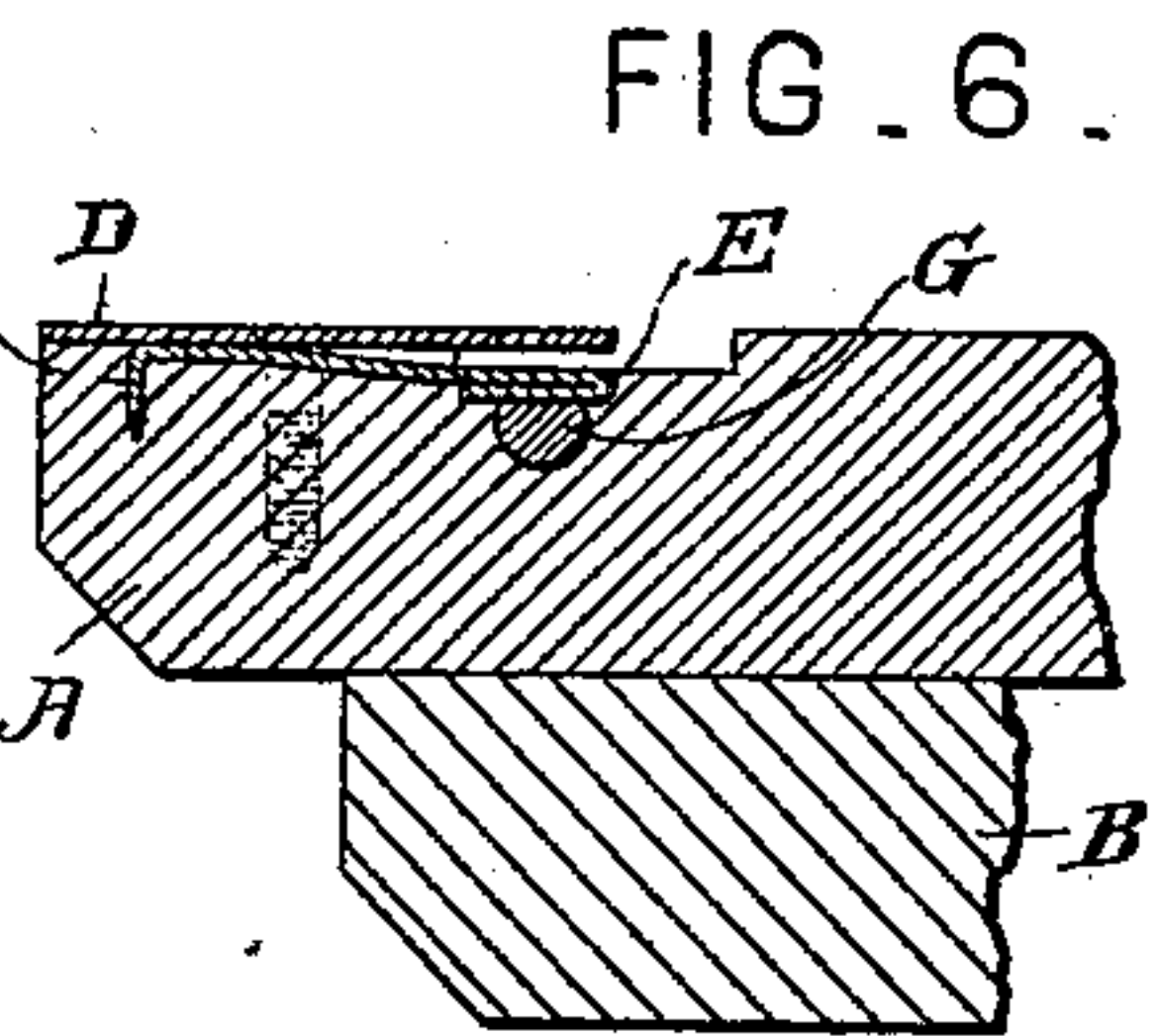
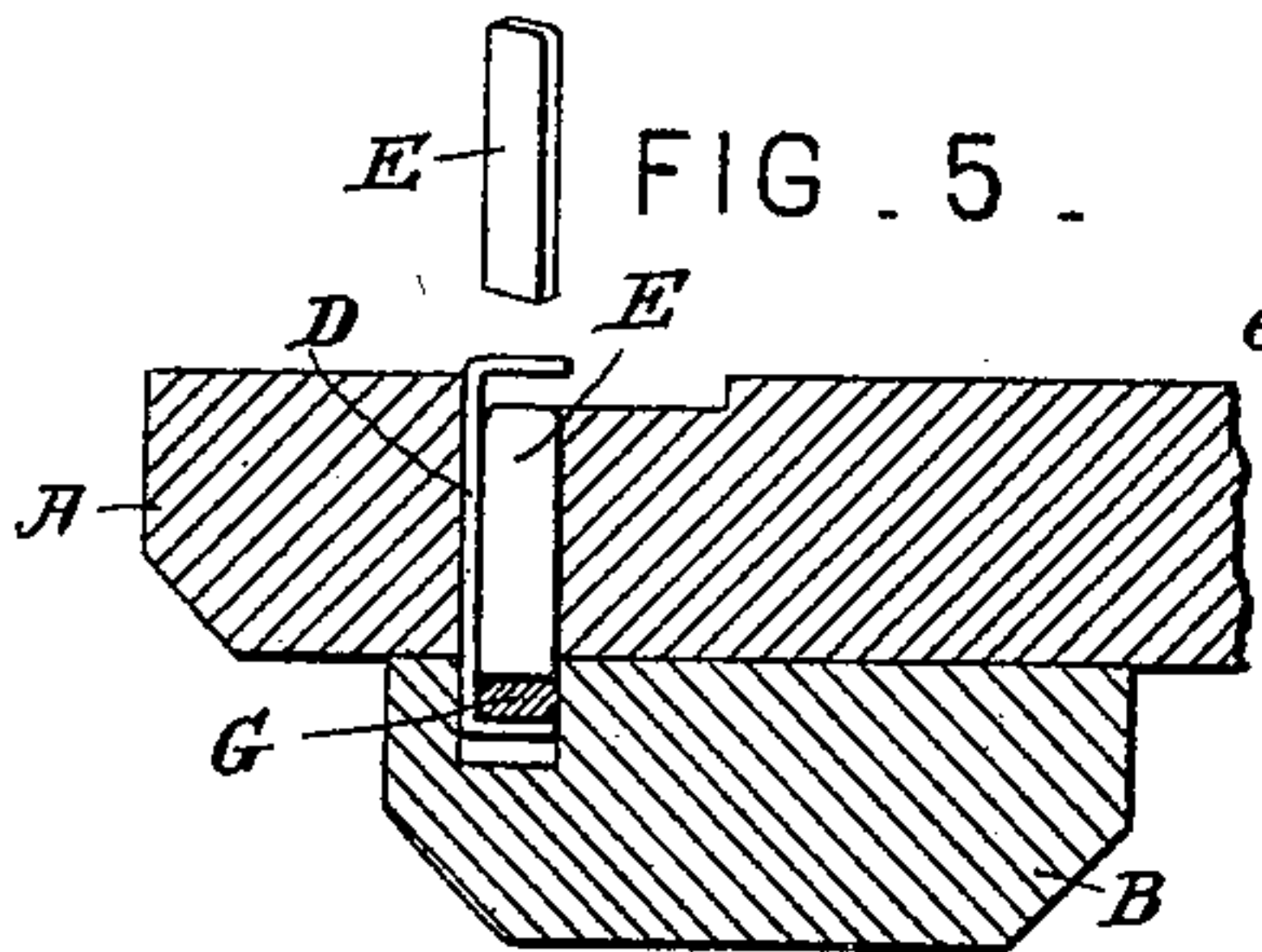
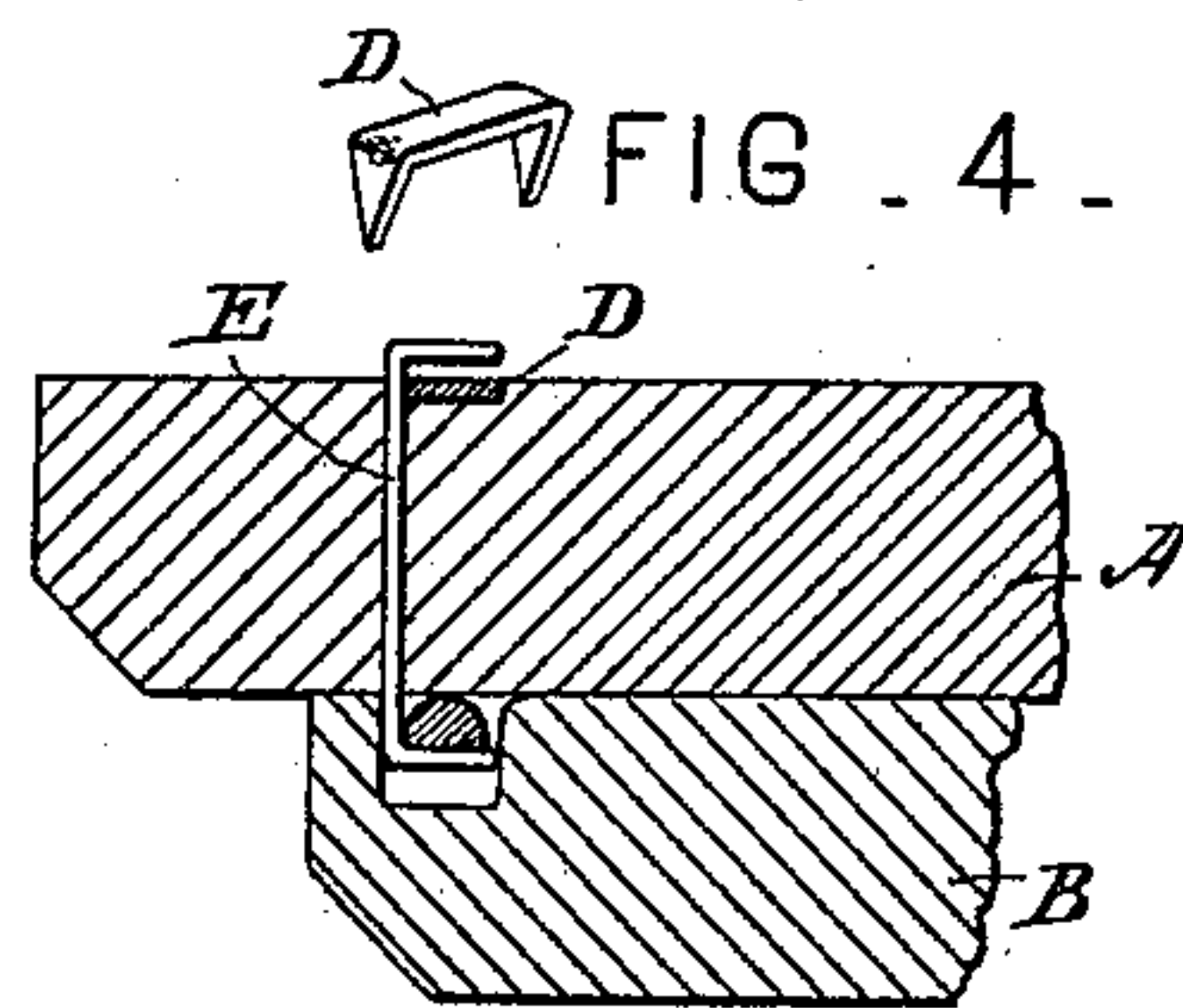
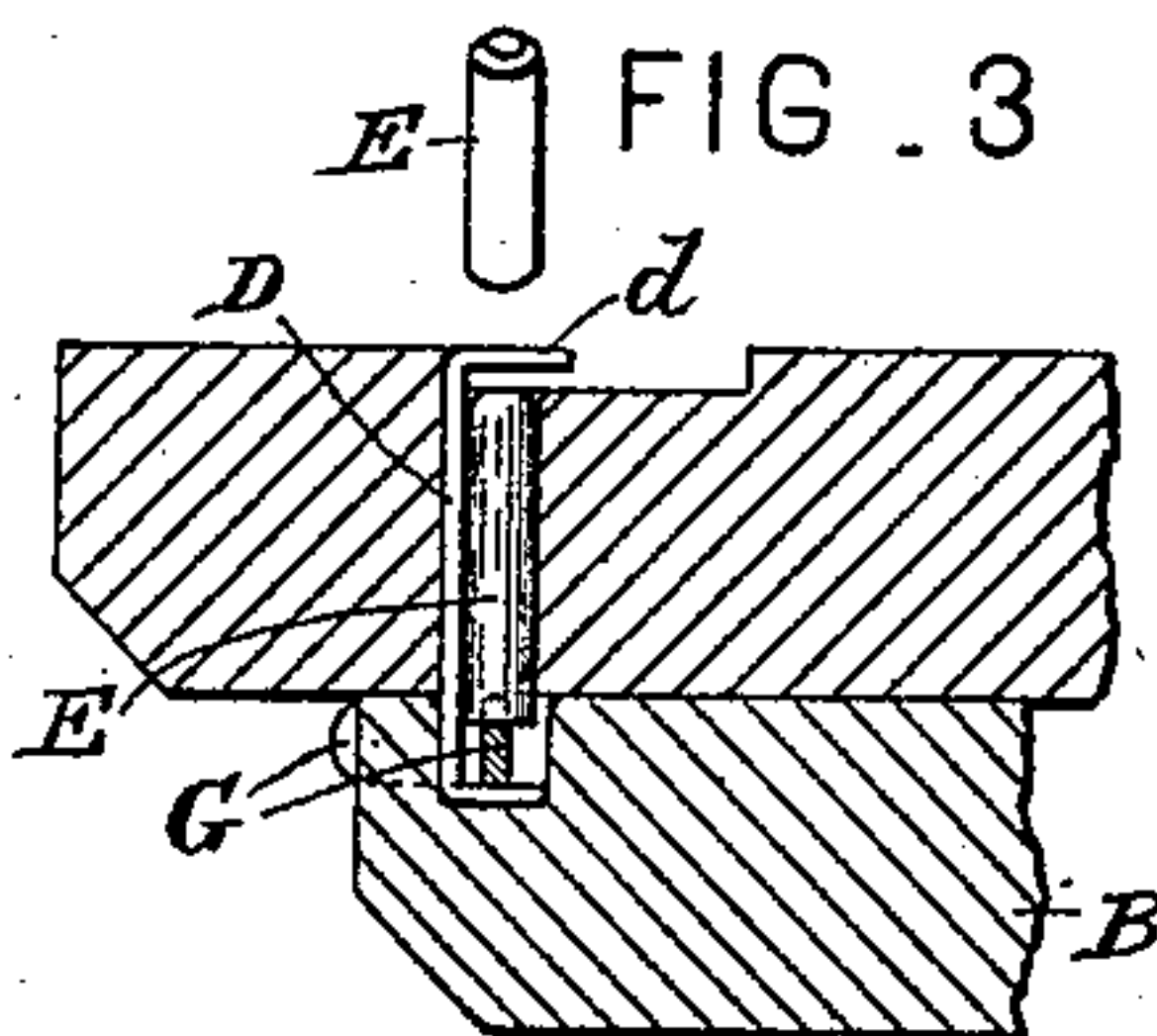
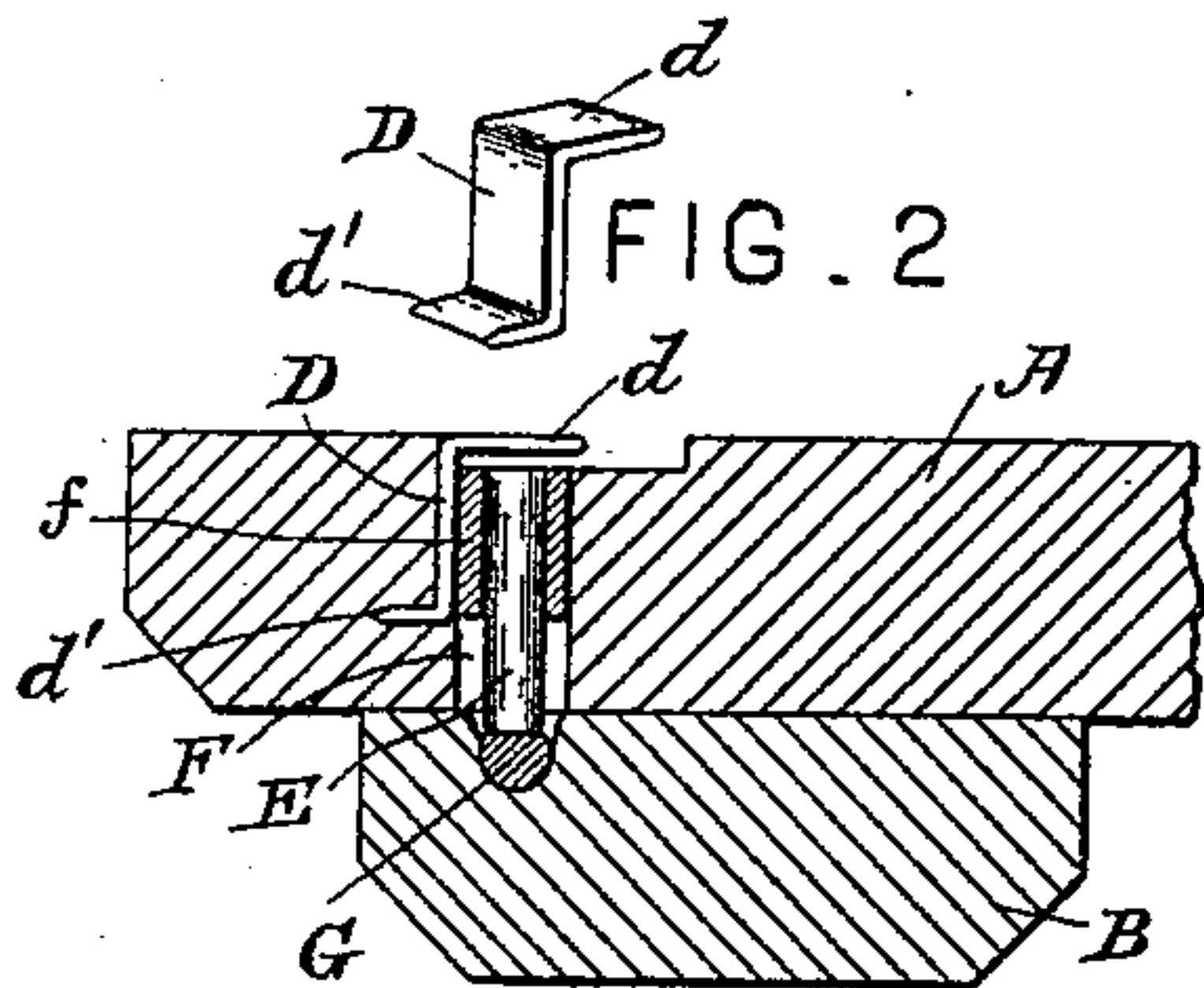
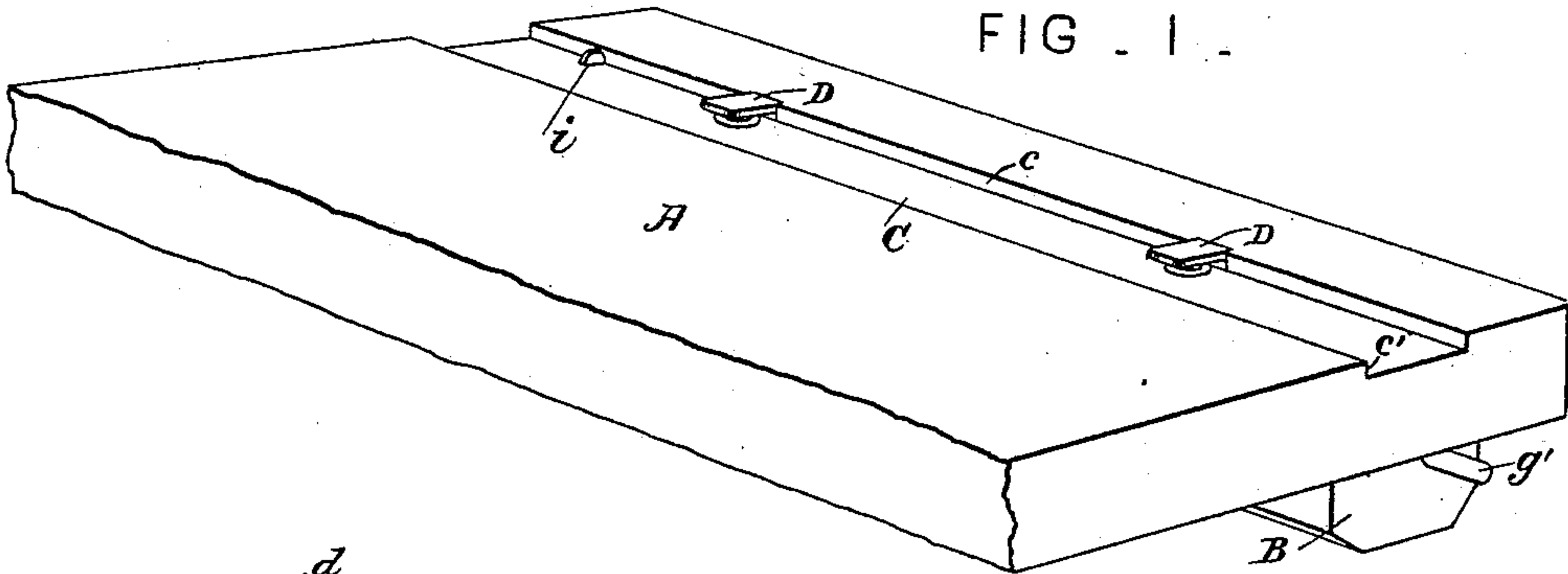
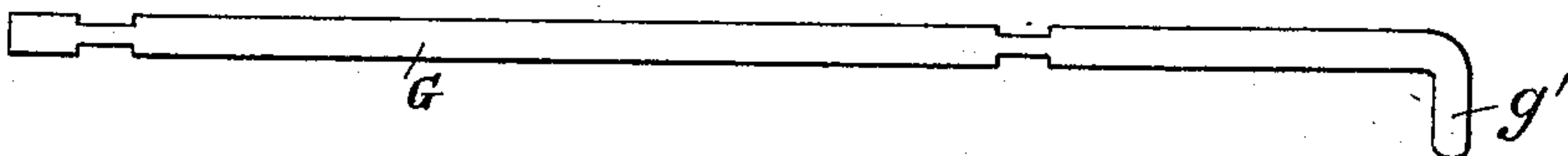


FIG. 9.



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2 Sheets—Sheet 2.

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DRAWING BOARD.

No. 449,006.

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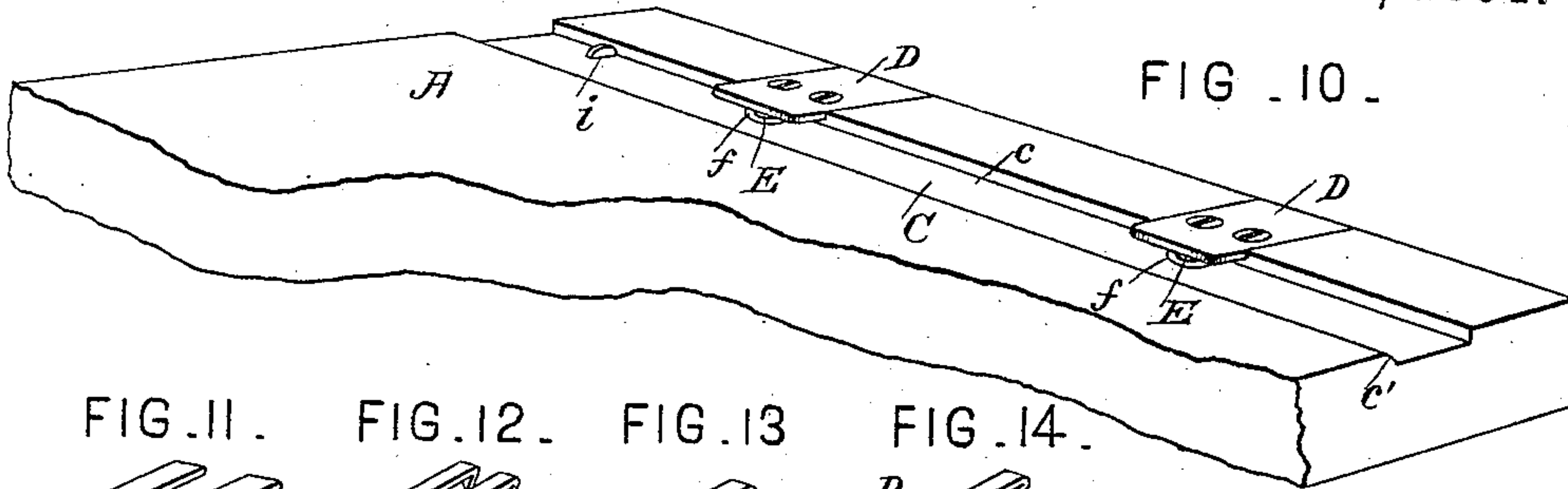


FIG. 11.

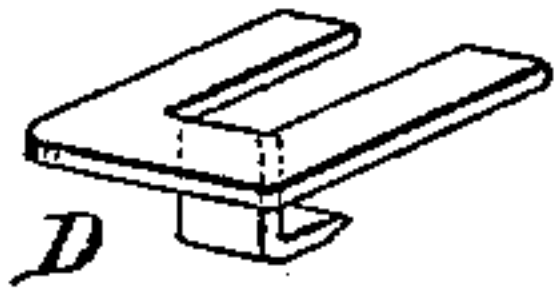


FIG. 12.

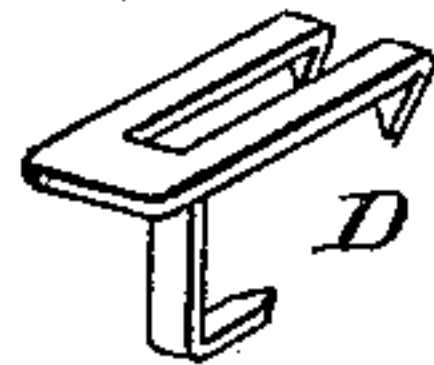


FIG. 13.

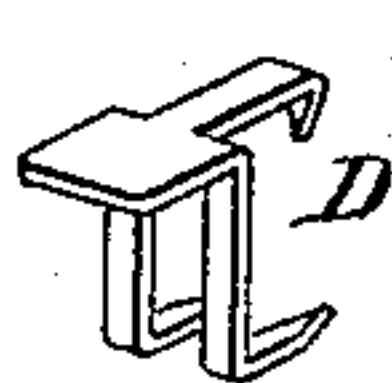


FIG. 14.

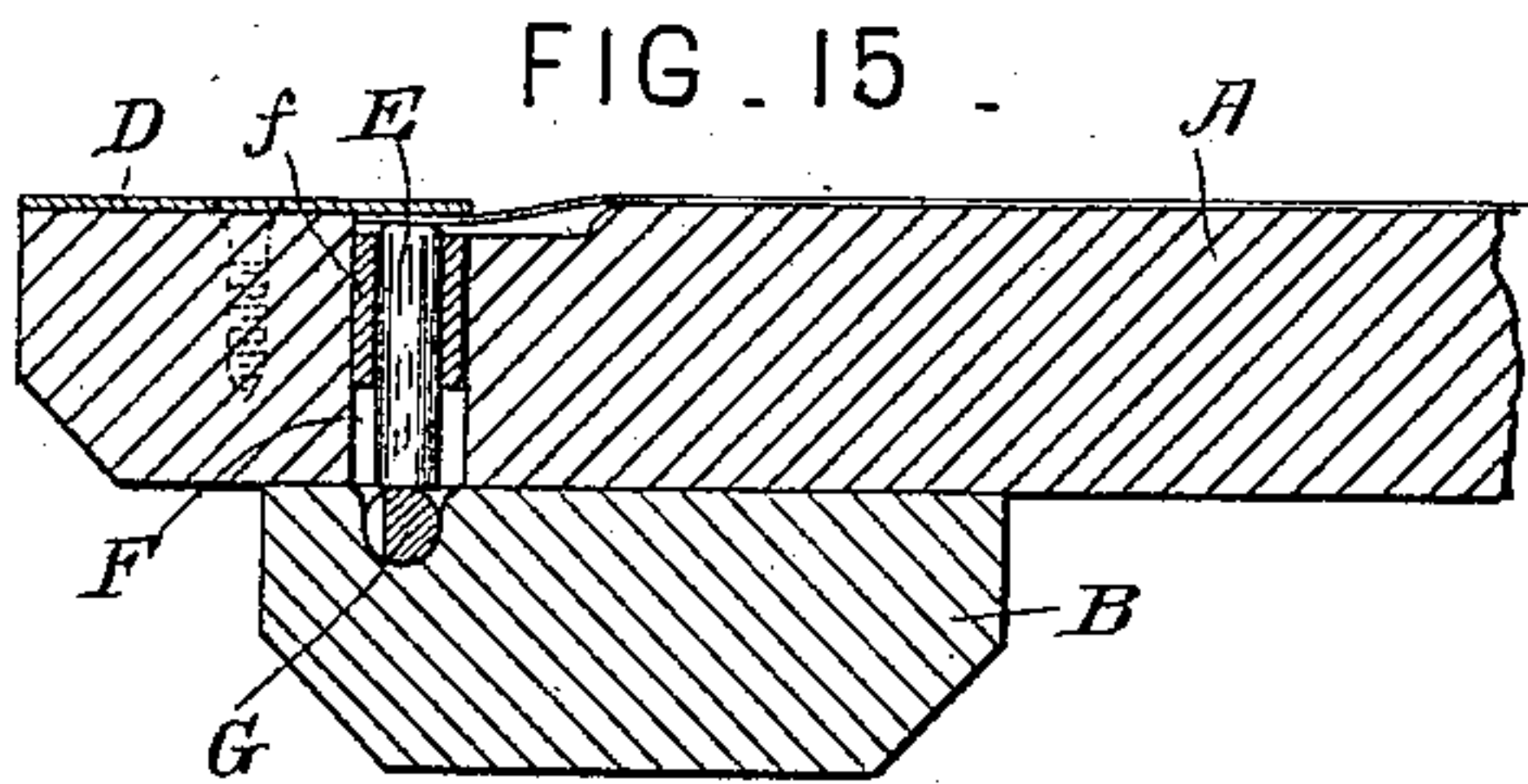
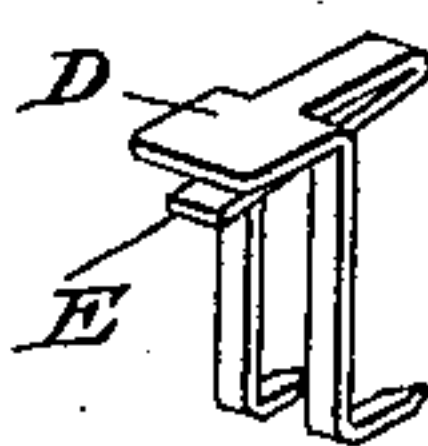


FIG. 15.

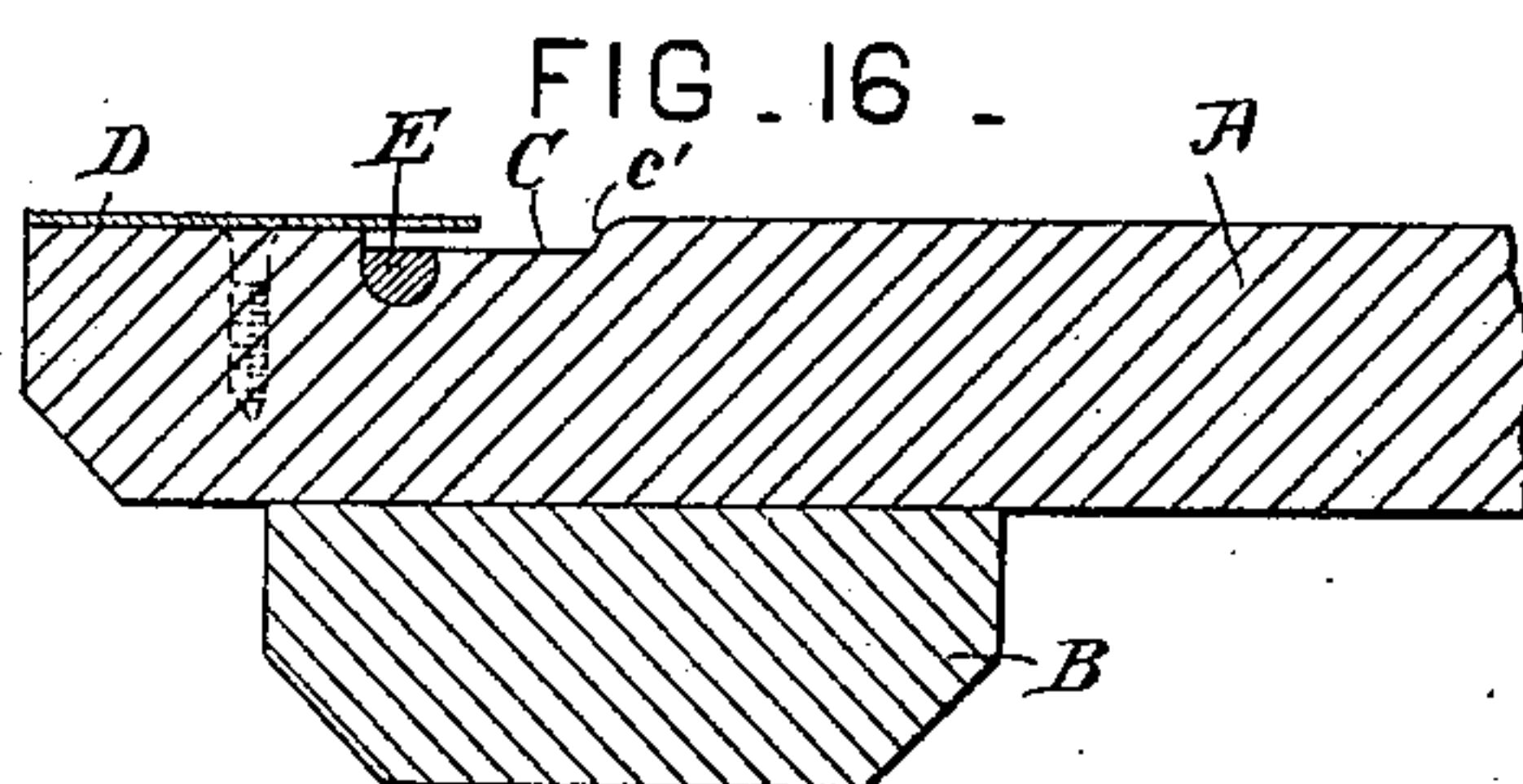


FIG. 16.

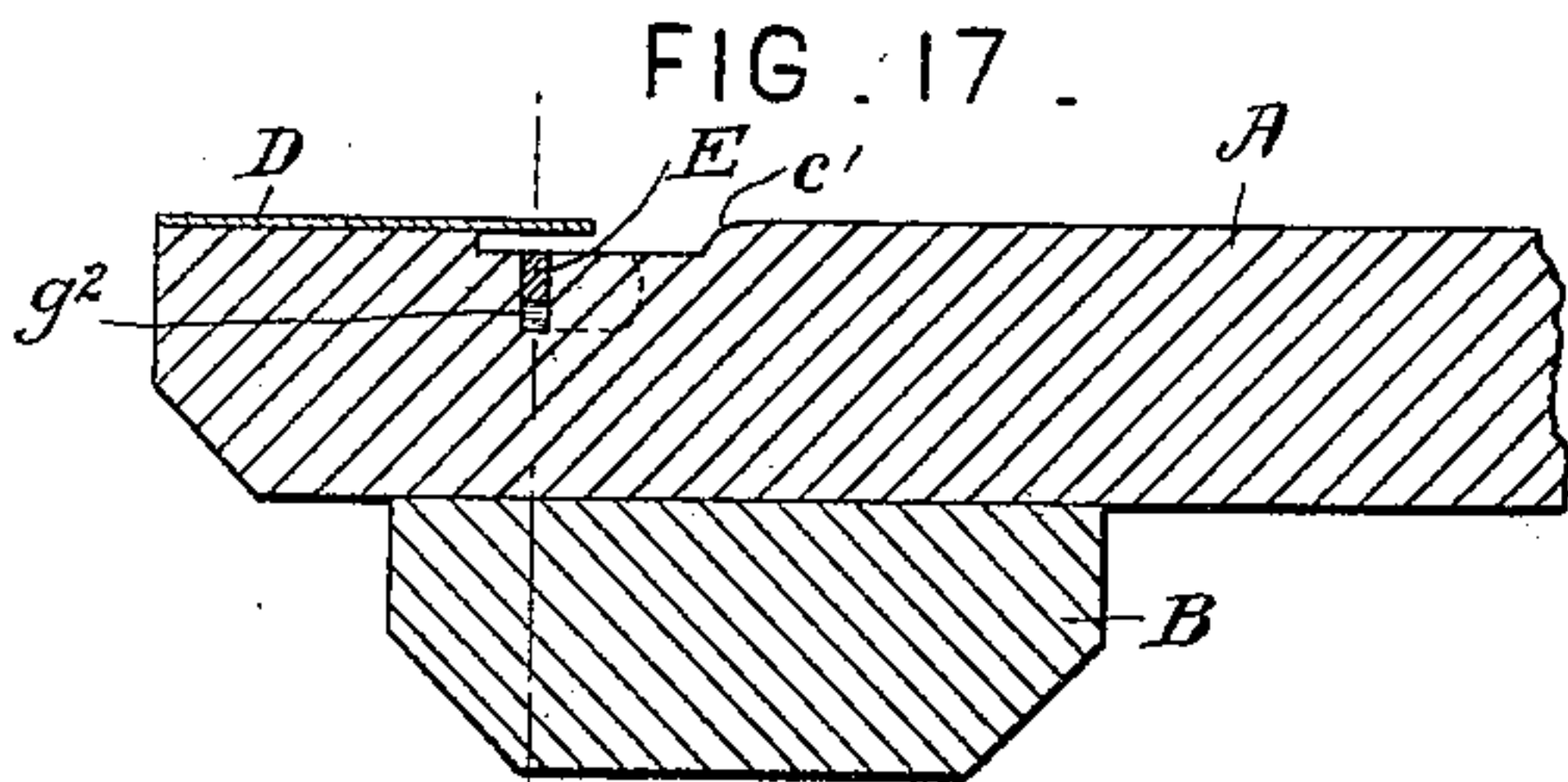


FIG. 17.

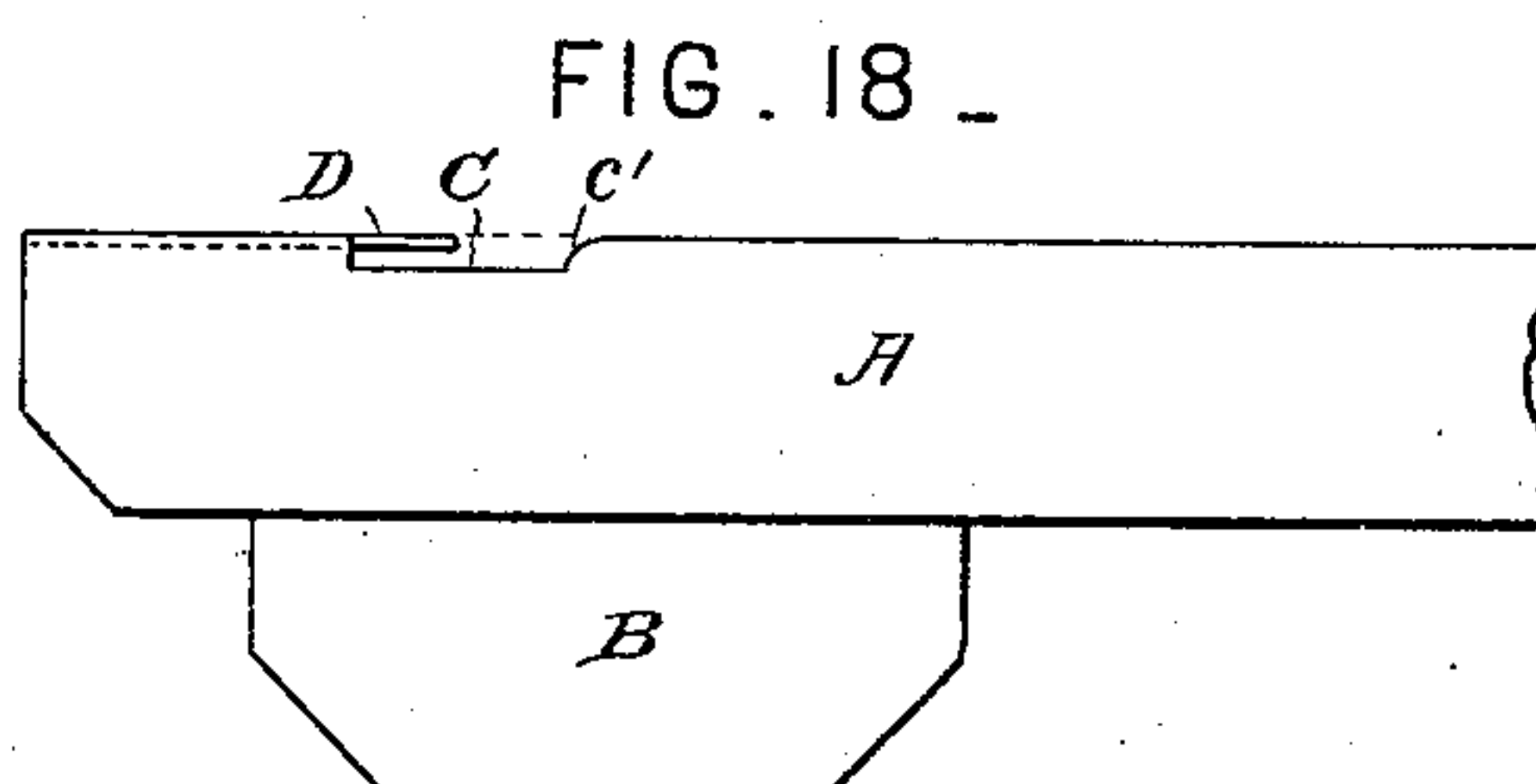


FIG. 18.

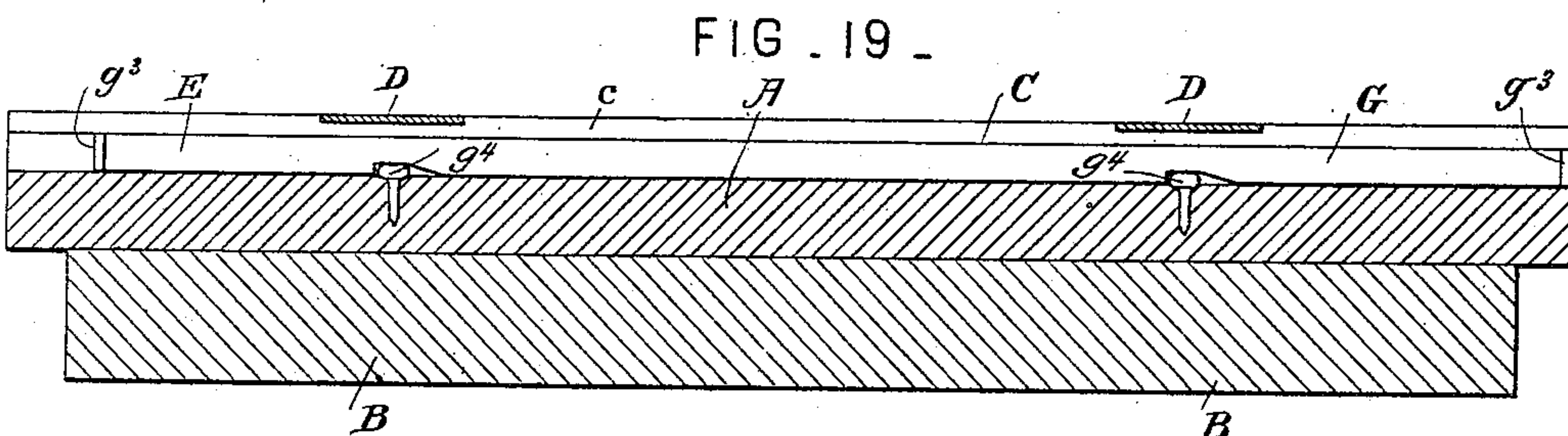


FIG. 19.

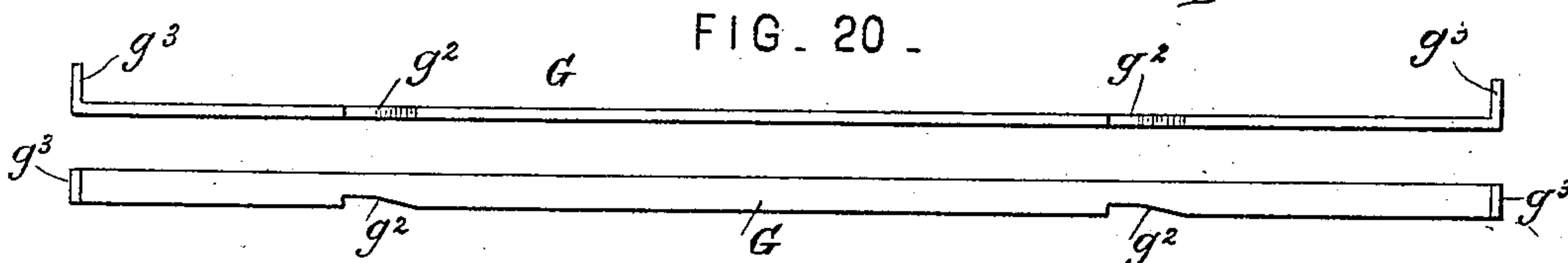


FIG. 20.

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UNITED STATES PATENT OFFICE.

GEORGE T. SMALLWOOD AND REXFORD M. SMITH, OF WASHINGTON,
DISTRICT OF COLUMBIA.

DRAWING-BOARD.

SPECIFICATION forming part of Letters Patent No. 449,006, dated March 24, 1891.

Application filed January 12, 1891. Serial No. 377,506. (No model.)

To all whom it may concern:

Be it known that we, GEORGE T. SMALLWOOD and REXFORD M. SMITH, both citizens of the United States, and residents of Washington, in the District of Columbia, have invented a new and useful Improvement in Drawing-Boards, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to certain new and useful improvements in drawing-boards, more especially to the construction of the board with reference to the clamping of a sheet of drawing-paper or bristol-board thereon, and to the means for effecting such clamping of the paper on the drawing-board.

Our invention consists in the combination, with a drawing-board formed with a recess or depression in its face, of opposing jaws or clamps, and of means operating in connection therewith for causing said jaws to co-operate to clamp the drawing-sheet between them; also, to certain details of construction and arrangement of parts, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of one end of a drawing-board, showing our improvements applied. Fig. 2 is a longitudinal section through a portion of the drawing-board and one of its cleats, illustrating the manner of applying the clamping devices shown in perspective in Fig. 1. Figs. 3, 4, 5, and 6 are similar views showing modifications in the form and arrangement of the clamping devices, hereinafter explained. Fig. 7 is a side elevation of one end of the drawing-board, showing the form of the groove or depression in its face. Fig. 8 is a transverse sectional view taken in line with the clamping devices. Fig. 9 illustrates the rod or bar for operating the jaws shown in Fig. 5. Fig. 10 is a perspective view similar to Fig. 1, showing a flat plate let into the board and acting as the fixed jaw of the clamping device. Figs. 11, 12, 13, and 14 show different forms of jaws. Fig. 15 is a view showing a section of the construction illustrated in perspective in Fig. 10, the parts being in operative position. Fig. 16 shows the rod located in the base of the recess or depression and

having a flat face, by which it is adapted to clamp the drawing-sheet itself against the fixed jaws. Fig. 17 shows a flat bar lying in the base of the depression, said bar being formed with inclined notches, which act upon pins located in the base of the groove, whereby it is adapted to clamp the drawing-sheet without interposed devices. Fig. 18 is a side elevation of one end of a drawing-board, showing the form of the depression or recess and the relation thereto of the upper jaw of Fig. 10. Fig. 19 is a transverse section taken in line with the groove containing the operating rod or bar, the latter being formed with inclined notches on its lower edge, which operate, in connection with pins, to elevate said rod or bar; and Fig. 20 shows said bar or rod in plan and side elevation.

A in all the figures represents the drawing-board proper, and B one of the cleats, of which there are by preference two, one at or near each end of the board A, as in the ordinary construction.

C indicates the recess, groove, or depression in the upper face of the board A, extending nearly or entirely across the same. The form of this depression is best illustrated in Figs. 7 and 18, C representing the base of the depression and *c* and *c'* the side walls thereof. The wall *c* is a vertical one, extending across the face of the board in a line parallel to one of the edges of the board A, its purpose being to afford a straight and true edge or gage, against which one edge of the drawing-sheet may be brought, thus enabling the draftsman to properly and quickly adjust his paper or bristol board in true lines upon the face of the drawing-board.

c' represents the opposite wall of the groove or depression C, said wall being, by preference, rounded off or inclined or beveled, as shown. The wall *c'* may of course be vertical, similar to the wall *c*, as shown in other figures; but it is our preference to form said wall as shown in Figs. 7 and 18, which will protect the drawing-sheet and prevent breaking or creasing at that point, besides allowing the more ready insertion of the edge of the drawing-sheet in the depression.

The device for clamping the edge of the drawing-sheet in the depression C consists, essen-

tially, of two jaws D and E, one located in the path of the other, and both preferably arranged approximately in the same vertical line, or one overlying the other, as shown in all the 5 figures. The edge of the drawing-sheet having been inserted in the depression between the jaws, one of said jaws is moved by means hereinafter described toward the other jaw, or both jaws are moved toward each other, 10 thus firmly clamping the drawing-sheet between them. This principle will be found to prevail in the different views and arrangements of the jaws wherever shown.

In Fig. 1 the upper jaw D is a fixed one 15 and is formed from a flat piece of metal bent in double angle-iron form or having two projecting lips d and d' , the lip d , constituting the fixed jaw proper, being arranged so as to be flush with the upper face of the board A, 20 and the lip d' entering the wood, whereby the jaw is securely held against vertical thrust. The lower jaw E is a movable one, and in this instance consists of a round pin lying in a 25 vertical perforation F, located beneath the fixed jaw and extending through the board A from top to bottom. The wall of this perforation F is preferably provided with a metallic lining, or, in other words, the perforation F is made of sufficient diameter to receive 30 a section of tubing f , which has a bore or internal diameter equal to or slightly greater than the diameter of the movable jaw or pin E, whereby a smooth bearing and wearing face is provided for said jaw, which can move 35 easily and of its own gravity through the same.

G represents a rod, bar, or shaft, which in the construction now being described is round 40 in cross-section and extends across or nearly across the drawing-board in line with and underlying the lower ends of the movable jaws and formed in line with said jaws with flattened portions, one for each movable jaw, in 45 which the lower ends of the jaws rest, as shown, which flattened portions act as eccentrics to elevate the movable jaws. The rod or shaft G lies in a groove g in the upper face of the cleat B, as shown, being held snugly in place by the lower face of the board A and at 50 one end passes beyond the end of the cleat B, where it is formed or provided with a crank-arm g' at right angles to the line of said rod or shaft. It will be apparent that when the crank-arm g' is moved the shaft or rod by its 55 rotation will elevate the jaws E, moving them toward the fixed jaws D until the drawing-sheet is clamped between them. The edge of the drawing-sheet is thus firmly secured in the groove by devices located beneath the upper 60 face of the drawing-board and all projections above the face of the board are dispensed with, so that nothing is left to interfere with the T-square or other instruments of the draftsman.

65 In Fig. 3 the fixed jaw is made in slightly different form, the lower lip thereof passing beneath the bar G, which holds it in place.

In this instance the bar which actuates the movable jaw is formed with inclined notches 70 g^2 , as shown in Fig. 20, in which the movable jaws rest, and instead of being rocked it is moved lengthwise under said jaws, the inclined notches serving to elevate the movable jaws for clamping the drawing-sheet beneath the fixed jaws. 75

In Fig. 4 the movable jaw E is the upper one and is provided with a lip at its lower end, which passes beneath the operating rod or shaft G, which when moved depresses said 80 jaw and causes it to clamp the drawing-sheet between it and the fixed jaw D, which, preferably, is a flat piece of metal, as indicated in Fig. 4.

In Fig. 5 both jaws are adjustable, the shaft or rod being formed with flattened portions 85 or notches on both sides, as illustrated in Fig. 9, so that when moved it will elevate the lower jaw, while at the same time it depresses the upper one.

In Fig. 6 the upper jaw is the fixed one, and 90 consists of a flat piece of metal let into the face of the drawing-board A, so as to be flush therewith, being held in place by one or more screws h , (see Fig. 10,) and projecting beyond the wall c of the depression C and over the 95 latter. The movable jaw E in this instance consists of a flat piece of spring metal, which may or may not (as preferred) have a downturned spur e at one end which enters the wood and securely holds the same against displacement. At its other end it projects into 100 the depression C, and in its normal position lies in the bottom of said depression removed from the upper fixed jaw, so that the drawing-sheet may be inserted between the jaws. The 105 same screw that secures the upper fixed jaw may also pass through and hold this movable jaw. The rod or shaft G in this instance rests and moves in a groove cut in the base of the recess or depression C, said rod being 110 formed with notches or flattened portions in which said movable jaws lie. The movable jaws are elevated in the manner above described.

In Figs. 16, 17, and 19 the rod or bar G itself 115 does the clamping, and constitutes the movable jaw of our device, in which said bar or rod is located in a groove in the base of the recess or depression C underlying the fixed jaws D. In Fig. 16 said bar or rod has a flat 120 face or side, as shown, or is substantially half-round in cross-section, the flat side being uppermost when in position to allow the insertion of the edge of the drawing-sheet. When said bar is rocked, it will bite the drawing-sheet against the fixed jaws D. In Figs. 125 17 and 19 the bar G is rectangular in cross-section and lies in a groove of corresponding shape in the base of the depression C. This bar or rod is adapted to slide lengthwise of 130 the groove, and has lips g^3 —one at each end thereof—for facilitating its adjustment. Inclined notches or recesses g^2 are formed or cut in its lower edge, which operate upon the

heads of pins, nails, or screws g^4 , by means of which, when the bar or rod G is moved toward the left, Fig. 19, it is elevated, thus clamping the drawing-sheet against the fixed jaws D.

i represents a stop or projecting spur located, by preference, in the recess or depression C at or near one end thereof. The drawing-sheet, when placed upon the board and its edge inserted between the clamping-jaws and before it is clamped, is moved into contact with or against this stop and then clamped. This stop enables the draftsman to place the drawing-sheet in the same relative position upon the board after it has been removed therefrom.

Other variations or forms of our clamping device might be shown; but it is thought best not to multiply said variations, and we have therefore shown only our simplest, most effective, and preferred forms.

Having described our invention, we claim as new—

1. The combination, with a drawing-board formed with a groove or depression, of a movable jaw located in the base of said groove or depression, and a fixed jaw located in the path of said movable jaw, substantially as and for the purpose described.

2. The combination, with a drawing-board formed with a groove on its upper face and provided with a jaw overhanging said groove, of a bar placed beneath the groove and operating to clamp the paper, as explained.

3. A device for securing a sheet of paper on a drawing-board, said device consisting of two jaws applied to and in combination with a drawing-board, and a bar or rod operating in connection with said jaws, whereby they are adapted to co-operate to clamp the paper between them, as specified.

4. The combination, with a drawing-board formed with a groove or depression, of a clamping device secured thereto and consisting of two separate and independent jaws, one located in the path of the other, and the notched or cam-rod operating in connection

with said jaws to clamp the edge of a drawing-sheet, substantially as described.

5. The combination, with a drawing-board, of a movable jaw and a cam-rod or bar for operating said movable jaw to clamp the paper, as described.

6. A drawing-board having a depression in its face, in combination with a jaw overlying said depression, a jaw located beneath the same, and means, operating in connection with said jaws, by which they are adapted to co-operate to clamp a sheet of paper between them.

7. A drawing-board having a depression or groove in its surface, in combination with a fixed jaw or lip overlying said depression, a movable jaw located beneath the same, and a rod located beneath said depression, by the adjustment of which the movable jaw is actuated toward the fixed jaw, for the purpose described.

8. A drawing-board having a groove or recess in its surface and provided with perforations extending through the same, in combination with movable jaws working in said perforations and other jaws located in the paths of said movable jaws, and means for adjusting said movable jaws, for the purpose described.

9. The combination, with a drawing-board formed with a recess or depression in its face, of a stop or projection i , located in said recess, substantially as and for the purpose described.

10. The combination, with a drawing-board formed with a recess or depression in its face, of a device for securing the edge of a drawing-sheet therein, and a stop for gaging the position of the drawing-sheet on said board.

In testimony whereof we have hereunto set our hands this twelfth day of January, A. D. 1891.

GEO. T. SMALLWOOD.
REXFORD M. SMITH.

Witnesses:

HARRY S. ROHRER,
HERVEY S. KNIGHT.