(No Model.) 2 Sheets—Sheet 1.

J. C. POTTER.

FASTENING CARD CLOTHING TO TOP FLATS.

No. 575,986. Patented Jan. 26, 1897.

Fig. 1.

Fig. 6.

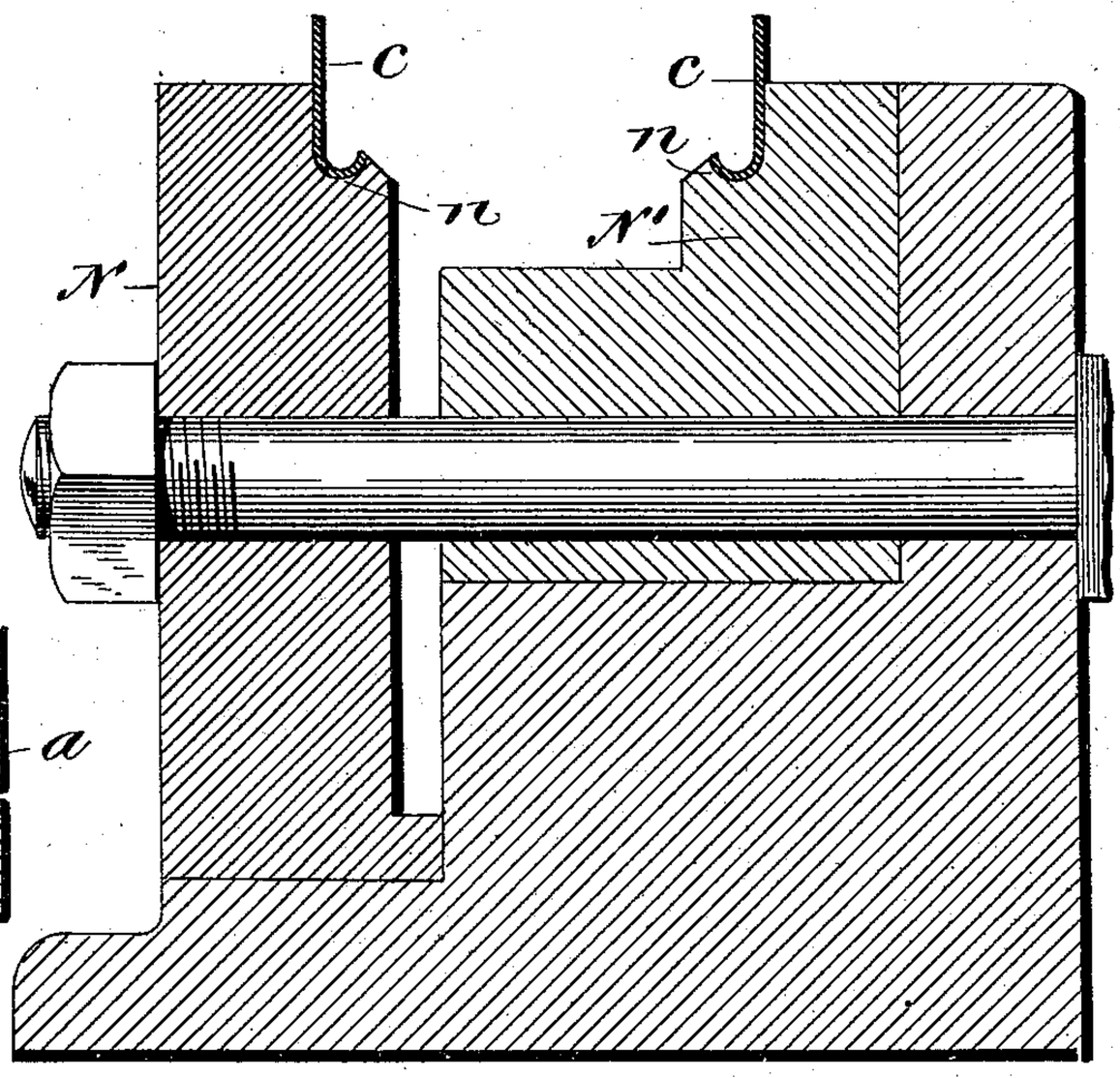


Fig. 2.

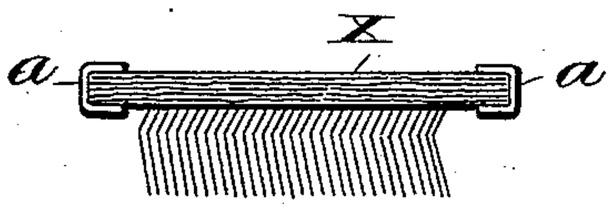


Fig. 3.

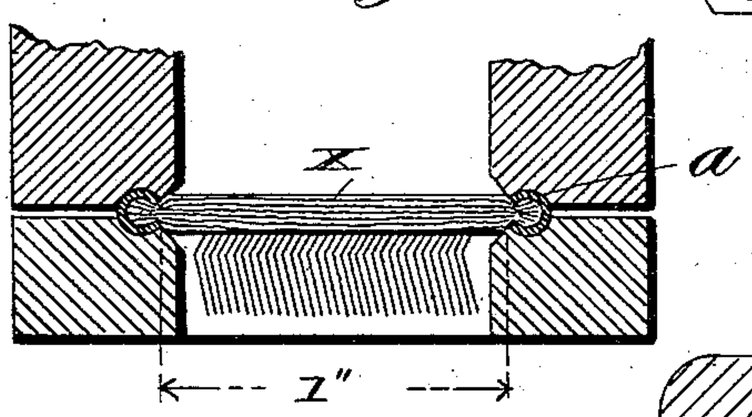


Fig. 4.

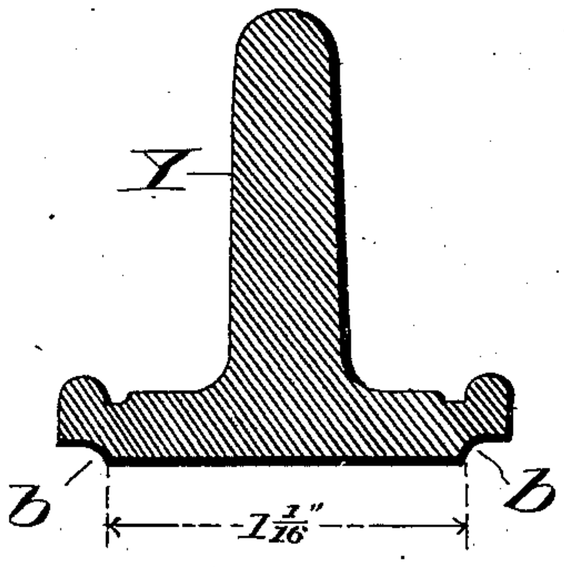


Fig. 5.

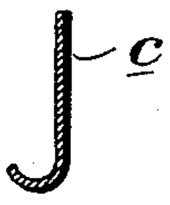
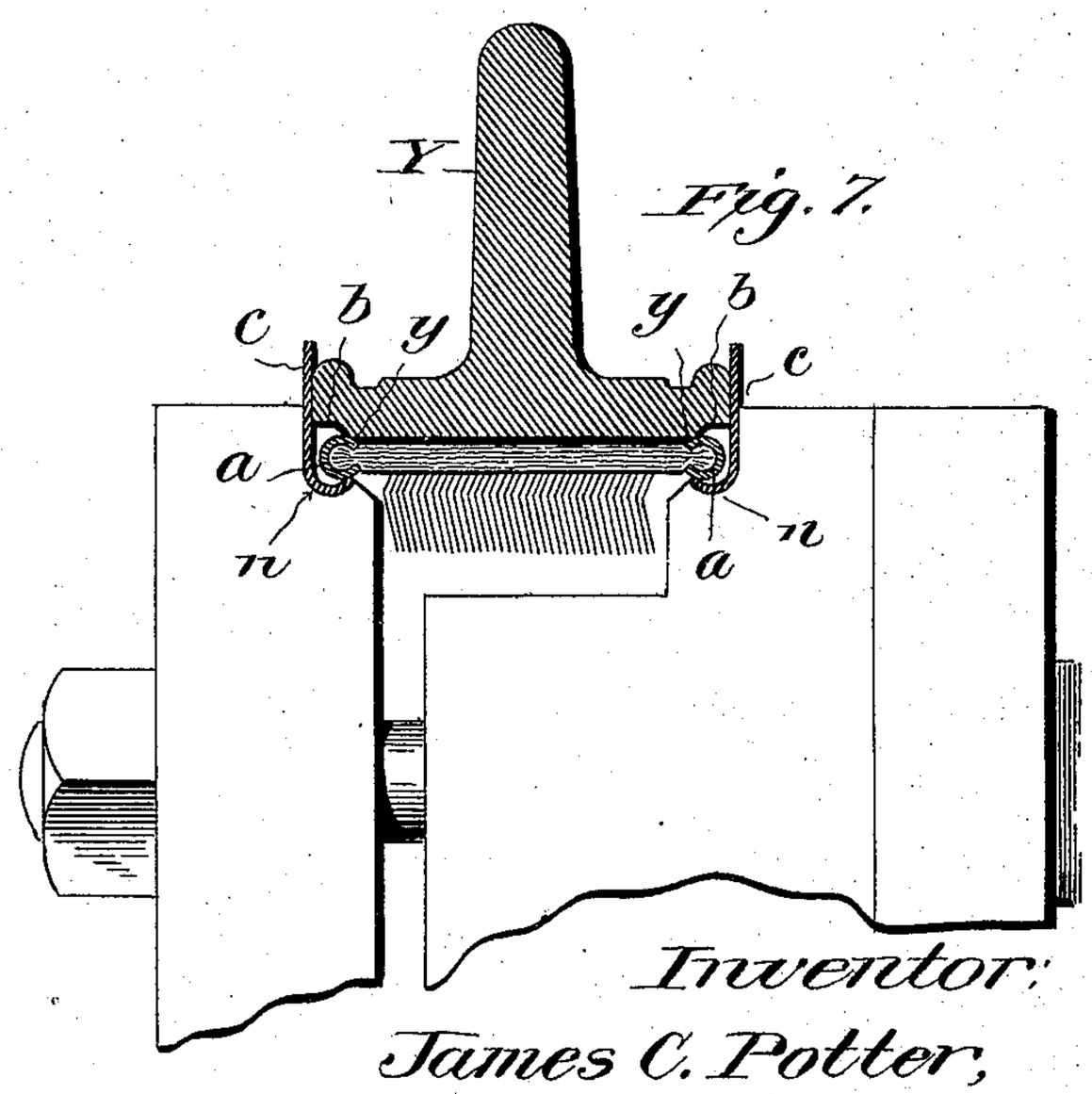


Fig. 7.



Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

J. C. POTTER.

FASTENING CARD CLOTHING TO TOP FLATS.

No. 575,986. Patented Jan. 26, 1897.

Fig. 8.

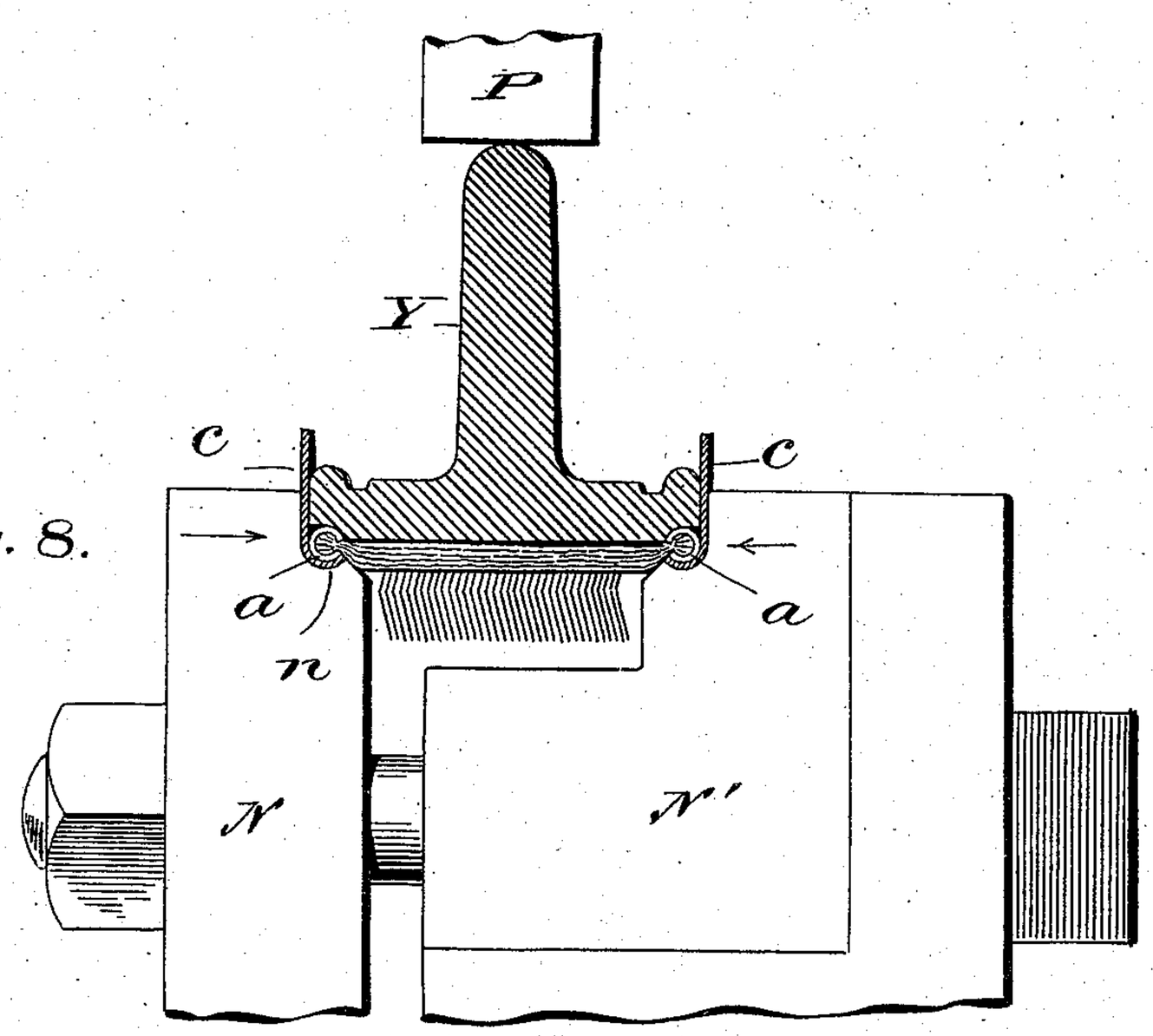


Fig. 9.

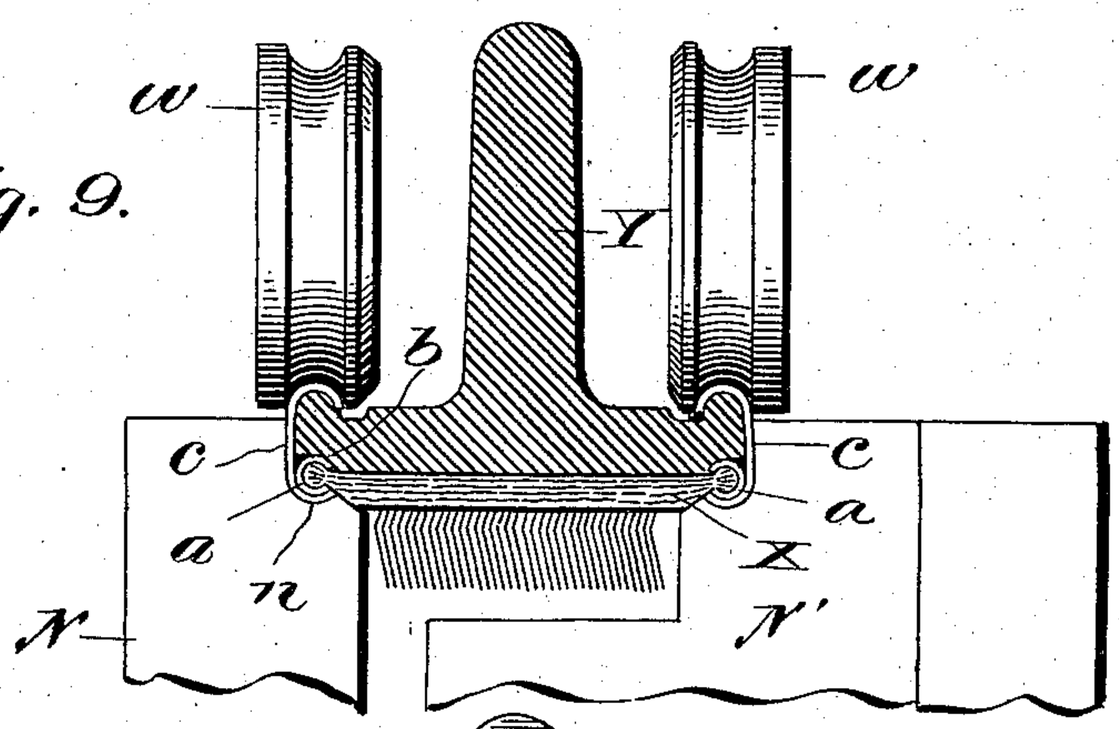
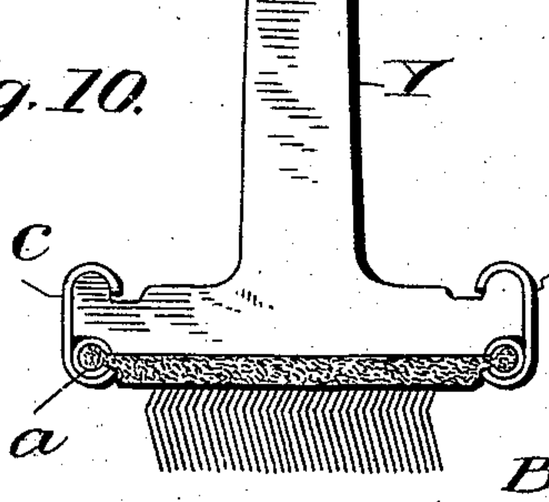


Fig. 10.



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UNITED STATES PATENT OFFICE.

JAMES C. POTTER, OF PAWTUCKET, RHODE ISLAND.

FASTENING CARD-CLOTHING TO TOP-FLATS.

SPECIFICATION forming part of Letters Patent No. 575,986, dated January 26, 1897.

Application filed November 20, 1896. Serial No. 612,887. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. POTTER, of Pawtucket, in the State of Rhode Island, have invented a certain new and useful Improvement in Fastening Card-Clothing to Top-Flats, of which the following is a specification.

It is my object in this invention to more firmly secure the card-clothing to the flat and to have the clothing remain more tightly stretched thereon than heretofore has been practical. Heretofore it has been usual to secure the foundation-cloth to the flat by means of clips bent at one edge over upon the face of the foundation and at the other edge over upon the back of the flat. That edge of the clip bent over on the cloth has been caused to enter and engage the cloth, and has in some instances been provided with teeth or prongs for this purpose, and the parts have been so proportioned and arranged that in forcing the cast-iron flat down upon the clothing the latter, through the agency of the clips between which the top-flat enters, will be tightly stretched. In this method of fastening the edges of the clothing are very liable to give way and the clothing eventually becomes loose.

Under my invention I preliminarily prepare the edges of the clothing to resist all stress or strains and to prevent the cloth from pulling apart or giving away, to which end I provide the clothing at its longer edges with a metallic binding which incloses and firmly clasps each edge, and I so arrange things that it is upon this binding that the stretching pull comes when the clothing is being fitted and secured to the top-flat, seats being provided in the face of the flat for reception of the metallic binding, and fastening-clips being used to hold said binding therein.

The nature of my invention and the manner in which the same is or may be carried into effect will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is an end view of the metallic binding, of steel or other material. Fig. 2 represents in cross-section the foundation-cloth having the metallic binding fitted to its edges in readiness to be clamped and secured thereon. Fig. 3 is a section of a portion of the dies used to clamp the binding on the cloth and showing these parts in position therein. Fig. 4 is a cross-section of the cast-iron top-flat. Fig. 5 is an end view the clip or fastener, of sheet-steel or other suitable material, for holding the clothing to the top-flat. Figs. 6, 7, 8, and 9 represent the dies for clamping the clips upon the flat and clothing with the parts in the position which they occupy at successive stages of the operation. Fig. 10 is a cross-section of the finished flat.

The metallic binding *a* consists of a continuous strip of sheet-steel or other suitable material, which is by suitable means pressed into the shape in cross-section represented in Fig. 1, so as to be adapted to fit upon the longer edges of the card-clothing or foundation-cloth X, as indicated in Fig. 2. The clothing, with metallic binding thus applied to its edges, is placed in dies M M, where the binding is pressed so as to be clamped firmly upon and united to the clothing, as indicated in Fig. 3. In these dies the metallic binding is pressed into an approximately circular or cylindrical form in cross-section. I thus provide each edge of the clothing with a metallic binding, in which the edge of the cloth is completely inclosed.

The next operation is to secure the prepared clothing to the cast-iron top-flat Y. (Shown in cross-section in Fig. 4.) This flat has formed in its face along each of its longer edges a seat *b*, of suitable form, for the metallic binding *a*. The width of the clothing between the inside edges of the metallic binding is, say, one inch. The width of the top-flat on the flat straight part of its face which extends between the seats *b* is, say, one and one-sixteenth inches. The result, of course, is that before the metallic bindings find their place in their seats *b* the clothing must be stretched crosswise one-sixteenth of an inch. This is effected in the following way at the same time the clothing is secured to the flat: The two are held together by steel fasteners *c* of the shape in cross-section shown in Fig. 5. These fasteners can be made each of a continuous strip of metal, which will extend on each side the whole length of the top-flat, or they may consist of narrow pieces set at any desired distances apart along the edges of the flat. The fasteners are first placed hook end down-

ward in dies N N′ of the form shown in Fig. 6, their hook ends resting in corresponding-shaped recesses *n* in the dies. The card-clothing, provided with its metallic binding, is then placed in the dies teeth downward, and the top-flat is then placed face downward upon the clothing, all as indicated in Fig. 7, where the parts are shown ready to be pressed together. By examining this figure it will be found that as the flat face of the flat is wider by, say, one-sixteenth of an inch than the straight portion of the clothing between the metallic bindings the face of the flat is raised slightly above the adjoining face of the cloth, and the flat rests upon the metallic bindings at the corners or edges *y*, where the flat face terminates and the seats *b* begin. The recesses *n* in the dies occupy below a similar position with respect to the metallic bindings as the seats or recesses *b* of the flat do above. In other words, the metallic bindings of the cloth rest upon the interior opposite edges of these recesses *n* or upon the inner ends of the hooks of the fasteners *c* therein. The parts are now pressed together by the presser P, which bears from above upon the top-flat and is operated by suitable agencies familiar to those skilled in the art to which my invention pertains to force the top-flat down upon the clothing. In this operation the downward movement of the flat causes an outward movement of the metallic bindings *a* until the clothing is stretched enough to permit the flat straight portion of the face of the top-flat to meet and fit against that portion of the adjoining face of the clothing extending between the interior opposite edges of the metallic bindings, and by this time the metallic bindings of the clothing are also caused to bend slightly upward, so as to find and enter their seats *b*, as indicated in Fig. 8.

The clothing thus is stretched first by a straight crosswise pull upon its opposite metallic-bound edges, and then, when it has been stretched somewhat and the most power is required in order to stretch it a little farther, by bending its metal-bound edges upward around the corners *y*, and consequently drawing on the cloth with great power. When the parts have been brought to this position, they are there held firmly together by drawing the die N′ toward the other die N, as indicated by the arrows in Fig. 8, by suitable instrumentalities, such as nuts and bolts *v*, after which the presser P can be removed. The next and final step is to bend the projecting ends or edges of the fasteners *c* over upon the back of the cast-iron top-flat. This can readily be done in any suitable way—as, for example, by spinning the projecting portions of the fasteners down over the back of the flat by hardened-steel rollers *w*, as indicated in Fig. 9. This completes the operation, and the finished article which results is shown in cross-section in Fig. 10.

It will be noted that in the finished article the fasteners *c* are level with that face of the cloth from which the teeth project, while they rise above the level of the opposite face of the cloth. This is occasioned by the metallic bindings being forced outwardly away from each other and upwardly around the corners *y* in order to find their positions in the seats provided for them in the flat. In this operation the cloth is most firmly stretched, the pull being wholly upon its metal-bound edges. The clips or fasteners *c* have nothing to do with the stretching of the cloth. This is accomplished by causing the clothing to conform to the shape of the flat. The office of the clips *c* is simply to secure in place the parts thus fitted together.

Under existing methods it is necessary for mills to send flats to the machine-makers to have them reclothed. This, however, is not necessary under my invention. The machine-makers need furnish only the metal-bound clothing to the mills, and the latter, by the aid of clips and simple dies, such as shown in Figs. 6 to 9, can themselves readily secure the clothing to flats, thus saving both expense and delay.

Having described my improvement and the best way now known to me of carrying the same into effect, I state in conclusion that I do not confine myself strictly to the structural details herein set forth in illustration of my invention, for manifestly the same can be varied to a considerable extent without departure from the spirit of the invention; but

What I claim herein as new, and desire to secure by Letters Patent, is—

The card-clothing or foundation-cloth having metal-bound edges, in combination with a top-flat having seats for the reception of said metal-bound edges and metallic clips or fasteners for holding the flat and clothing together, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 17th day of November, 1896.

JAMES C. POTTER.

Witnesses:
E. S. NAGLE,
SOLOMON ROBERTSON.