

No. 628,830.

Patented July 11, 1899.

C. MILLS & R. W. HUNTON.  
END CLIP FOR CARD FLATS.

(Application filed May 2, 1899.)

(No Model.)

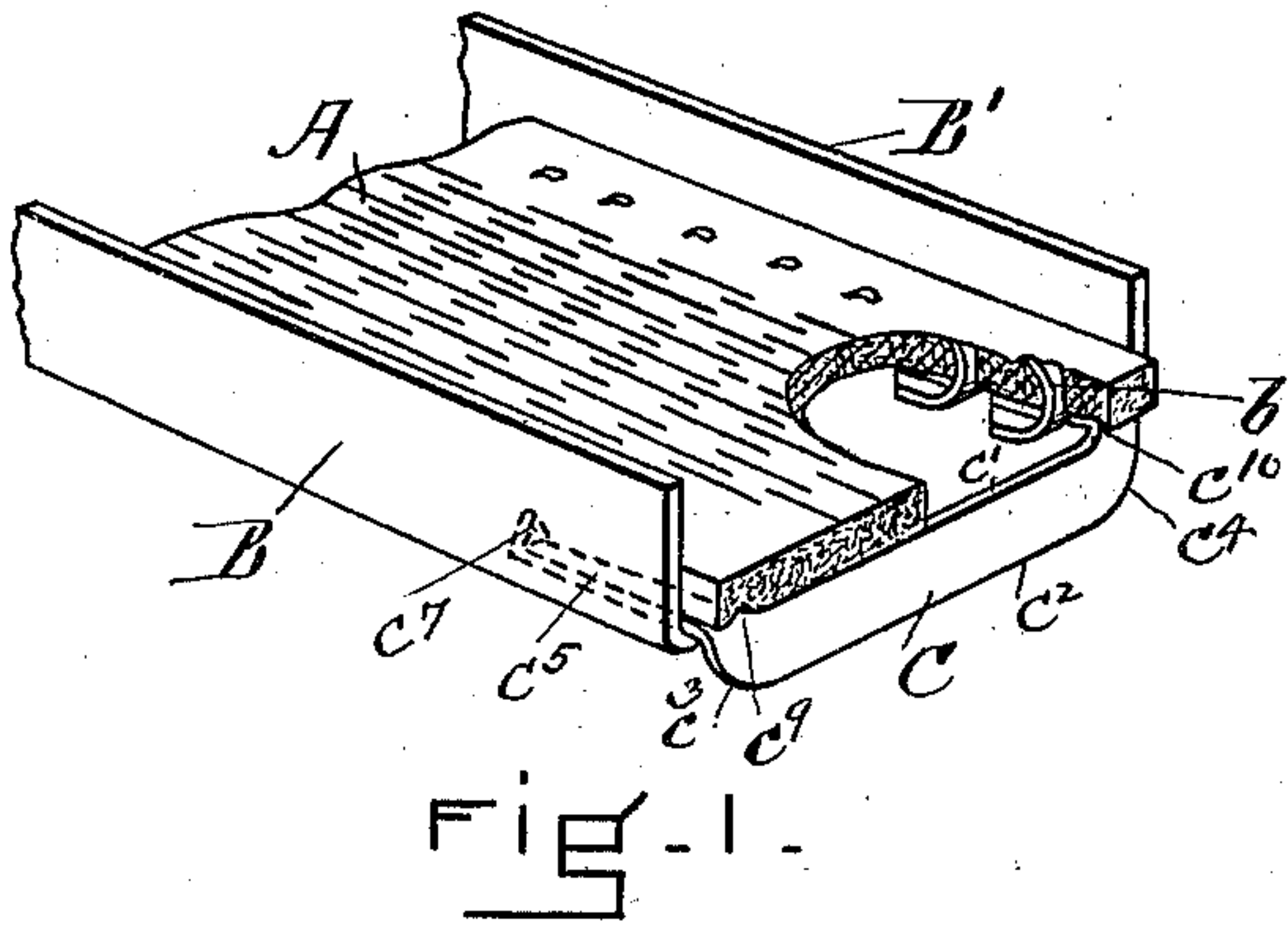


Fig. 1.

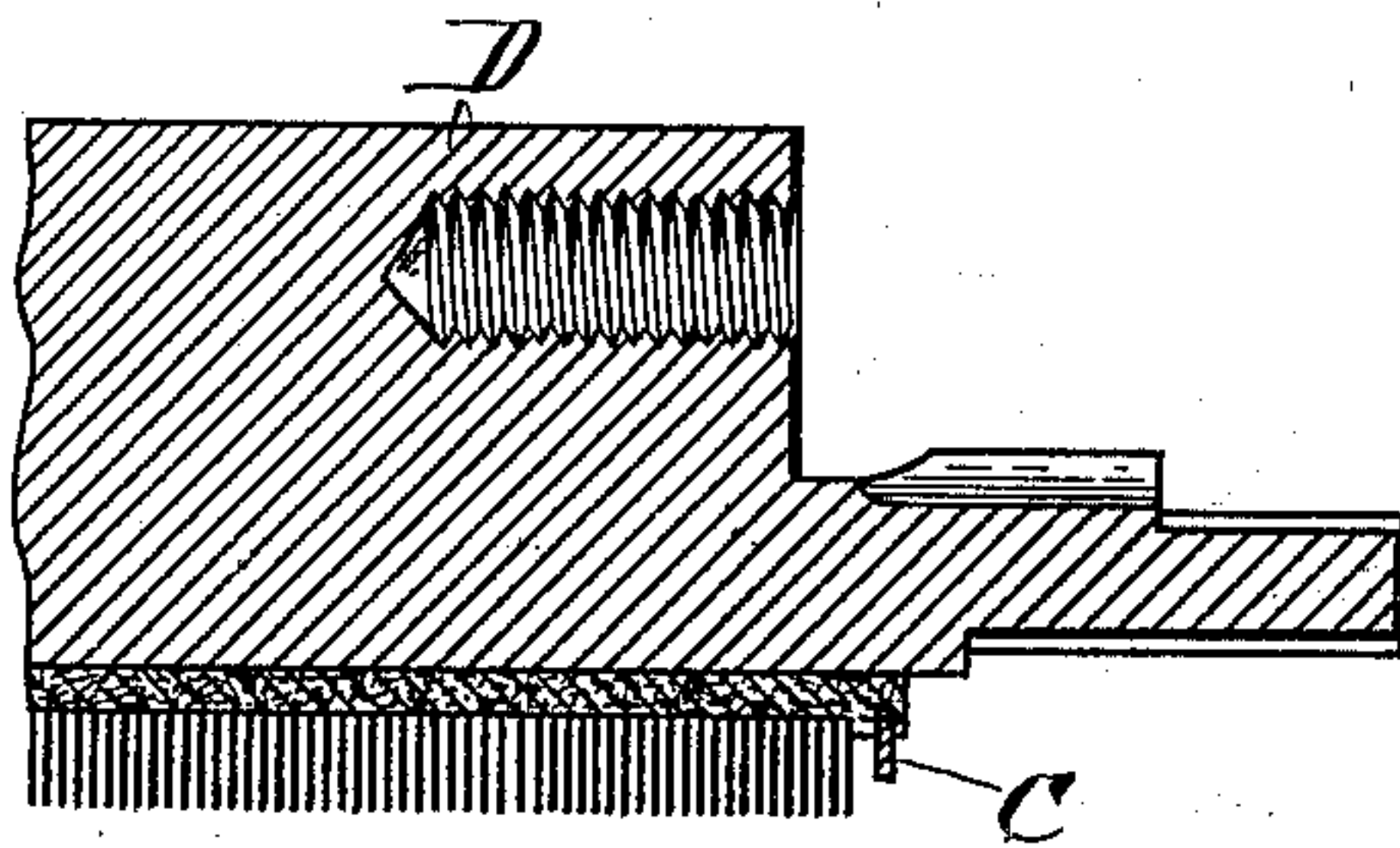


Fig. 2.

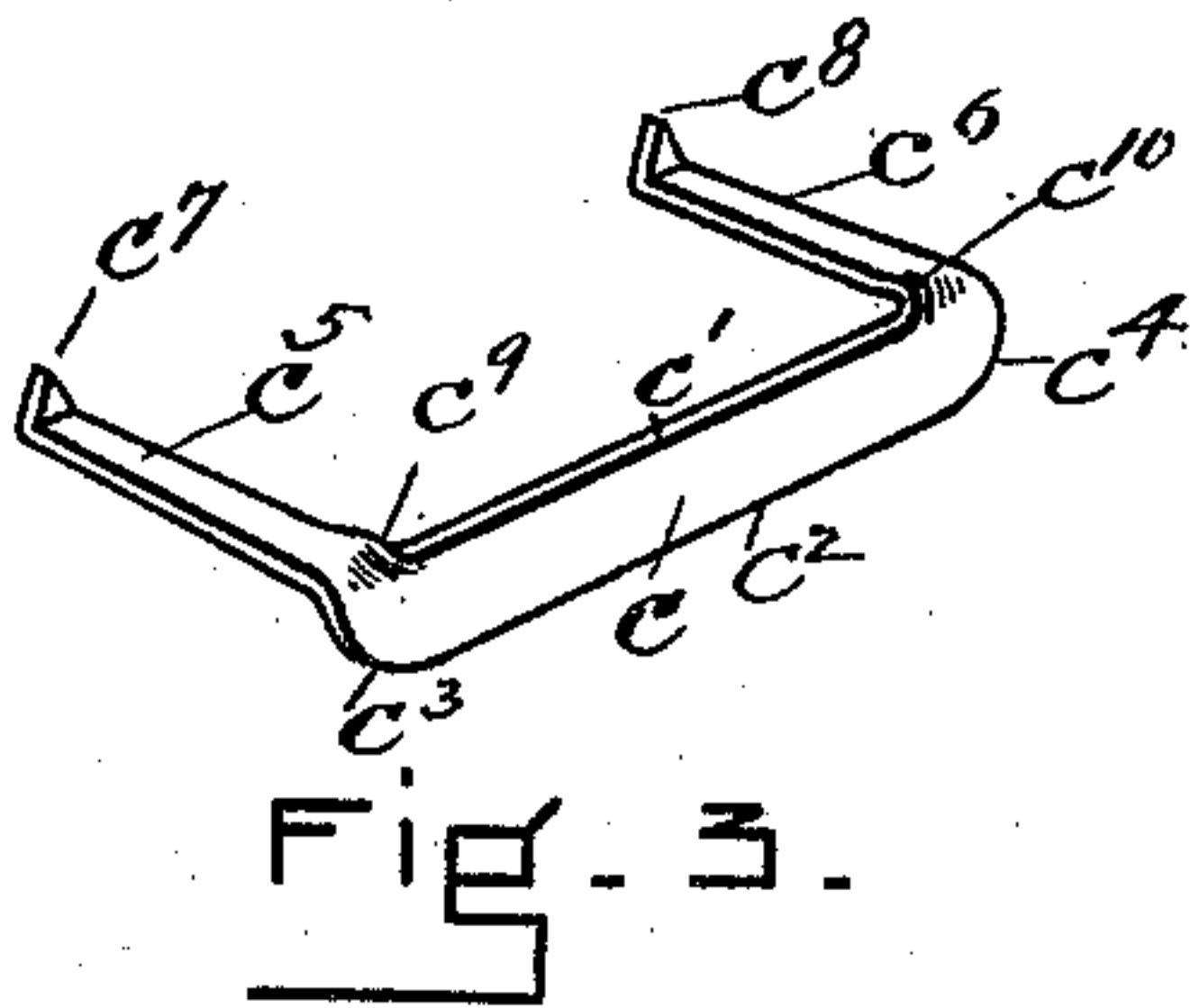


Fig. 3.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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ASSIGNORS TO THE SACO & PETTEE MACHINE SHOPS, OF SAME PLACE.

## END CLIP FOR CARD-FLATS.

SPECIFICATION forming part of Letters Patent No. 628,830, dated July 11, 1899.

Application filed May 2, 1899. Serial No. 715,278. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES MILLS and ROBERT W. HUNTON, citizens of the United States, and residents of Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in End Clips for Card-Flats, 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 clip is an improvement upon that described in the patent to Robert W. Hunton, assignor to the Pettee Machine Works, No. 622,367, dated April 4, 1899. It varies from the clip of said patent in that the side arms are strengthened at the points where they leave the main bar of the clip, in that the inner corners of the clip at that point are rounded instead of being of the shape which makes the intermediate edge of the main bar between them more pronounced and better positioned for the purpose of engaging the card-clothing, and in that the inner ends of the arms are turned up to form ends which enter the clothing and engage it, and thus prevent the clip from working endwise the flat.

In the drawings, Figure 1 represents in perspective a piece of card-clothing with the side clips and one end clip united thereto preparatory to attachment to the flat. Fig. 2 is a view in vertical section through a flat end and its attached clothing. Fig. 3 is a view in perspective of the end clip.

A is the card-clothing; B B', the side clips; C, the end clip, and D the flat.

The side clips are united to the clothing by means of prongs *b*, which extend through the clothing and are preferably headed in the inner surface of the clothing. Preliminary to the securing of the side clips to the clothing the end clips are located in the outer side of the clothing at or near each end thereof and with their prongs between the outer portions of the side clips and the clothing and between the sides of said clips and their prongs, so that when the clips are fastened by their prongs to the clothing the arms of the end clips are tightly held or clamped between them and the clothing, the upturned ends of the arms of the end clips caused to enter the cloth-

ing, and the inner edge of the main bars of the clips to tightly hug that part of the clothing which extends over them.

*c* represents the thin cross-bar of an end clip. Its edges *c'* *c''* are parallel and its outer corners *c'''* *c''''* preferably are rounded. Its arms *c'''* *c''''* extend from the corners parallel with each other and their ends *c''''* *c''''''* are upturned at an angle to the arms to engage the clothing. The arms are also strengthened where they leave the bar by being widened upon their inner sides at *c''''''* *c''''''''*, respectively, and the arms preferably are so rounded where they leave the bar as to cause the edge *c'* of the bar between them to be somewhat pronounced with respect to the corners and so as to make a better engagement with the clothing which covers it.

The advantages of the invention have been stated in connection with its description.

We prefer that the upturned ends *c''''* *c''''''* be pointed, although it is not essential that they so be.

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

1. The end clip for card-flats herein described, the same having a thin bar and parallel arms extending from the corners of the bar, and the ends of which arms are upturned.

2. The end clip for card-flats herein described, the same having a thin bar and parallel arms extending from the corners of the bar, the ends of which arms are upturned and pointed.

3. In an end clip for card-flats, a thin cross-bar and arms extending from the inner corners of said cross-bar which are increased in width on their inner sides at said corners, as and for the purposes set forth.

4. In an end clip for card-flats a thin cross-bar, arms extending from the inner corners thereof and rounded at said corners in a manner to make pronounced and slightly raised the upper straight edge *c'* of the bar between them, as and for the purposes set forth.

CHARLES MILLS.

ROBT. W. HUNTON.

In presence of—

CHAS. R. BROWN,  
E. W. SABIN.