

(No Model.)

C. MILLS.

DEVICE FOR ATTACHING CARD CLOTHING TO FLATS.

No. 581,749.

Patented May 4, 1897.

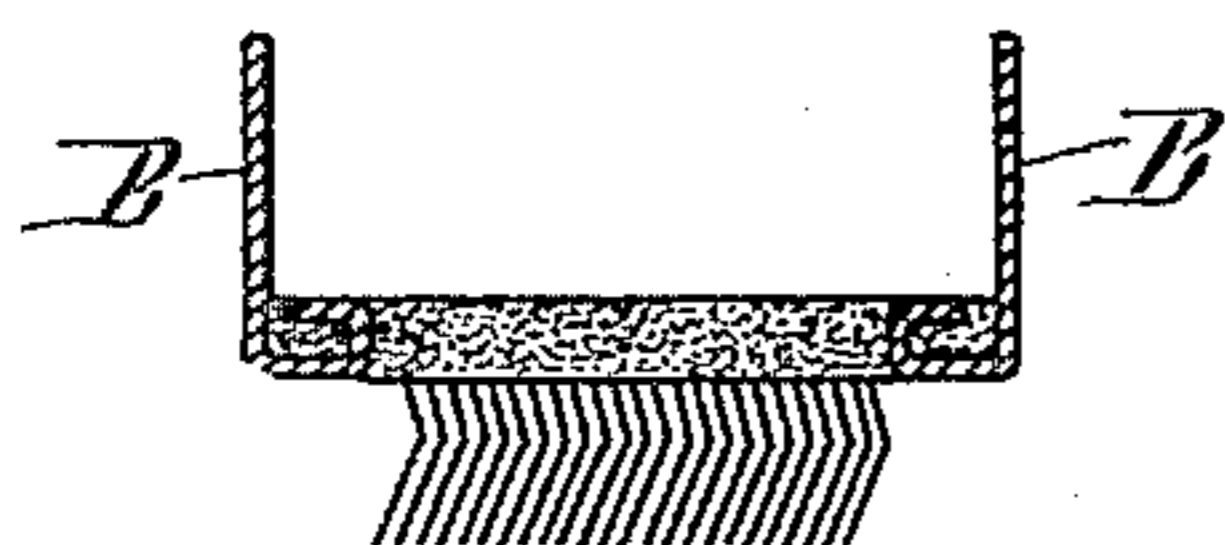


Fig. 1.

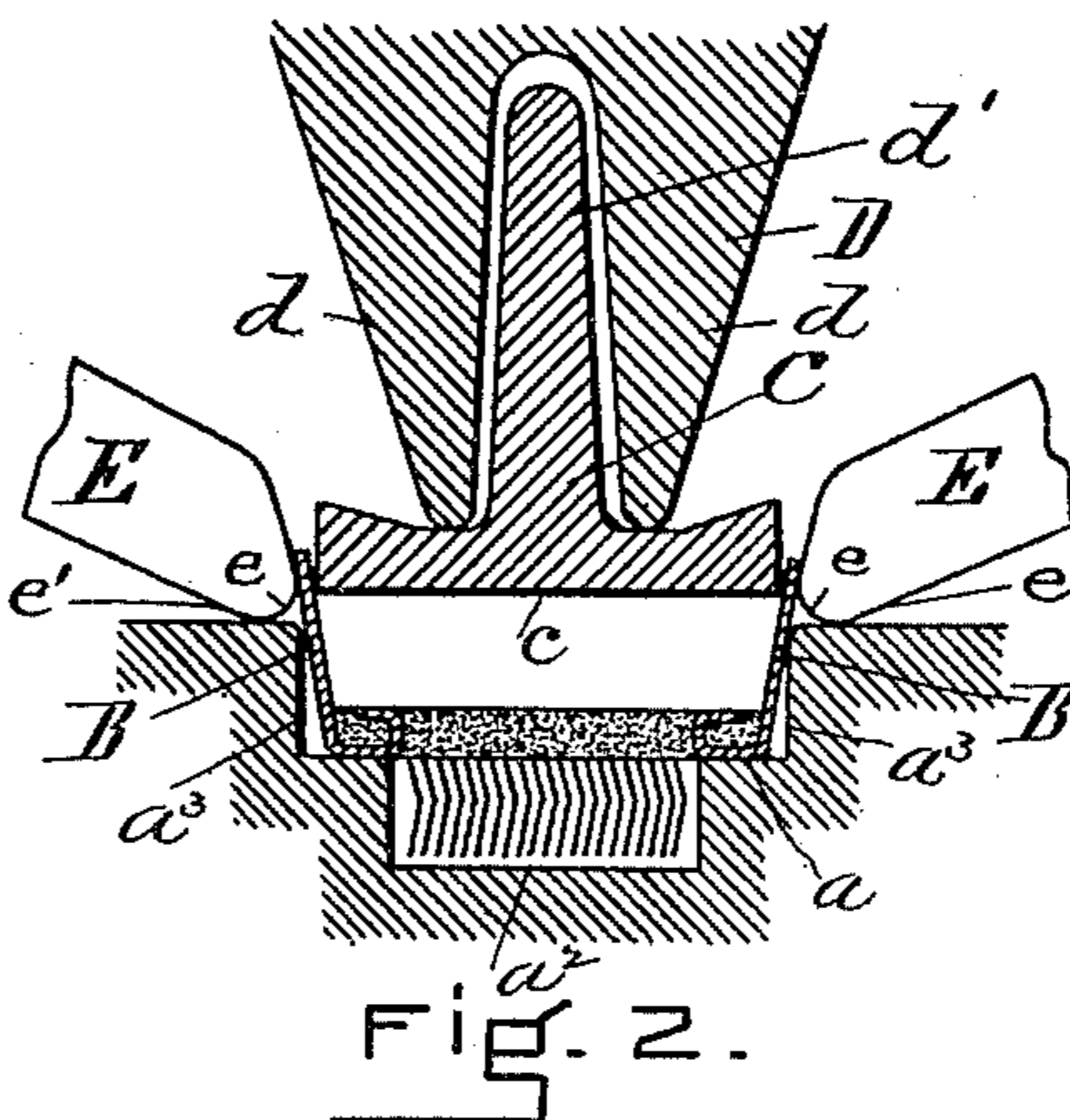


Fig. 2.

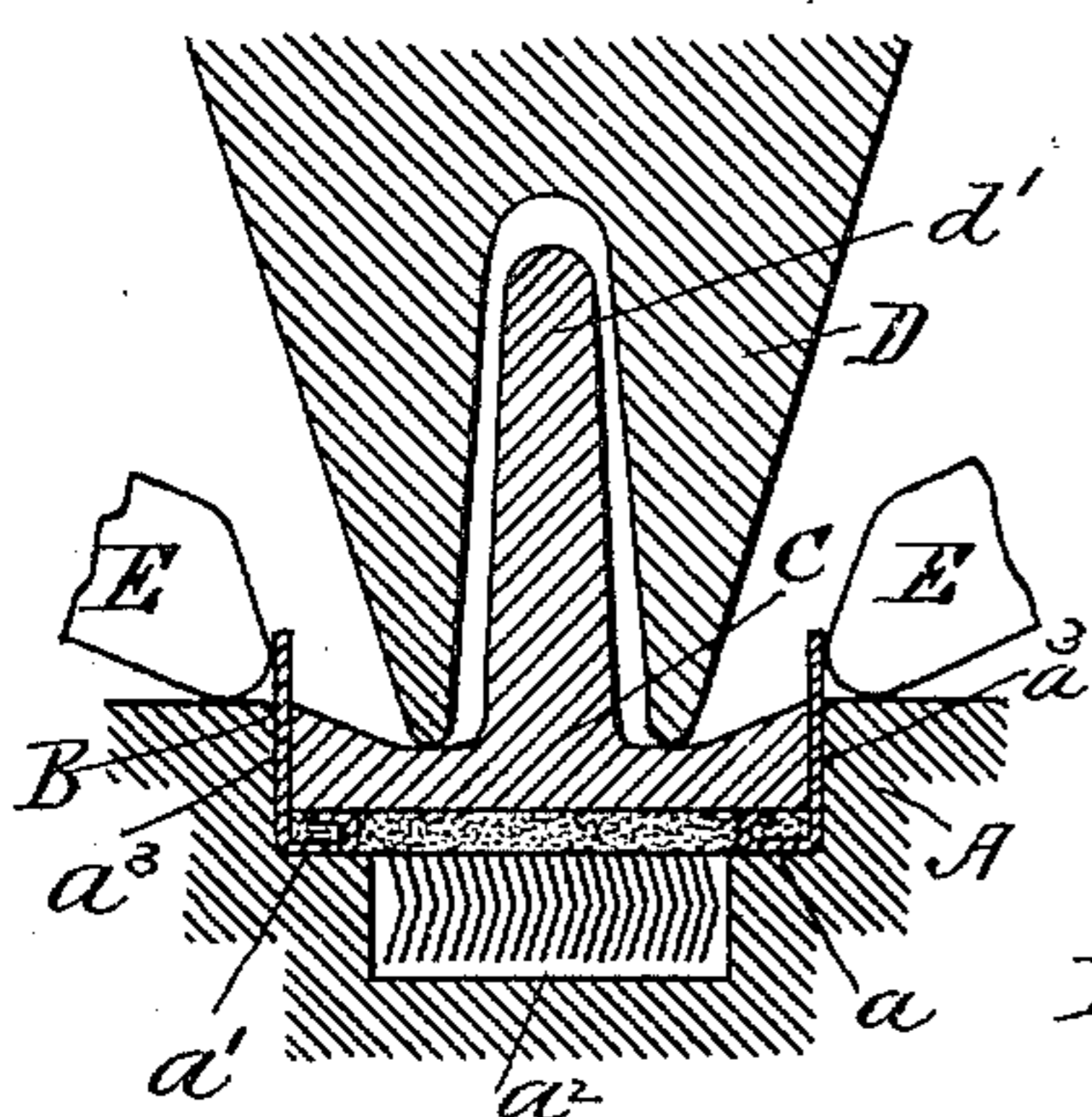


Fig. 3.

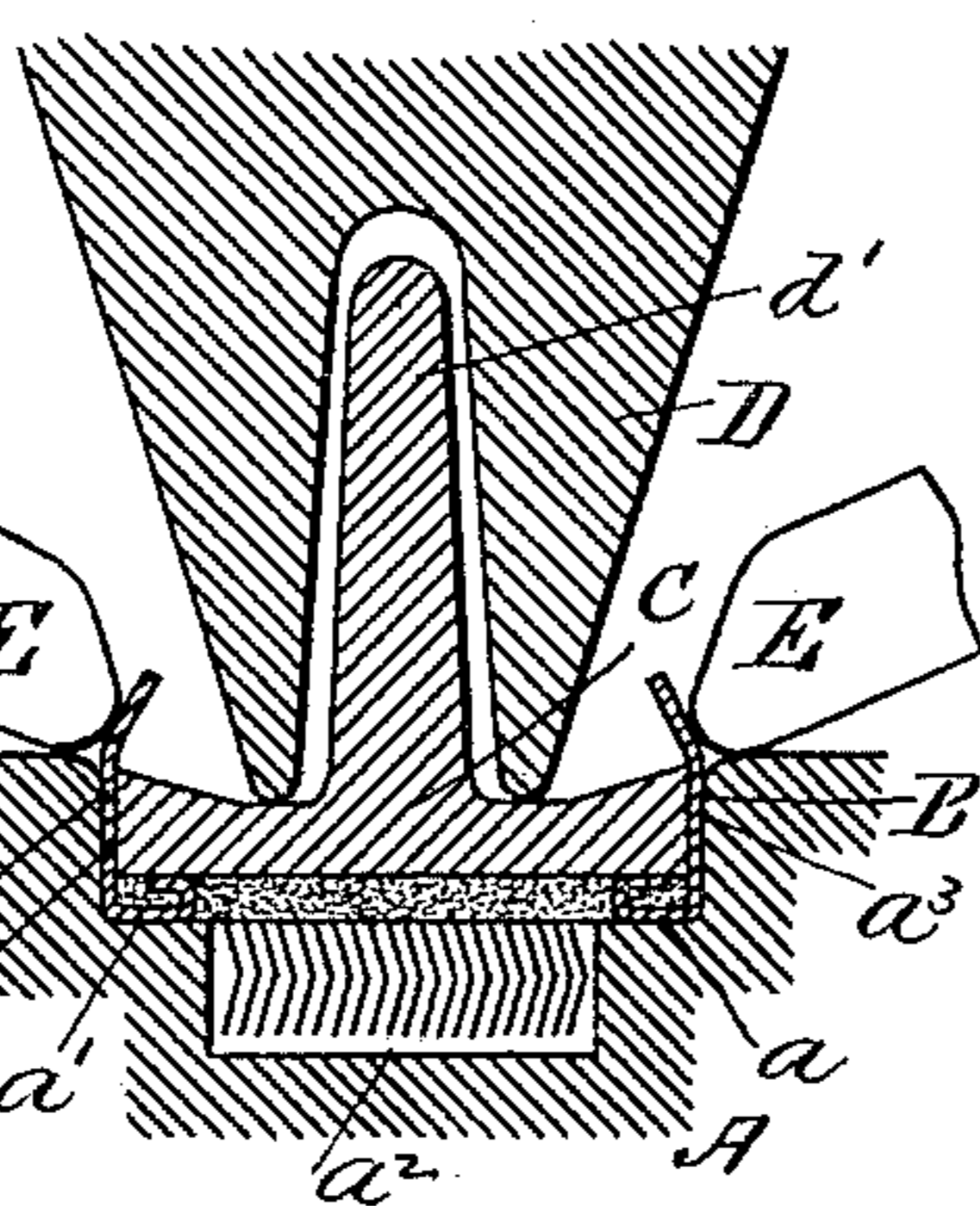


Fig. 4.

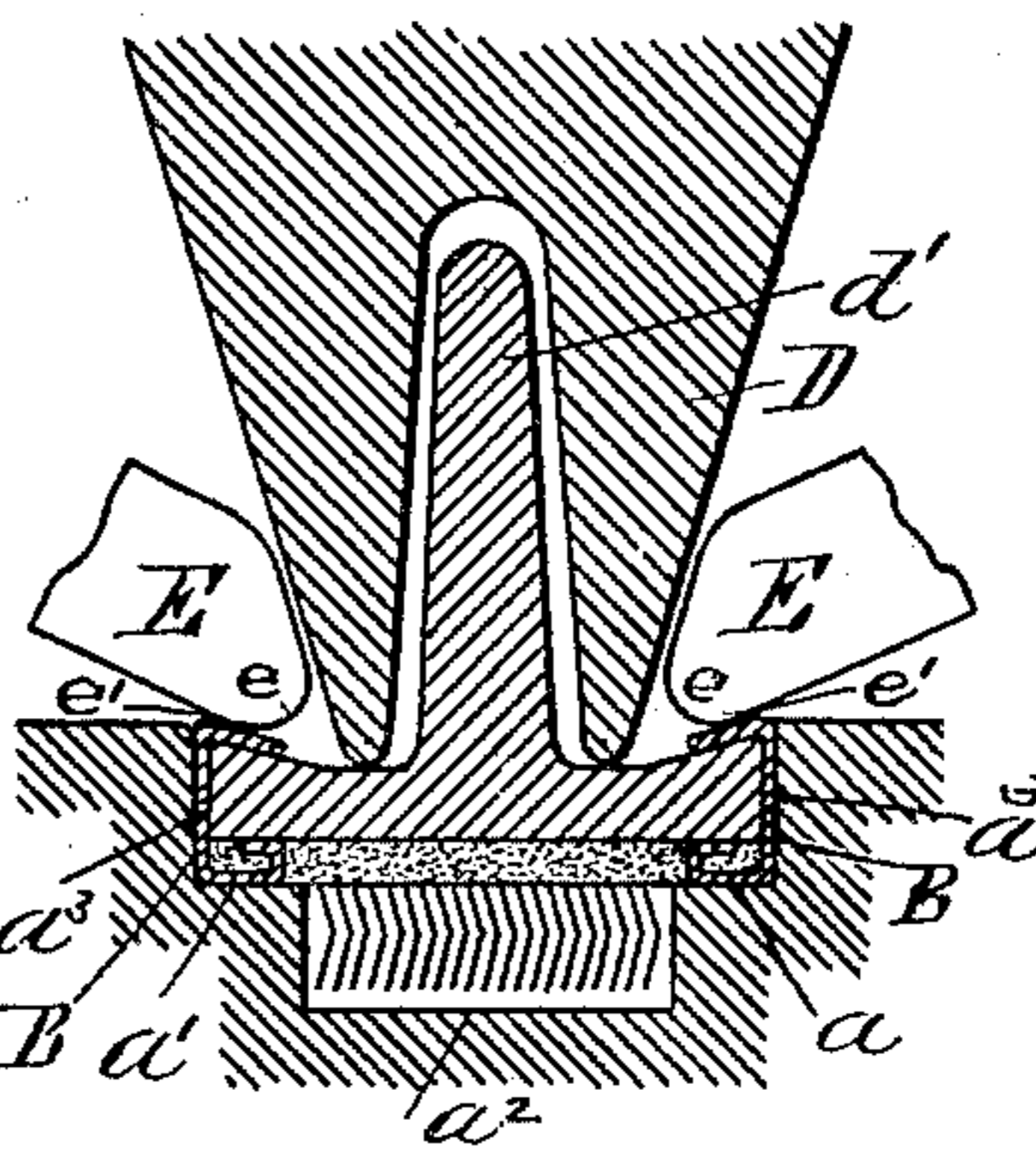


Fig. 5.

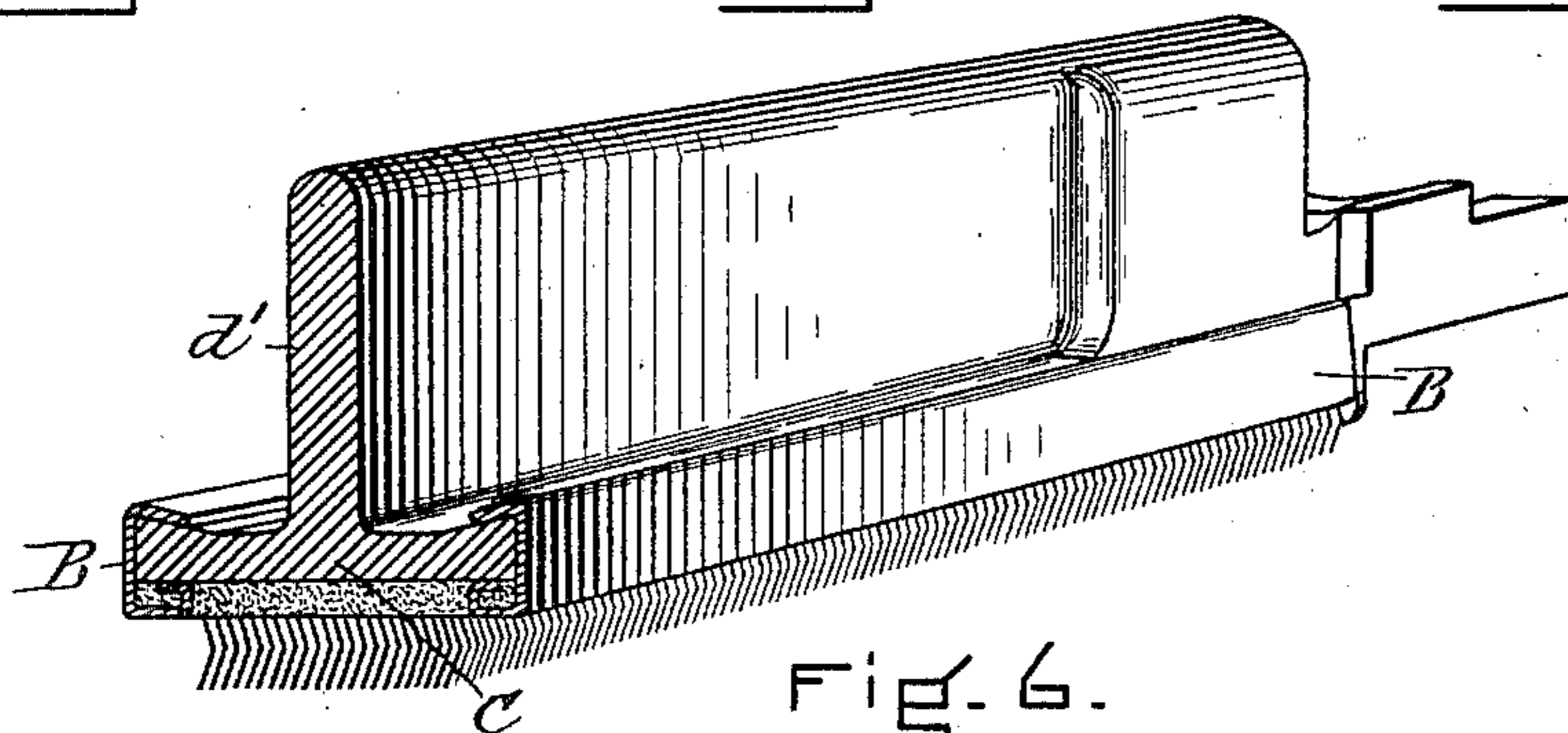


Fig. 6.

WITNESSES

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INVENTOR

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# UNITED STATES PATENT OFFICE.

CHARLES MILLS, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE PETTEE MACHINE WORKS, OF SAME PLACE.

## DEVICE FOR ATTACHING CARD-CLOTHING TO FLATS.

SPECIFICATION forming part of Letters Patent No. 581,749, dated May 4, 1897.

Application filed February 24, 1896. Serial No. 580,345. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES MILLS, a subject of Victoria, Queen of Great Britain, residing in Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Devices for Fastening Card-Clothing to the Flats of Revolving-Flat Carding-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The subject-matter of my present invention comprises the employment of clips attached to the edges of card-clothing and the flats to which the clothing is secured as a means for stretching the card-clothing during the bringing together of the clothing and its clips and the flat.

It also relates to means whereby this is accomplished and the clothing permanently secured to the flat by the folding of the edges of the clips upon the under surface of the flat.

In the drawings, Figure 1 is a view in vertical section of card-clothing having attached to its edges clips, sections of which extend from the clothing and are parallel with each other but are separated from each other by a space slightly less than the width of the flat to which the clothing is to be secured. Fig. 2 is a view representing a holder for holding the card-clothing with its attached clips, which is slightly wider than the clothing and clips, and into which the flat is adapted to be moved to stretch the cloth by engagement with the clips, and in which it is also adapted to be held during the turning or folding of the edges of the clips upon its under surface. Fig. 3 is a view of the parts represented in Fig. 2 when the flat has been moved into the holder to stretch the clothing and preparatory to the turning of the edges of the clips upon its under surface. Fig. 4 is a view of the same parts, the devices for turning the edges of the clips having been somewhat advanced to turn them slightly inwardly. Fig. 5 is a view of the same parts, showing the edges of the clips as closed upon the under surface of the flat. Fig. 6 is a view of the flat, clothing, and attaching-clips.

The holder A has the beds  $a$   $a'$ , separated

from each other by a recess  $a^2$ , of a width and depth sufficient to receive the wired section of the clothing. From the outer edges of each bed rises a wall  $a^3$ , which is of a height equal to the thickness of the flat at its edge and the thickness of the clothing. These walls  $a^3$  are separated from each other by a space equal to the width of the flat and the thickness of the clips B.

The clips B are secured to the edges of the clothing in advance and as represented in Fig. 1, and preferably by means described in the joint application of Robert W. Hunton and myself, filed August 1, 1894, Serial No. 519,149, and my application of even date herewith, Serial No. 580,344; and as they are so attached as to be separated from each other a distance slightly less than the width of the flat it follows that when the clothing and clips are inserted into the holder they do not quite fill the same—that is, the clothing and clips are slightly narrower than the space between the walls  $a^3$ . (See Fig. 5.) The clips are, however, separated in the holder to stretch the clothing by means of the flat C, which has the flat under surface  $c$ .

The space between the two walls  $a^3$  is forced downward between the clips by a pressure-head D, which is shaped, preferably, as represented in Figs. 2 to 5, inclusive, having the sections  $d$ , which bear upon the under surface of the flat on each side of its ribs  $d'$ , which extends into the recess of the pressure-head. Being pressed downward the flat separates the clips in the holder and causes them to stretch the clothing, so that when the flat is seated thereon, as represented in Fig. 3, the clothing has been applied to the sides of the flat and the edges  $b$  of the clips are above the under surface of the flat, and in a position to be readily turned inward upon the under surface of the flat by turning tools or slides E or by any other desired means, and when folded upon the under surface of the flat occupy the position in relation thereto represented in Figs. 5 and 6.

I prefer that the slides or other bending or folding device or tool have a curved end  $e$ , extending into the flat or straight surface  $e'$  represented in the figures.

It will be seen by providing the clothing

with the clips arranged as specified and by applying the flat thereto as described that the clothing is stretched, the flat brought into proper relation with the clothing and in such  
5 relation to the clips that the clothing may be immediately secured to the flat at the end of the stretching movement.

The subject-matter of this invention was originally described in the said joint applica-  
10 tion of Robert W. Hunton and myself, filed August 1, 1894, Serial No. 519,149.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

15 1. In a device for stretching card-clothing and attaching it to flats, the combination of a holder for holding and rigidly supporting the card-clothing and clips previously attached thereto, and means for pressing a flat  
20 between the clips upon the card-clothing while so supported, whereby the clothing is stretched during the movement of the flat toward the clothing.

2. In a device of the character specified,  
25 the combination of a holder for supporting the card-clothing and its attached clips upon the face thereof, and means for pressing the flat between the clips and bringing their edges above the under surface thereof, from which  
30 they may be turned upon the under surface of the flat to secure the clothing thereto.

3. The combination of the holder having beds  $a$ ,  $a'$  for rigidly supporting the face of the clothing, and the recess  $a^2$  and walls  $a^3$ ,

the walls being separated from each other by 35 a space slightly greater than the width of the clothing and its attached clips, with the flat presser D, whereby a flat of a width slightly greater than the normal distance between the inner opposed surfaces of the upwardly-pro- 40 jecting clips, may be forced between said surfaces and stretch the clothing, as and for the purposes set forth.

4. Means for stretching and attaching the card-clothing to the face of a flat, said means 45 consisting of clip-holders against which the faces of the clips rest and upon which they may spread in a direction away from each other, in combination with mechanism for forcing a flat slightly wider than the said 50 clips are apart, to a seat between said clips and against the inner surface of the clothing, whereby the clothing is stretched by the separation of the clips, all as set forth.

5. In a device of the character specified, 55 the combination of a holder for supporting the card-clothing and its attached clips upon the face thereof, means for pressing the flat between the clips and bringing their edges above the under surface thereof, and means 60 for turning the said edges over upon the under surface of the flat, whereby the clothing is secured thereto.

CHARLES MILLS.

In presence of—

A. J. M. MCNAMARA,  
S. A. THOMPSON.