

(No Model.)

3 Sheets—Sheet 1.

C. FORTH.  
DIE FOR MAKING METALLIC LATHING.

No. 604,525.

Patented May 24, 1898.

Fig. 1.

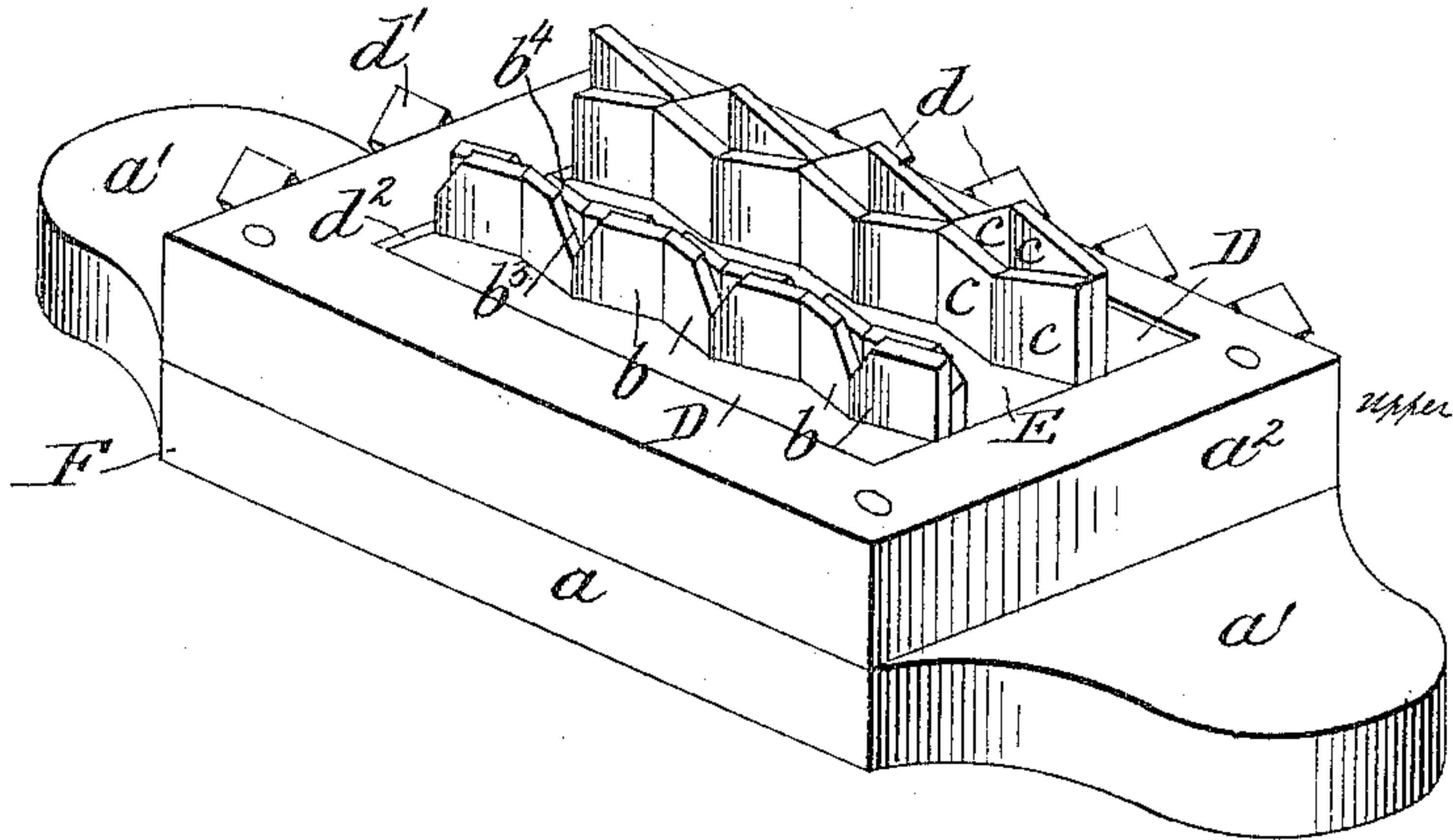


Fig. 2.

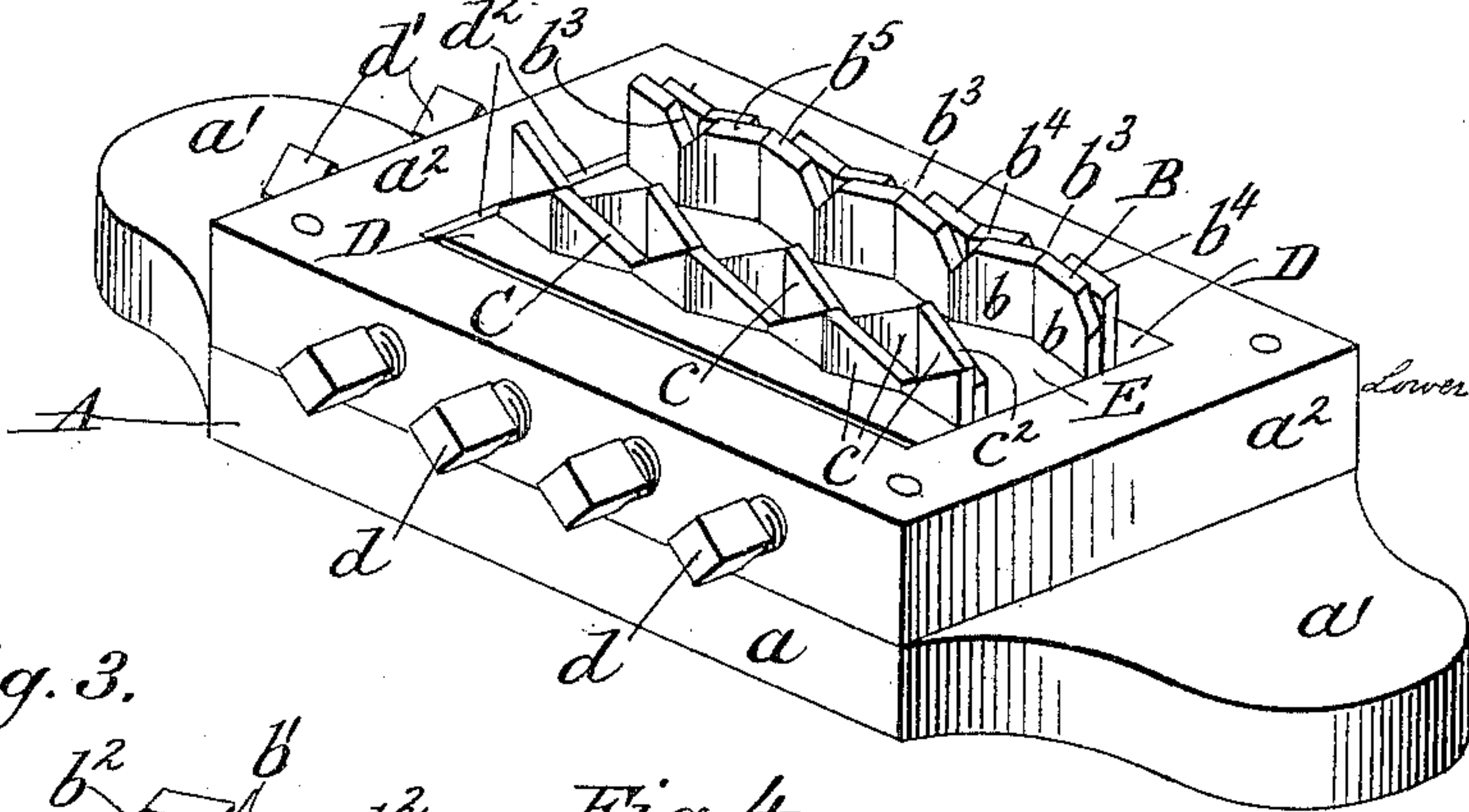


Fig. 3.

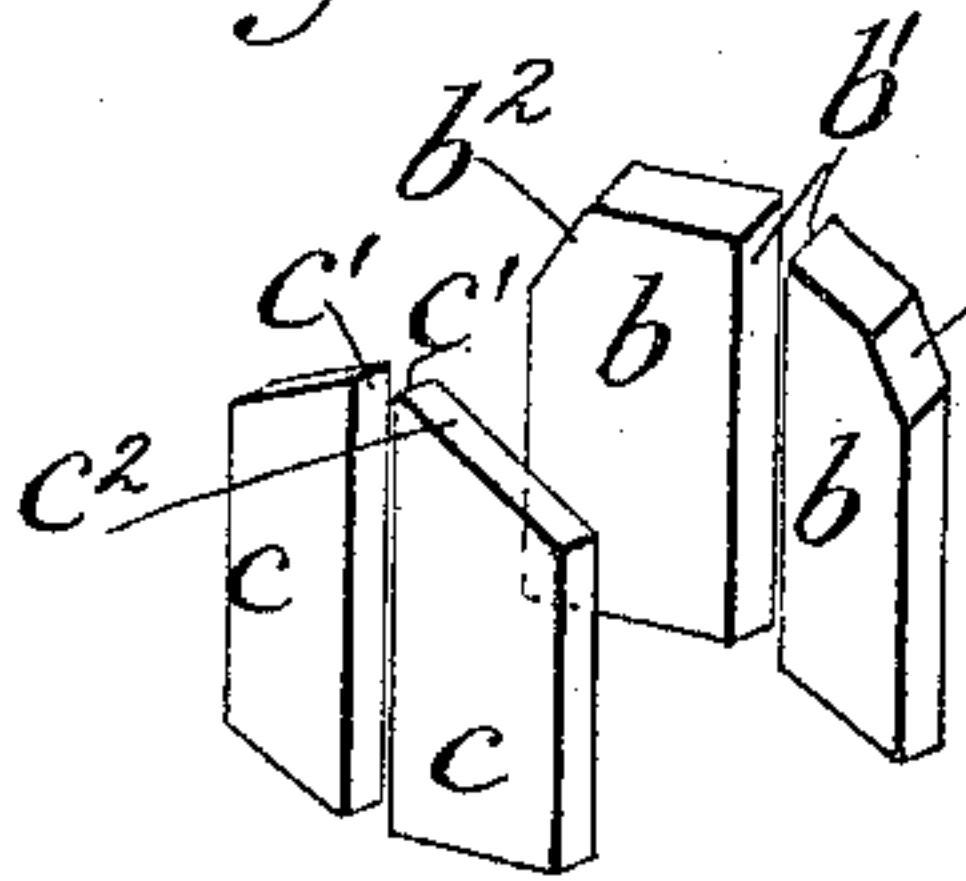
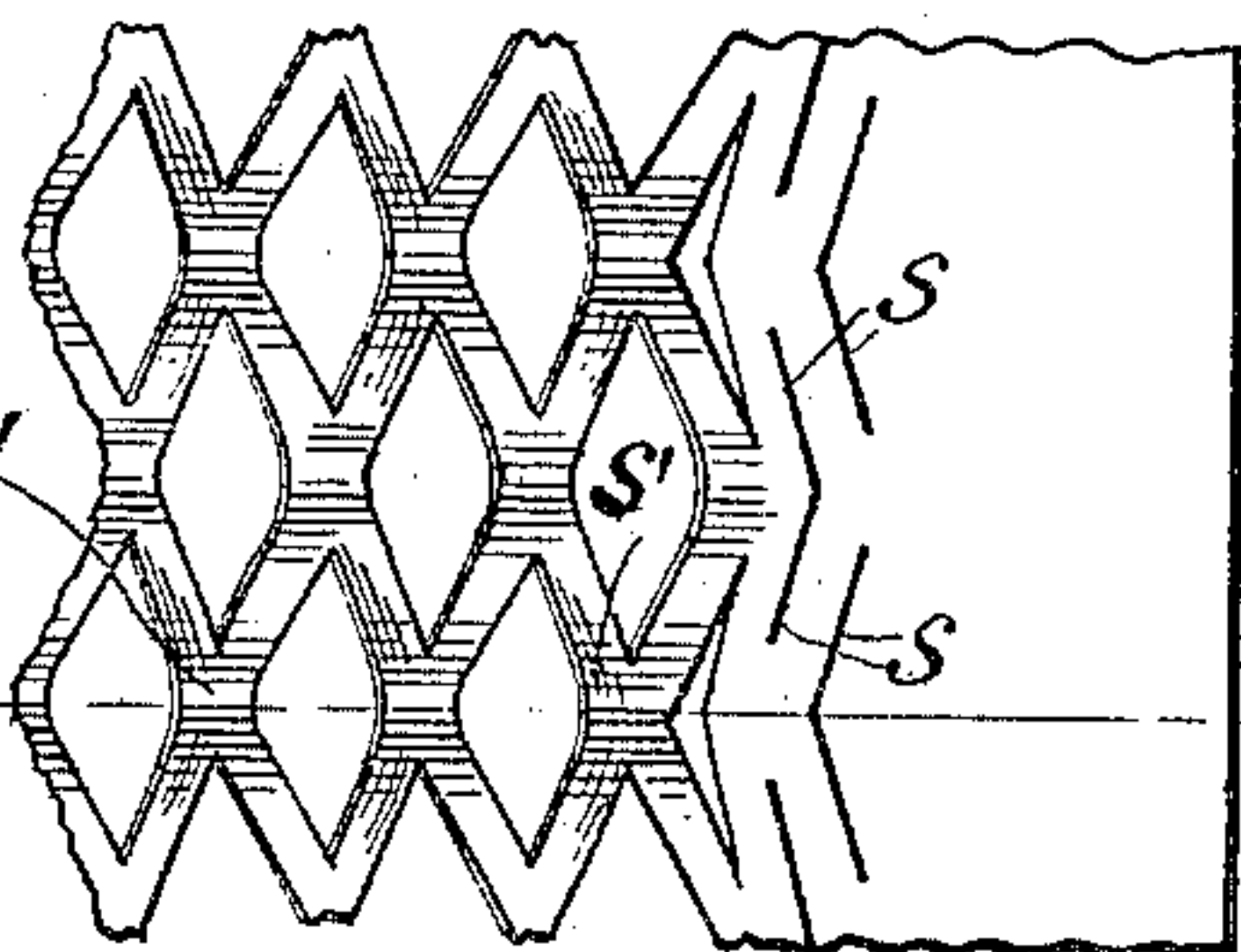


Fig. 4.



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Fig. 5.



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Fig. 6.

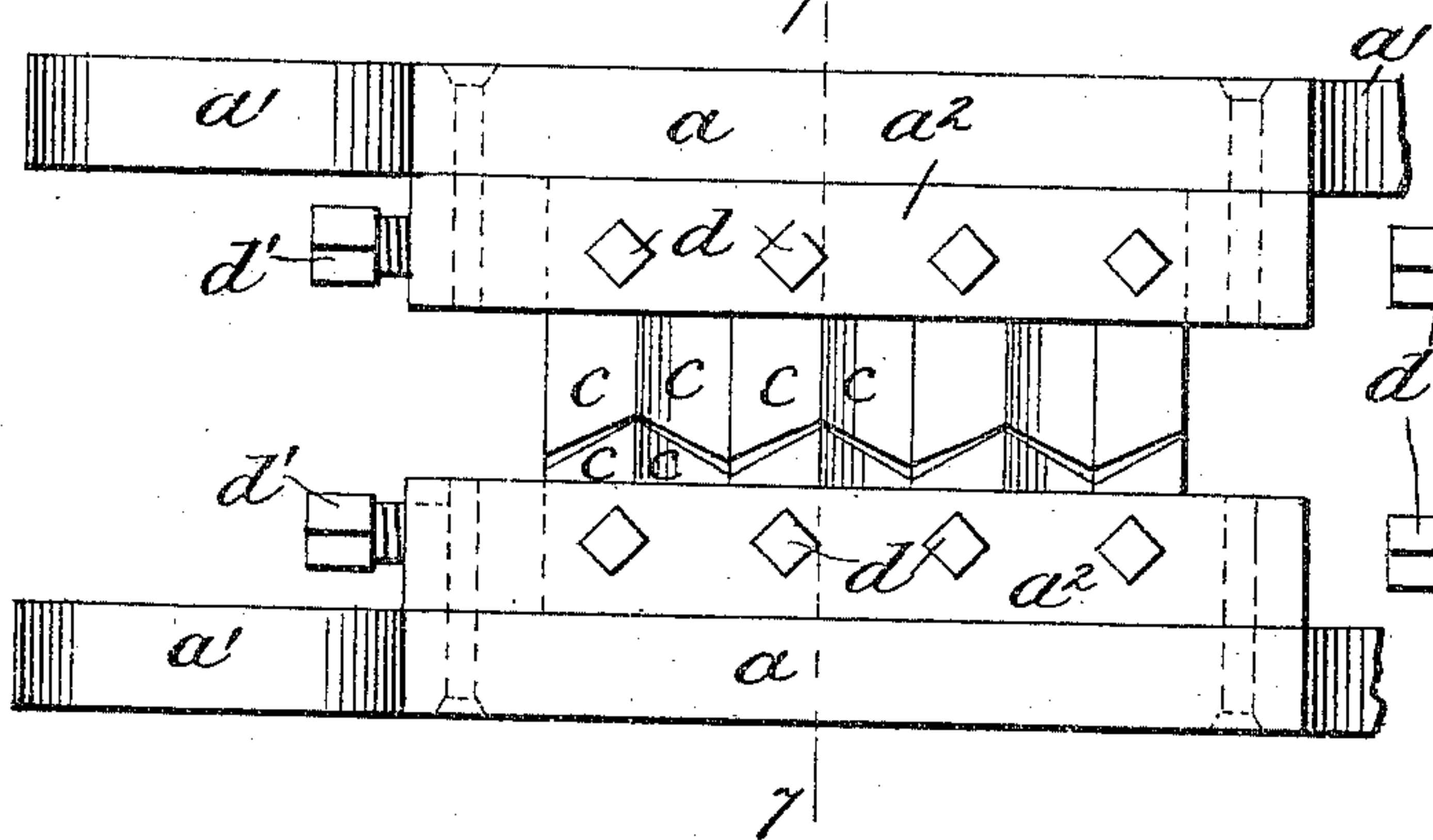


Fig. 7.

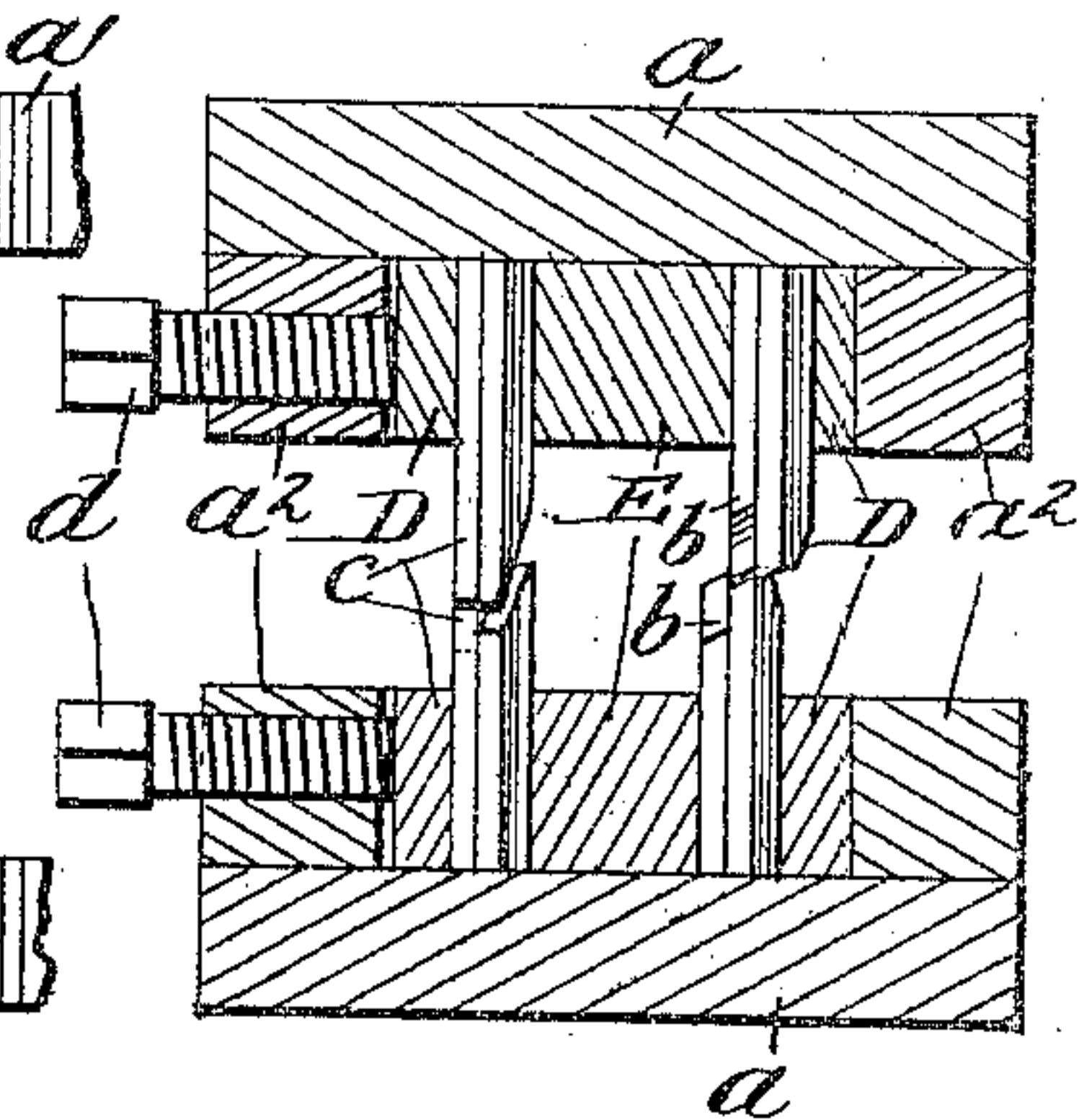


Fig. 8.

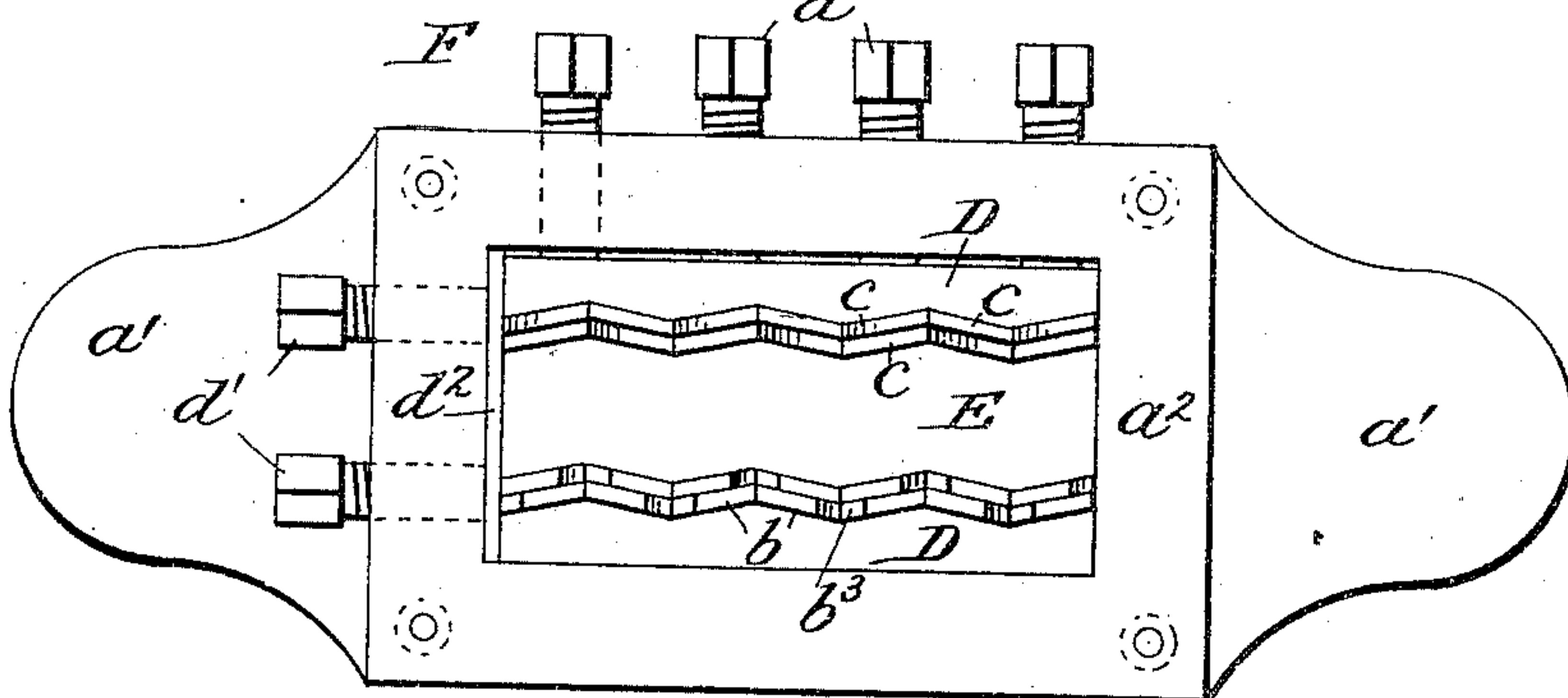
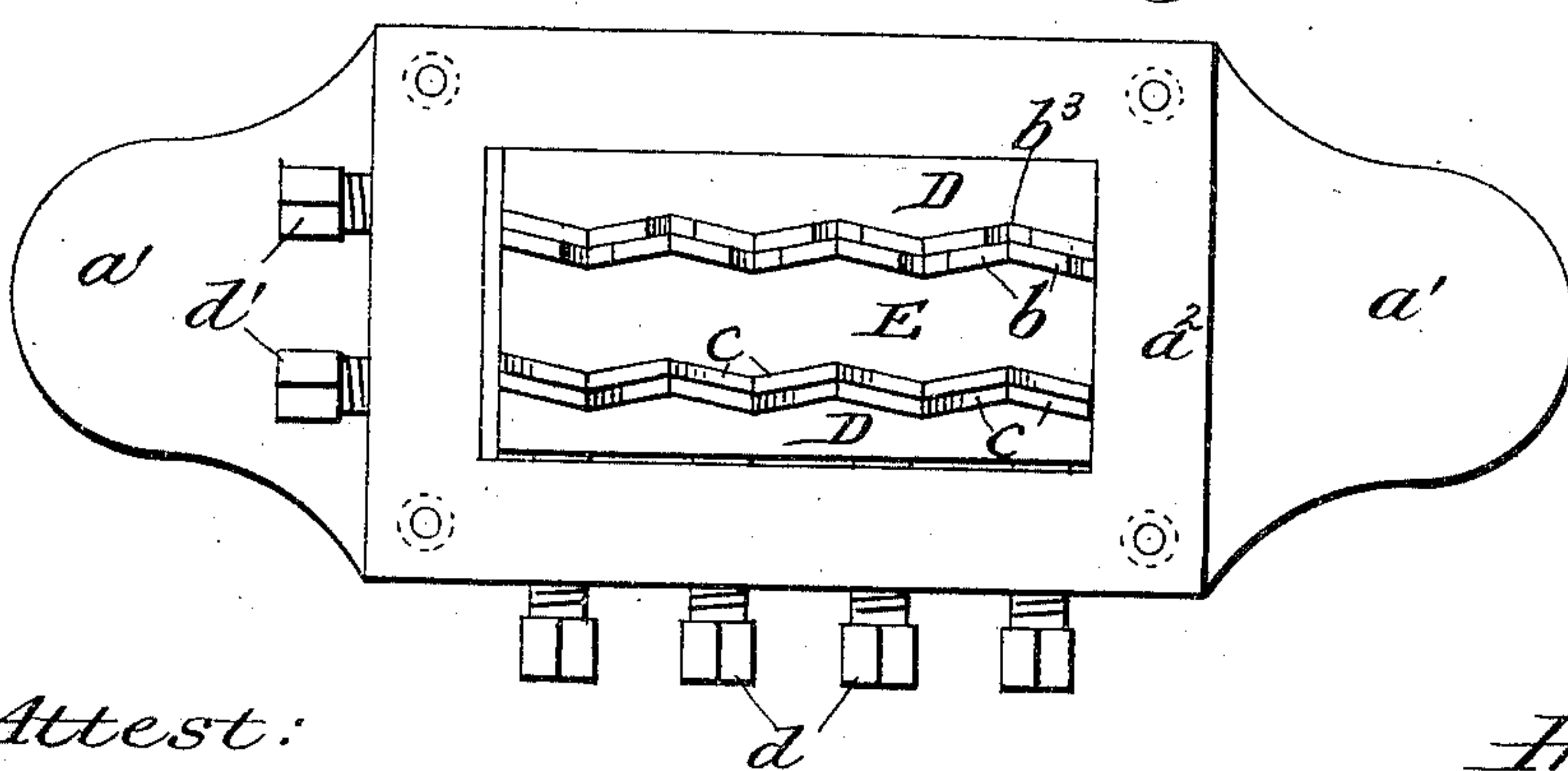


Fig. 9.



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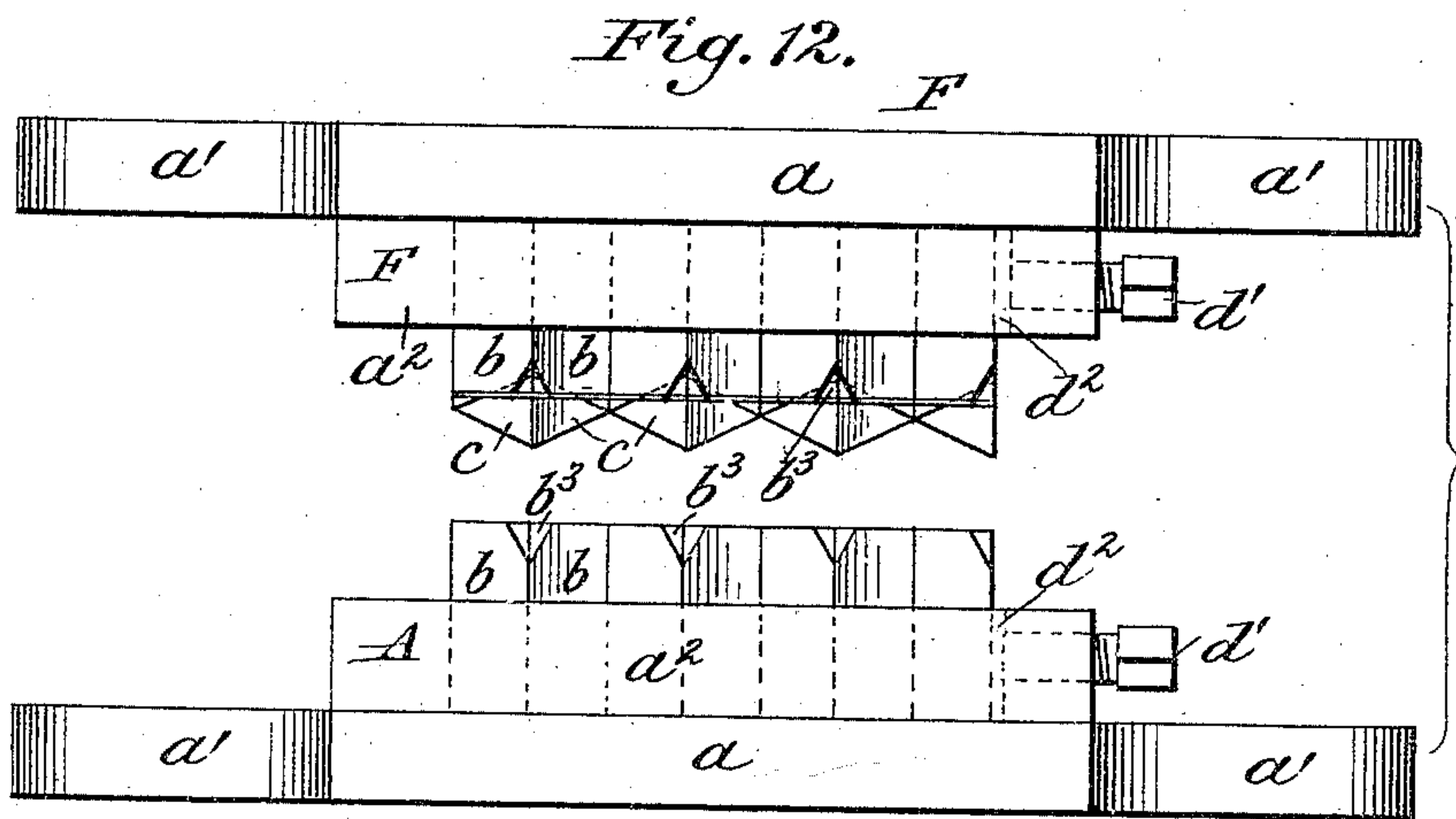
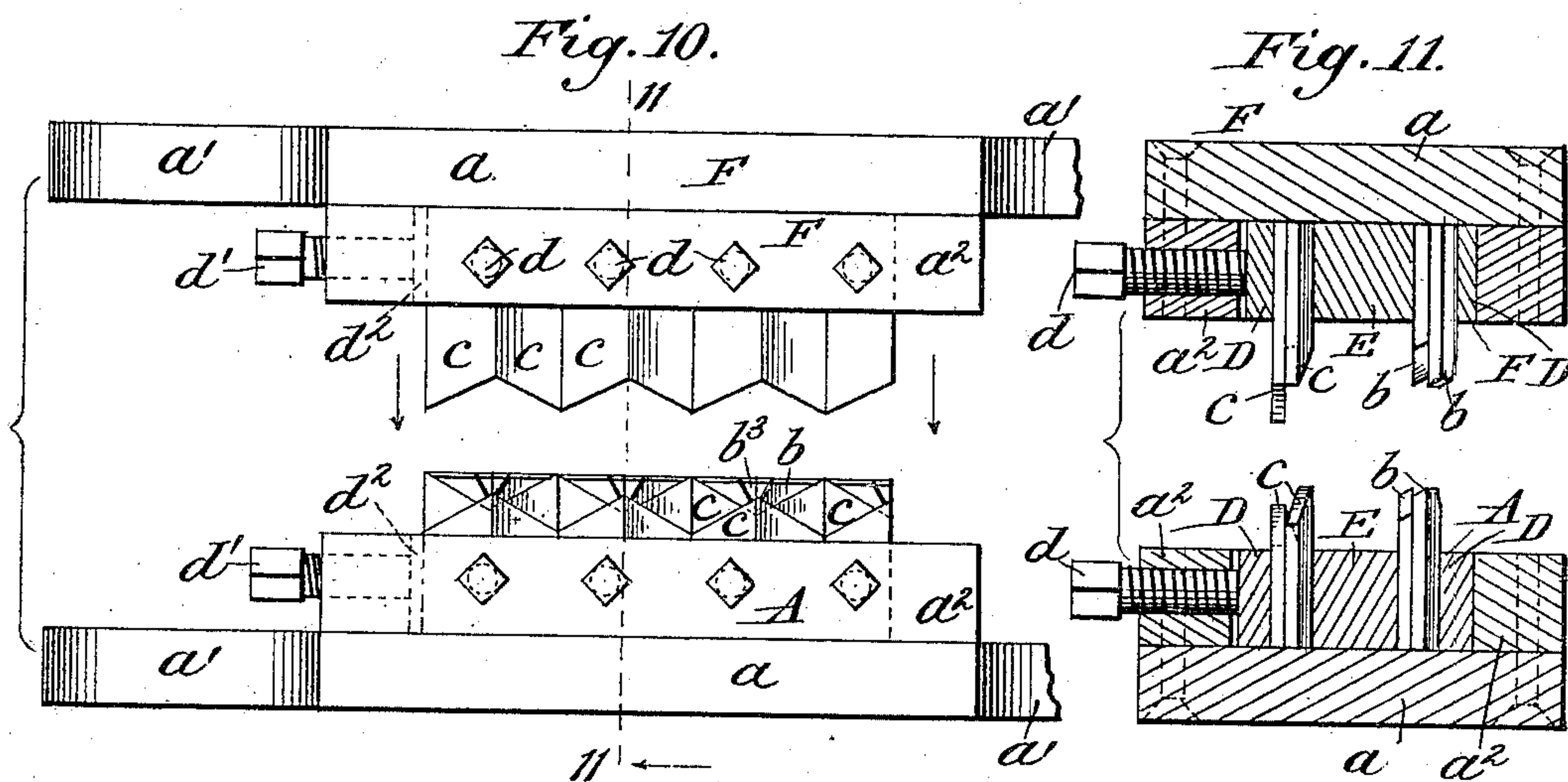
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att'y.



# UNITED STATES PATENT OFFICE.

CHARLES FORTH, OF NEWARK, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN METAL LATH FIREPROOF CONSTRUCTION AND MANUFACTURING COMPANY, OF SAME PLACE.

## DIE FOR MAKING METALLIC LATHING.

SPECIFICATION forming part of Letters Patent No. 604,525, dated May 24, 1898.

Application filed March 10, 1897. Serial No. 626,829. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES FORTH, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Dies for Making Metallic Lathing, of which the following is a full, clear, and exact description, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to improvements in dies or forming mechanism of that class which are used in the manufacture of metallic lathing, and more particularly to improvements in mechanism used in the manufacture of the lathing disclosed in Patent No. 557,656, granted April 7, 1896, and, further, it is an improvement on the die shown and described in application filed August 21, 1896, Serial No. 603,453.

While the invention will be described in such an embodiment as to make the style of lathing disclosed in said patent, yet it can also be used in the manufacture of lathing of different patterns.

The invention in this instance has for its object the provision of dies or forming mechanism which will cut simultaneously several rows of slits, so that the slits of one row break joint with those of the adjacent row, and which will at the same time expand or force apart the ribs cut by a preceding action of the dies.

The invention consists in the novel construction, combination, and arrangement of parts, such as will be hereinafter fully described, pointed out in the appended claims, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a perspective view showing the upper member of the dies. Fig. 2 is a similar view showing the lower

member. Fig. 3 is a detail perspective view showing the plates which respectively form the cutting and stretching teeth. Fig. 4 is a plan view of a section of lathing. Fig. 5 is a sectional view on the line 5 5 of Fig. 4. Fig. 6 is a side elevation showing the two members in engagement. Fig. 7 is a sectional view on the line 7 7 of Fig. 6. Fig. 8 is a plan view of the upper member of the dies. Fig. 9 is a similar view of the lower member. Fig. 10 is a side elevation showing the two members in their relative operative positions when separated. Fig. 11 is a sectional view on the line 11 11 of Fig. 10. Fig. 12 is a side elevation of the separated members, showing the side opposite to that shown in Fig. 10. Fig. 13 is a side elevation of the engaged members, showing the side opposite to that shown in Fig. 6.

Referring to the drawings by letter, A and F respectively designate the lower and upper dies or members of the forming mechanism. They are in practice of sufficient length to operate on a sheet of metal of the desired width. The lower member is provided with suitable mechanism for securing it to the stationary part of a machine, and the upper member is provided with means for attaching it to a reciprocating mechanism adapted to operate the same in conjunction with the lower member.

There are several different styles of sheet-metal-working machines in common use with which the dies can be used, the only essential requirement of such machines being a table or support on which the lower member can be mounted and immovably secured, and a reciprocating mechanism to which the upper member can be attached and moved to bring the two members together. A feed mechanism can be provided and a clamping mechanism for holding the plate in place while being operated upon; but as machines possessing these features are common it will not be necessary to further describe the same.

The lower die or member of the forming



mechanism consists of a holder which may be of any construction suitable in the premises, the only requirement being that it shall have a recess in its upper face for the reception of the mechanism forming the die proper. The holder in the present instance consists of a casting  $a$ , from the ends of which the lugs  $a'$  project and by means of which the casting is secured in place in the machine. The casting has a casing  $a^2$ , secured to its face, in which the mechanism forming the die proper is mounted.

The lower die consists of two sets of teeth B and C, respectively. The set B forms the cutting mechanism, and the set C forms the expanding mechanism. The cutting mechanism consists of teeth arranged in two parallel rows, so that the teeth of one row break joint with those of the other row. Each tooth is angular in cross-section and is formed of two plates  $b b$ , placed side by side. The plates are arranged to form an obtuse angle, and thereby give the tooth the angular shape referred to. The sides  $b' b'$  are slightly beveled to insure a close contact of the sides. The upper corner of each plate, as at  $b^2$ , is cut away, so as to leave a triangular space  $b^3$  between the upper portions of the adjacent plates of two teeth. The teeth of both rows are exactly alike, except that those of the outer row have their cutting edges  $b^4 b^4$  on their concave faces, and those of the inner row have their cutting edges  $b^5 b^5$  on their convex faces. The cutting edges of the teeth of both rows are in the same plane. The two rows of teeth are arranged so that the teeth of one row break joint with those of the other. They are placed so that the convex face of a tooth in one row contacts with the convex faces of the two adjacent teeth in the other row. The arrangement is also such that the apex of the angular cutting edge of a tooth in one row registers with one of the triangular spaces  $b^3$  between the two adjacent teeth in the other row.

The expanding or stretching mechanism consists of two parallel rows of teeth having a formation different from that of the cutting-teeth. Each tooth is angular in cross-section and is formed of two plates  $c c$ , placed with their sides  $c' c'$  together. The latter are beveled, so as to form a close joint. The upper face  $c^2$  of each tooth is pointed, the point being in line with the joint between the two plates forming the tooth. The teeth of one row are arranged to break joint with those of the other and are placed so that the concave face of a tooth in one row contacts with the concave faces of the two adjacent teeth in the other row. The teeth forming the outer row are shorter than those forming the inner row, their length being such as to bring their points even with the depressions in the inner row.

It is to be observed that the teeth forming the expanding mechanism have the same thickness and breadth as those forming the cutting mechanism, so that the registration between the forming-teeth and the ribs made by the cutting-teeth in the sheet of metal will be correct.

The teeth are held in the holder by the plates D D, mounted between said teeth and the sides of the casing  $a^2$ , and the screws  $d d$ , passing through the sides of the casing and impinging on the said plates. The inner sides of the plates D D are shaped to fit the teeth. Screws  $d' d'$  pass through the end of the casing and impinge on the plate  $d^2$  to prevent displacement of the teeth in the other direction.

The cutting and stretching teeth are separated by the plate E, interposed between the same. The latter has its sides shaped to fit the teeth. By having this space between the cutting and stretching teeth a stripper can be used to clear the teeth of the metal.

The construction of the upper die F is similar to that of the lower die except that it is the reverse of the lower one. For instance, the cutting-teeth of the outer row of the lower die have their cutting edges on their concave faces, while the teeth in the outer row of the upper die have their cutting edges on their convex faces.

In the upper die the width of the plate E separating the cutting and expanding teeth is less than that of the same plate in the lower die. The object of this is to cause the cutting-teeth of the upper die to pass in advance of the cutting-teeth of the lower die, so as to shear the metal fed between them. The teeth forming the stretching or expanding mechanism move in the same vertical planes, so that their faces  $c^2$  will register.

The relative arrangement of the cutting and the forming mechanism is such that when the metal plate is fed between the dies and the latter brought together the cutting mechanism will cut a double row of angular slits, such as  $s s$ , in the metal plate, (see Fig. 4,) which will break joint with the double row of slits formed by the preceding stroke of the dies, and the forming mechanism will expand or stretch the ribs formed by a preceding stroke of the dies. The pointed teeth of the forming mechanism force the ribs from opposite sides of the plate to form keys, such as  $s' s'$ . (See Fig. 5.)

While the construction as hereinbefore described is the preferred embodiment of the invention, yet it can be departed from to a considerable extent without departing from the spirit of the invention. For instance, the dies may be made with four rows of cutting-teeth and four rows of expanding-teeth each.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a die for making expanded metallic lathing, the combination of a holder, teeth for slitting the metal and separate teeth for expanding the metal after it is slitted mounted  
5 in said holder.

2. In a die for making expanded metallic lathing, the combination of a holder, teeth for slitting the metal and teeth for expanding the metal after it is slitted mounted in said holder

and arranged therein in groups, and means 10 for holding said teeth in said holder.

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

CHARLES FORTH.

Witnesses:

C. T. GLEN,

AUGUST W. ROSINGER.