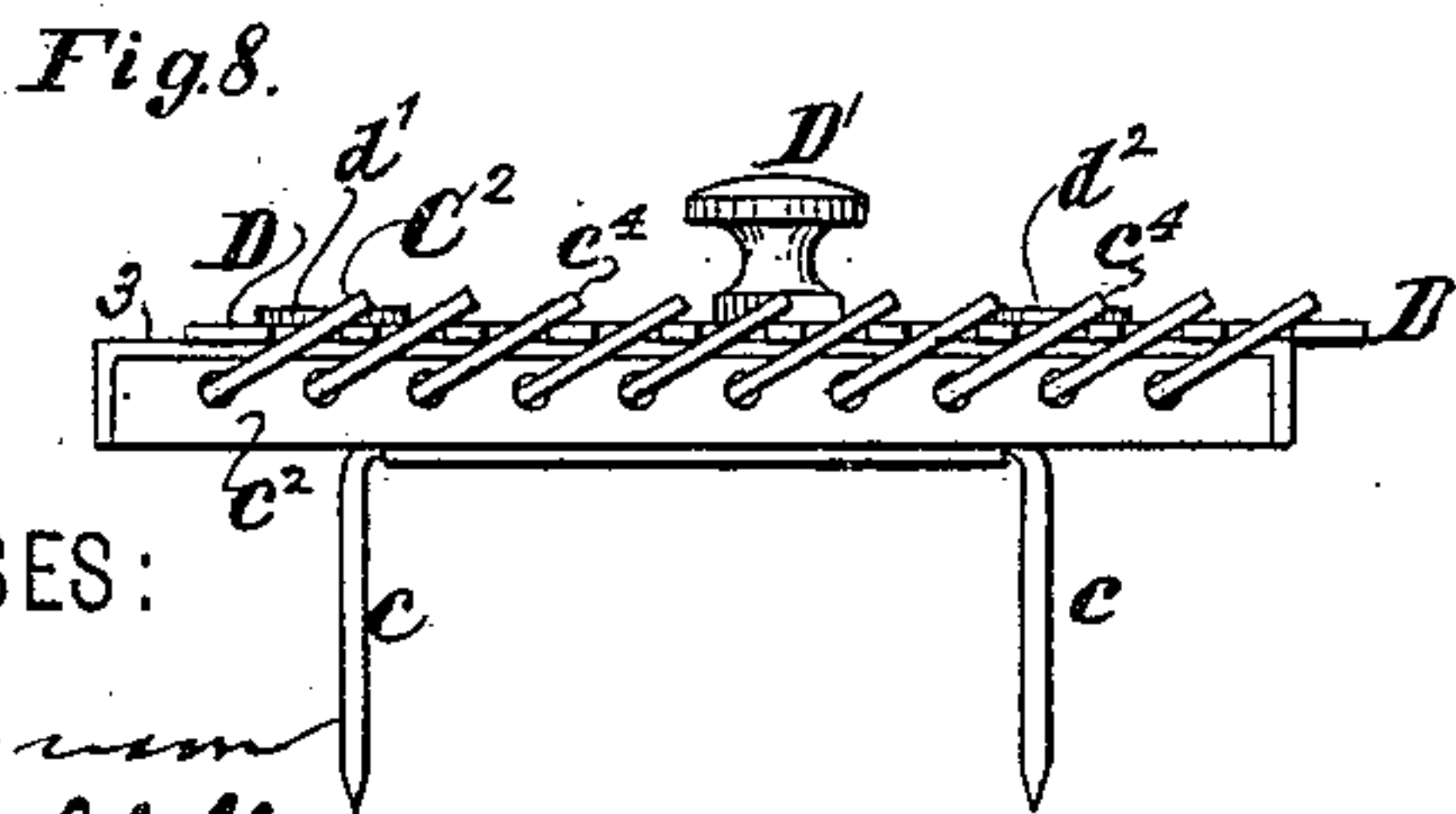
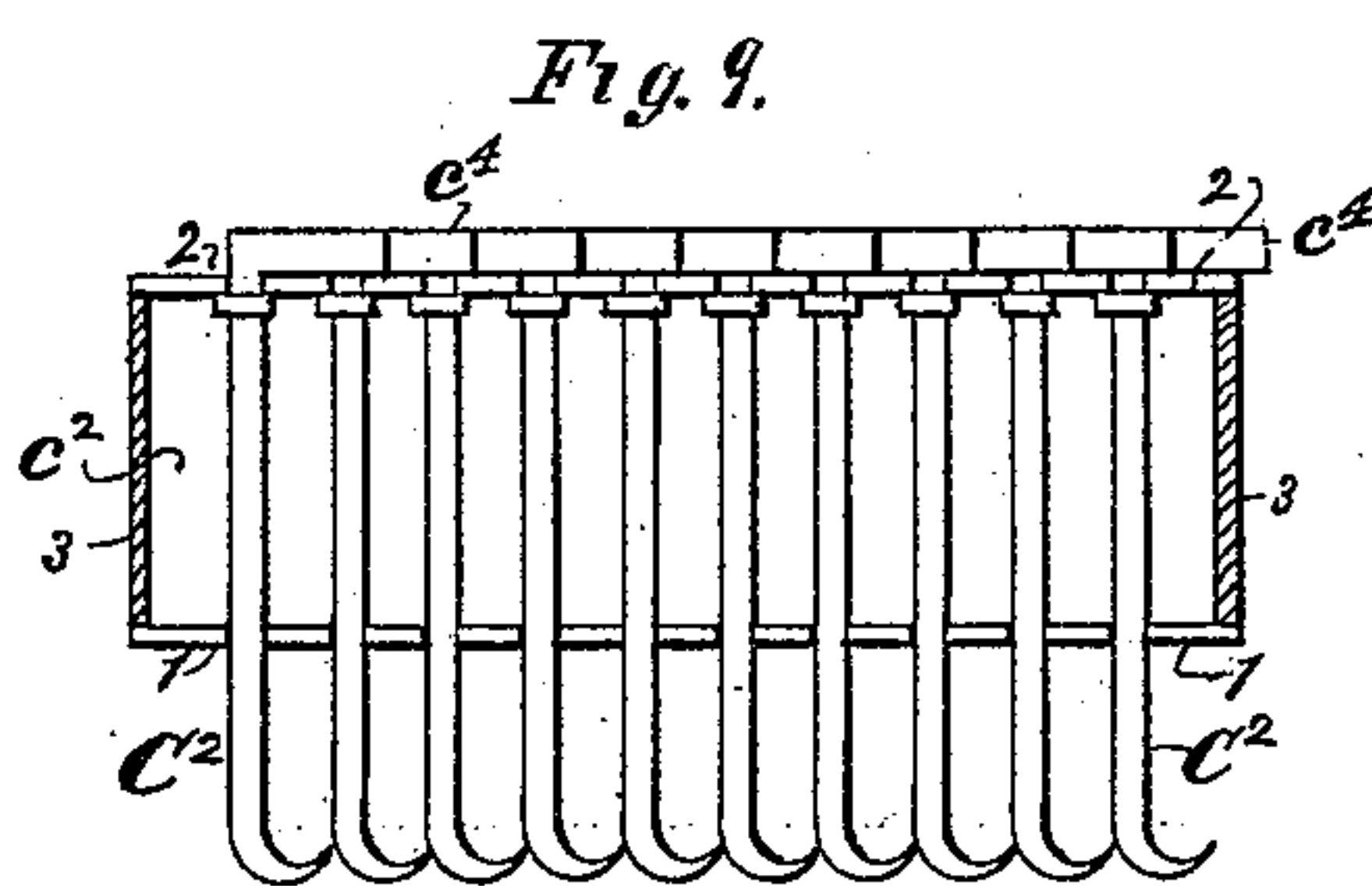
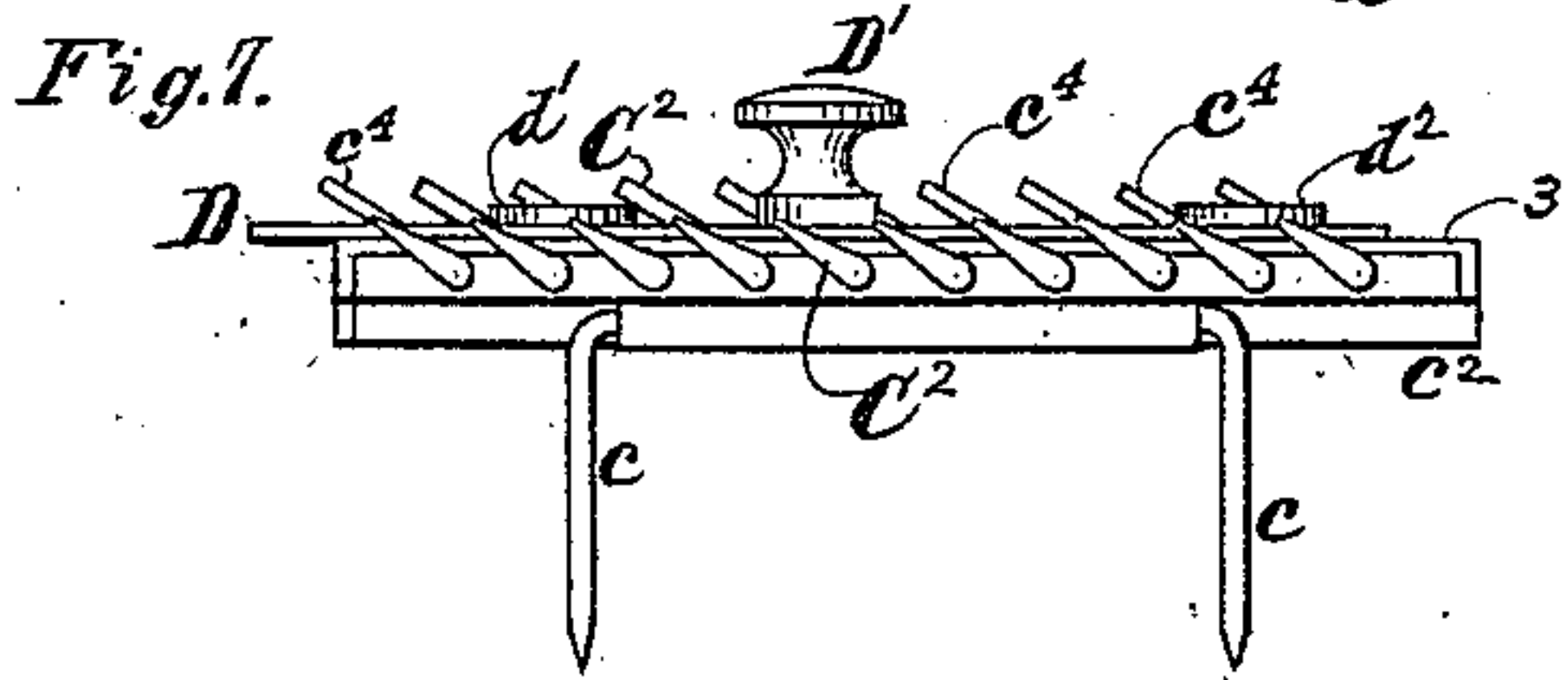
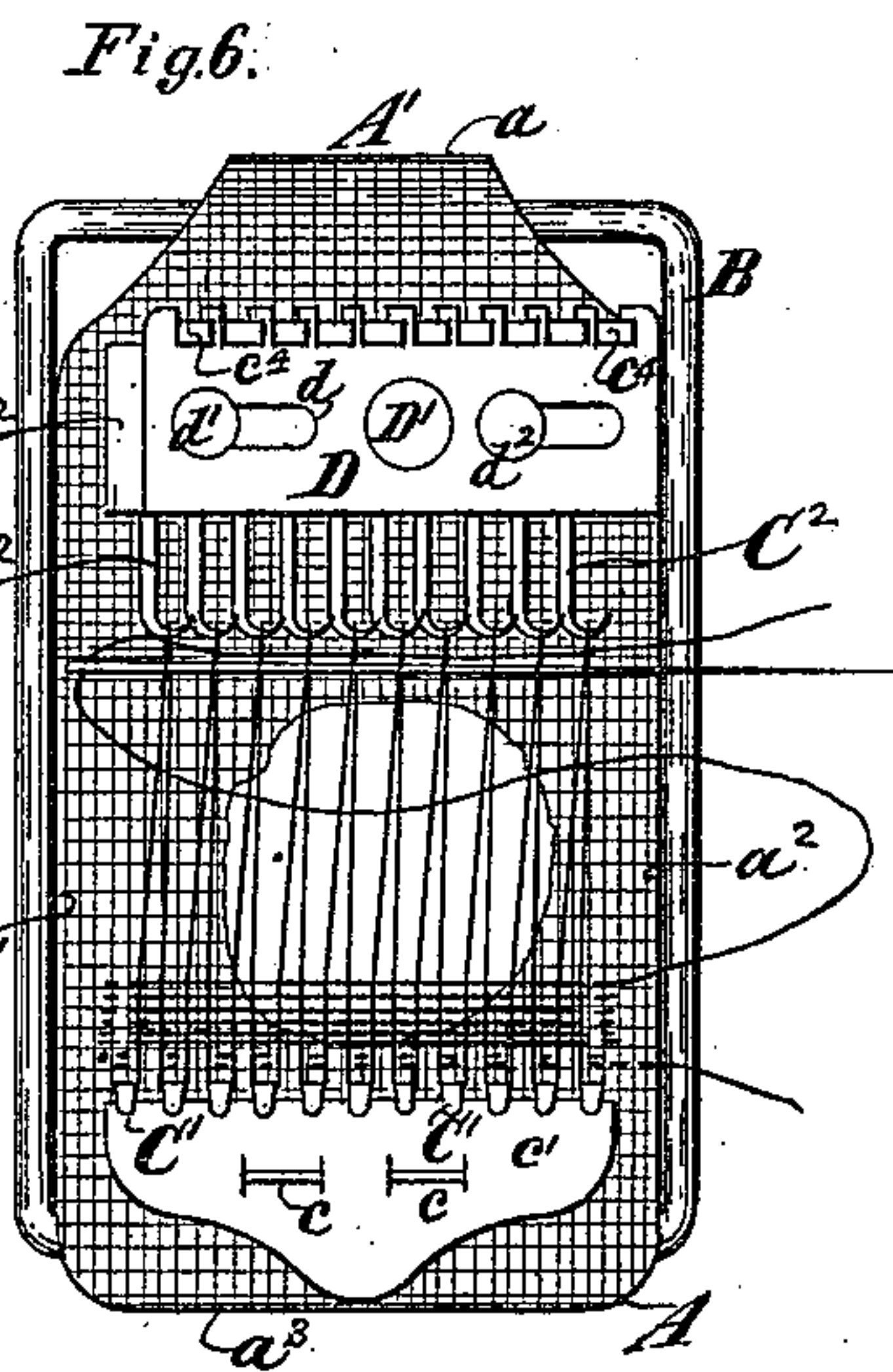
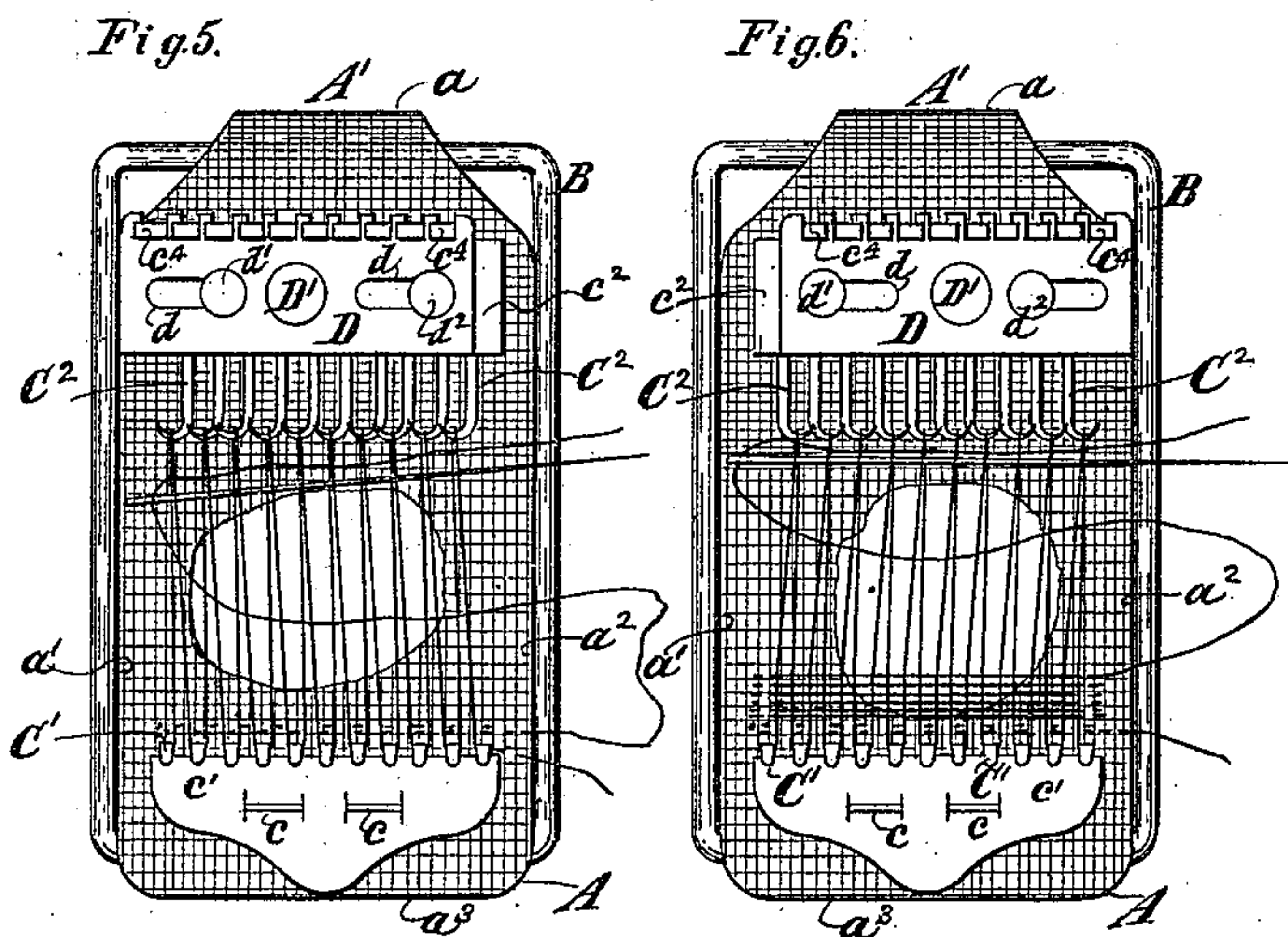
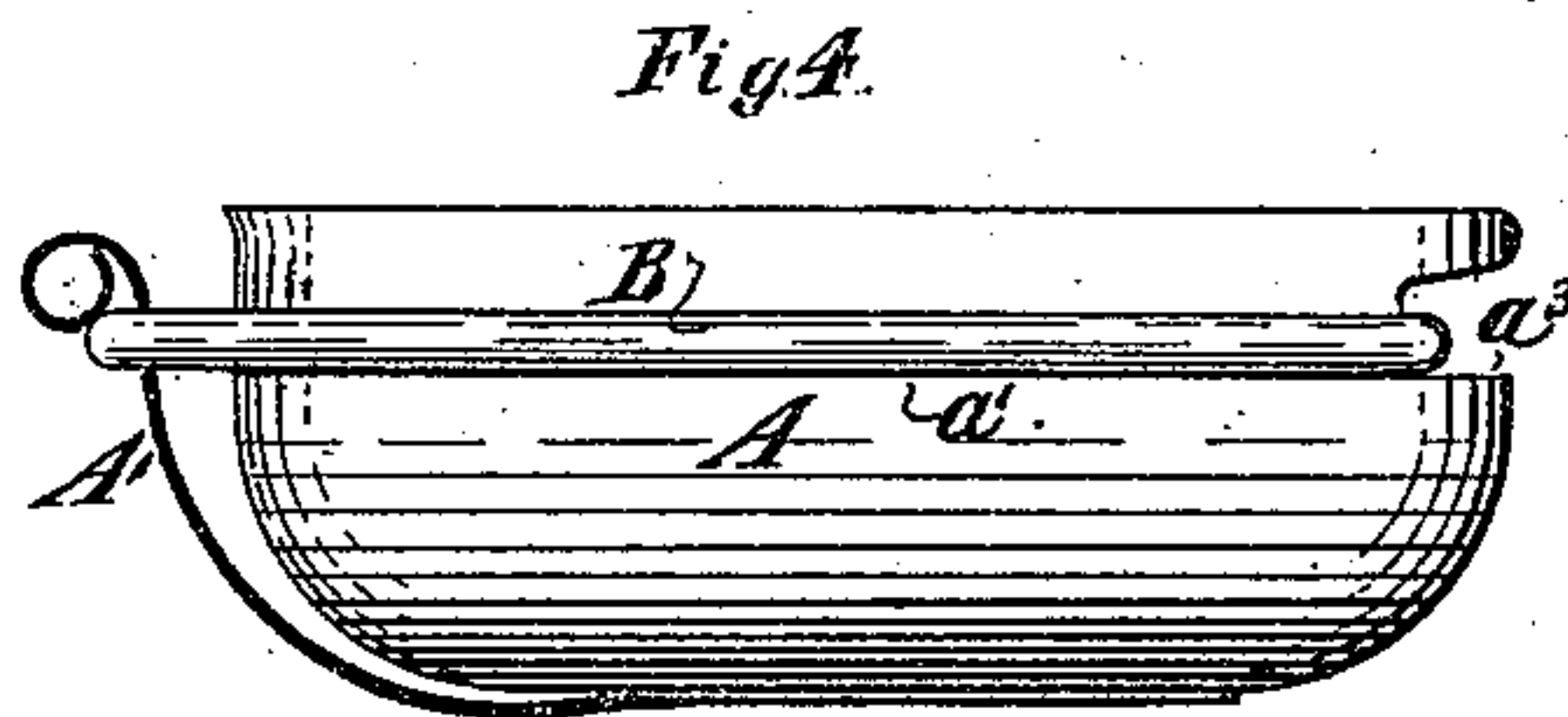
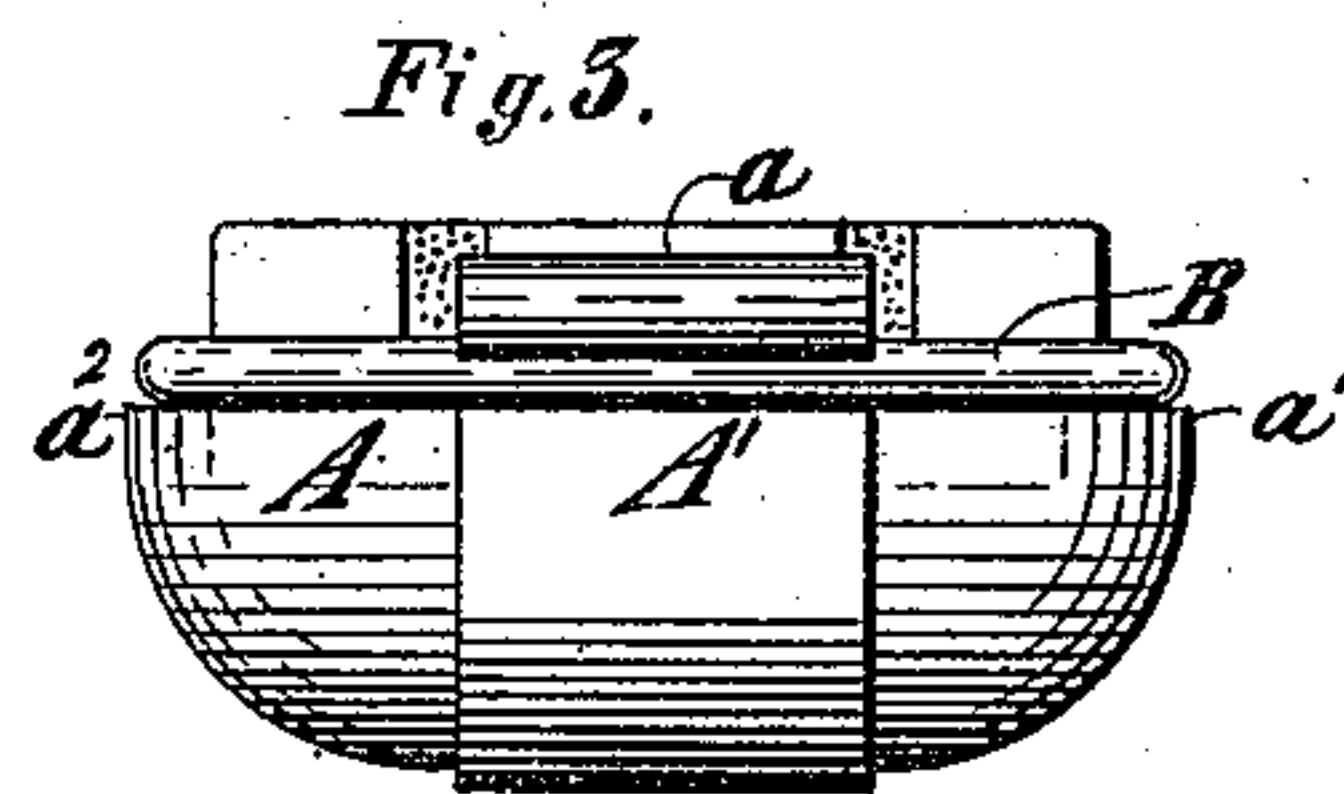
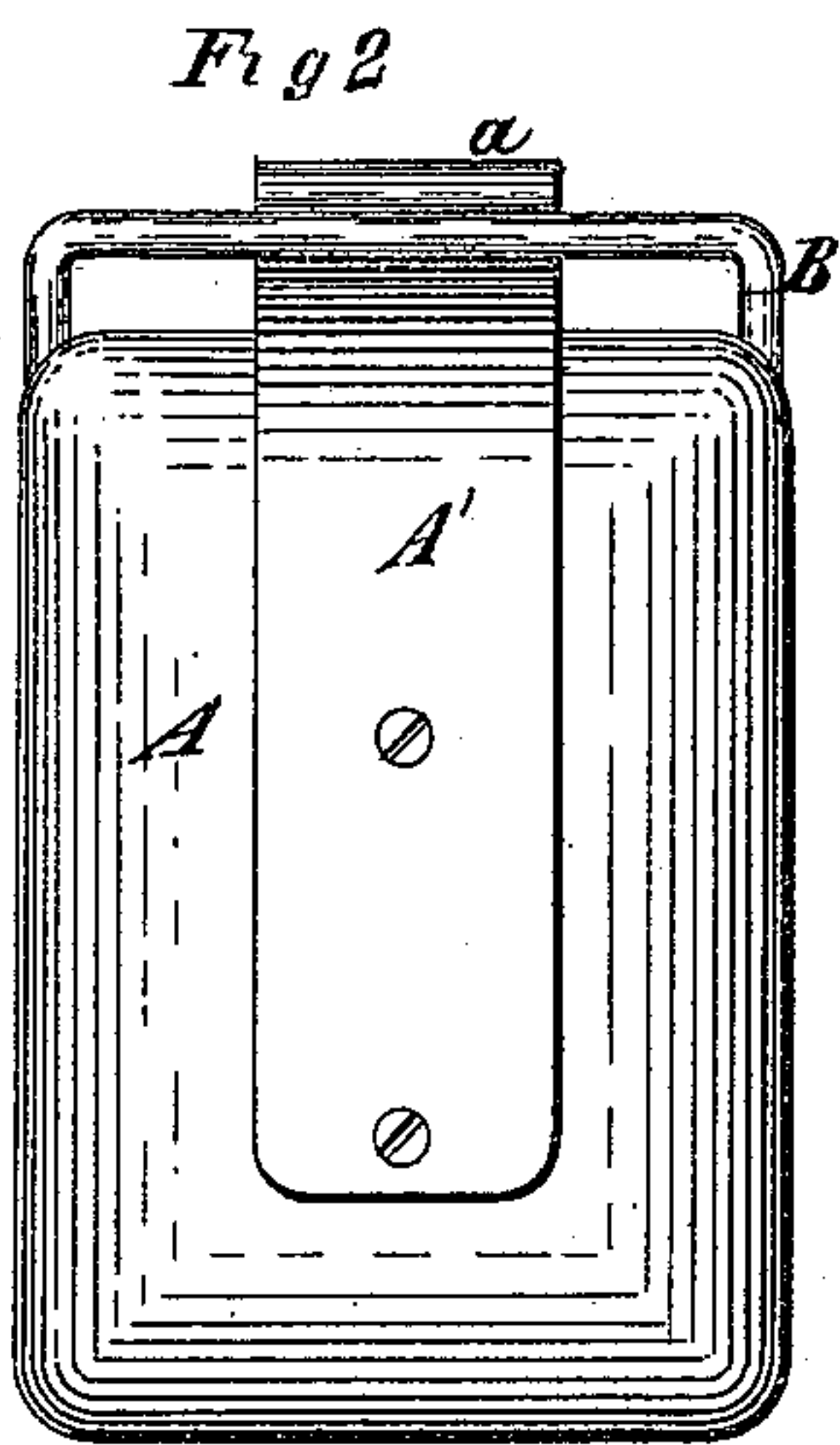
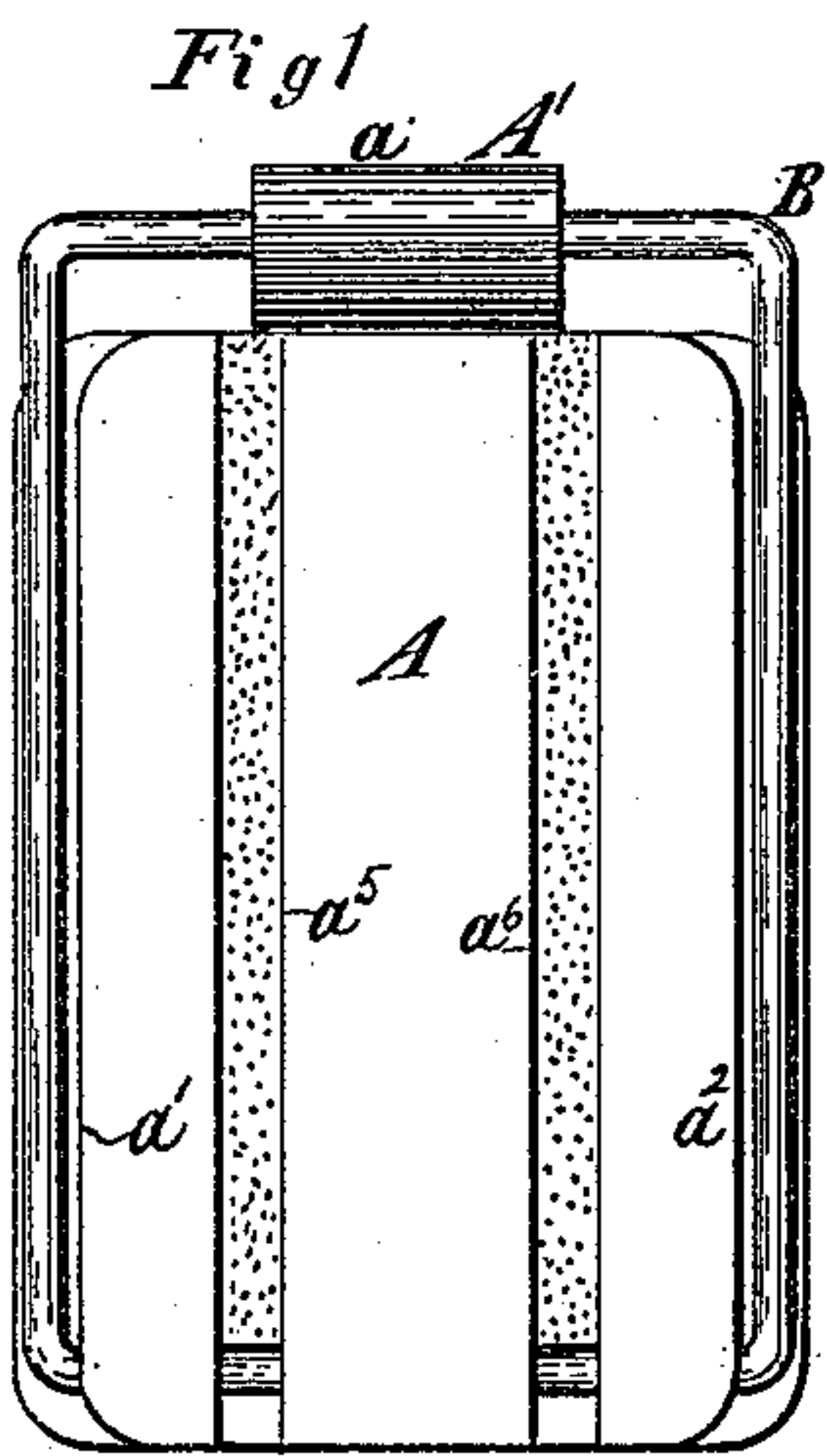


(No Model.)

C. H. SHAW.  
DARNING LAST.

No. 441,709.

Patented Dec. 2, 1890.



WITNESSES:

C. H. Shaw  
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# UNITED STATES PATENT OFFICE,

CHARLES H. SHAW, OF BROOKLYN, ASSIGNOR OF ONE-HALF TO ROBERT H. THOMPSON, OF NEW YORK, N. Y.

## DARNING-LAST.

SPECIFICATION forming part of Letters Patent No. 441,709, dated December 2, 1890.

Application filed November 9, 1889. Serial No. 329,813. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. SHAW, of Brooklyn, Kings county, and State of New York, have invented a certain new and useful Improvement in Darning-Blocks, of which the following is a specification.

This improvement relates to blocks employed for darning stockings and other articles.

I will describe a darning-block embodying my improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a front view of a darning-block embodying my improvement. Fig. 2 is a back view. Fig. 3 is an end view. Fig. 4 is a side view. Fig. 5 is a front view of the block covered with a fabric to be darned, and showing a number of hooks, which are used in connection with the block as adjusted into one position, and a needle traversing a number of loops of thread extending from the hooks. Fig. 6 is a similar view showing the hooks adjusted into the reverse position and a needle traversing a number of loops of thread extending from the hooks. Fig. 7 is an enlarged end view of a series of movable hooks and the appurtenances thereof. Fig. 8 is a view of the opposite end of these parts. Fig. 9 is a front view of the hooks and a box in which they are journaled, with the front of the box and certain other parts removed.

Similar letters of reference designate corresponding parts in all the figures.

A designates a block, which will preferably be made of wood. At the front portion of its two sides it is provided with shoulders or rabbets  $a'$   $a^2$ , at one end with a groove  $a^3$ , and at the other end with a spring  $A'$ .

B designates a frame, which may most advantageously be made of metal. As here shown, it is of rectangular form to conform to the shape of the block, which in the present instance is made of rectangular form. The sides of this frame fit against the shoulders or rabbets  $a'$   $a^2$  of the block. One end portion coacts with the groove  $a^3$  of the block and the other end portion impinges against the spring  $A'$ . The purpose of this frame B is to temporarily fasten a portion of a stocking or any

other fabric to the block while extended over the front of the block.

The spring  $A'$  is shown as consisting of a strip of metal fastened to the back of the block and extending across one end of the block, it being bent away from the end of the block, so that its extremity will be free to move toward and away from the end of the block. The resilience of the spring tends to move its free extremity away from the end of the block. At the free end of the spring is a catch or projection  $a$ , which is forward of the frame B when the frame is in place, and therefore, in combination with the groove  $a^3$  at the opposite end of the block, will prevent the frame from being moved off the block accidentally.

To secure a fabric, the frame B is first removed from the block by bending the free extremity of the spring  $A'$  inward to allow the adjacent portion of the frame B to pass the projection  $a$  of the spring, or the whole frame is moved in such a direction as to force the free extremity of the spring toward the opposite end of the block and is moved sufficiently far to disengage the opposite portion of the frame from the groove  $a^3$  of the block. After the frame shall have been moved in either of the ways just indicated it may be moved forwardly off the block. Having removed the frame, the fabric is spread over the face of the block with the portion requiring darning across the front of the block. Then the frame is reapplied to the block and serves to fasten the fabric to the block. The frame may be reapplied by inserting one of its end portions into the groove  $a^3$ , with the fabric between it and the groove, and then slipping the opposite end portion past the projection  $a$  of the spring  $A'$ , or the frame may be reapplied, if preferred, by placing one of its end portions behind the projection  $a$  of the spring and then moving it in such direction as to force the free extremity of the frame toward the opposite end of the block sufficiently far to enable the other end portion of the frame to pass beyond the face of the block to a plane opposite the groove  $a^3$ , whereupon the pressure against the spring will be relaxed and the latter allowed to move



the frame in such direction that the frame will enter the said groove  $a^3$ .

The front of the block is shown as provided with grooves  $a^5 a^6$ , in which are fitted strips of soft material—such, for instance, as felt. The object of inserting soft material is to afford facility for the insertion of pins employed to secure to the block the devices which are employed in connection with the block in the operation of darning.

$C' C^2$  designate two series of hooks which are used upon the face of the block after the fabric is secured thereto. The hooks  $C^2$  are movable. The hooks  $C'$  need not be movable. The hooks  $C'$  are shown as formed upon a plate  $c'$ , having pivotally secured to it pins  $c$ , which are inserted through the fabric into the strips which fill the grooves  $a^5 a^6$  of the block. The hooks  $C^2$  are pivotally connected to a support, here shown as consisting of a box  $c^2$ , having its longitudinal edges 1 2 turned upward, or, in other words, forward, and provided with holes or notches in which the shanks of the hooks  $C^2$  are supported, so as to be free to oscillate. Across the front of this box a plate 3 extends, and, as here shown, this plate has its ends bent backward to close the ends of the box  $c^2$ . The plate may be secured to the box by having its ends united therewith in any suitable manner—as, for instance, by soldering. When the bearings for the shanks of the hooks  $C^2$  are made in the form of notches, the plate 3 will serve to retain the hooks in place. Those extremities of the shanks of the hooks which are opposite the hooks themselves are turned forward, so as to form arms  $c^4$ , and these arms in the present instance enter openings in a plate D, which is free to slide lengthwise of the box  $c^2$  and its plate 3. The openings of the plate D, which receive the arms  $c^4$ , are here shown as made in the form of notches in the edge of said plate. The plate D is guided in its movements and fastened to the box  $c^2$  in the present instance by being provided with longitudinal slots  $d$ , through which pass pins  $d' d^2$ , which have on the outer ends heads extending over the edges of the slots, and at the inner ends are secured to the plate 3 of the box  $c^2$ . By sliding the plate D lengthwise it will oscillate the hooks  $C^2$  simultaneously. Preferably the plate D will be provided with a hand-piece  $D'$ , by which it may be manipulated. The box  $c^2$  has pivotally connected to it pins  $c$ , which may be inserted through the fabric to be darned and into the material filling the grooves  $a^5 a^6$ . The pins  $c$  of the plate  $c'$  and of the box  $c^2$ , when inserted, are turned toward one another, so as to be able to resist a pulling-strain exerted between the opposite hooks  $C' C^2$ . The hooks and their appurtenances will preferably be made of metal.

Assuming that the fabric has been secured and the hooks  $C' C^2$  applied to the block, I will now explain how the darning is to be performed. First, the needle containing the darning-thread is passed through the mate-

rial to be darned close to the first of the series of hooks  $C'$ . The thread is then passed around said hook to a hook  $C^2$  opposite the first hook  $C'$ , then around the opposite hook  $C^2$ , afterward around the second hook  $C'$ , and subsequently forward and backward around the hooks  $C^2 C'$ , until there shall be formed in the thread loops extending across that portion of the fabric which is to be darned. During the looping of the thread it will be found convenient to adjust the hooks  $C^2$  into their central position, or, in other words, so that they and their arms  $c^4$  extend directly forward. The needle will now be passed through the fabric close to the hooks  $C'$ , as in the ordinary method of darning. It will preferably be passed several times across the loops and fabric close to the hooks  $C'$  in this way. The looping of the threads and the securing of the loops to the fabric adjacent to the hooks  $C'$  having been completed, the hooks  $C^2$  are to be oscillated over into one of their extreme positions. As a result of this, alternate threads in the loops of the hooks will be elevated from the face of the block and fabric and the intermediate threads depressed or moved nearer to the fabric. After this the needle is passed, preferably eye first, behind the elevated threads of the loops, but above or in front of the depressed threads of the loops throughout the series, and after the needle has been drawn through, so as to lay a portion of thread between the raised and depressed threads of the loops, the portion of thread so laid through the loops will be worked down toward the hooks  $C'$  by the needle or otherwise. The thread having been laid through the loops, the needle will be passed through the fabric adjacent to the loops and the thread drawn through. Now the hooks  $C^2$  will be oscillated into their other extreme position, so as to elevate those threads of the loops which by the first oscillation of the hooks were depressed, and so as to depress those threads of the loops which at the first oscillation of the hooks were elevated. This having been done, the needle is again passed through the loops and a new portion of thread laid within the loops and worked down toward the hooks  $C'$ . The needle is then passed through the fabric again adjacent to the loops and the thread drawn through. The operations already described are repeated a sufficient number of times to weave or darn a fabric across the hole in the fabric to be mended and unite the newly-made fabric to the old. When the weaving shall have been completed close up to the hooks  $C^2$ , the needle will be passed one or more times across the loops and into the old fabric close to the hooks  $C^2$ . The frame may be disengaged from the block and the hooks  $C' C^2$  are now to be disengaged from the fabric. This may be done by taking hold of the outer edge of the plate  $c'$  and the outer edge of the plate D or of the box  $c^2$  and rocking the same upward upon the hooks as a center of motion to disengage the hooks



from the loops. If then the fabric be pulled or stretched out around the darning or weaving, the extremities of the loops will be drawn into the meshes of the old fabric and will be scarcely discernible.

The hooks C' may be dispensed with if during the operation of looping the needle is caused to engage the loop-thread with the fabric at points corresponding to the hooks C'.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a darning-block having a groove at one end and a movable catch at the other end, a rigid clamping-frame having one end portion engaging with the groove and an opposite end portion engaging with the catch, substantially as specified.

2. The combination of a darning-block having shoulders or rabbets at opposite sides, a groove at one end and a movable catch at the other end, a rigid clamping-frame having one end portion engaging with the groove and an opposite end portion engaging with the catch, substantially as specified.

3. The combination of a darning-block, a rigid frame or band for securing a fabric thereto, a spring-catch for holding the frame upon the block, a series of oscillating hooks attached to the face of the block, and means, substantially such as described, for oscillating the hooks simultaneously, substantially as specified.

4. The combination, with a darning-block, a frame for securing the fabric thereto, and means, substantially such as described, for holding the frame upon the block, of a series of oscillating hooks attached to the face of the block, and a plate or bar for oscillating these hooks simultaneously, substantially as specified.

5. The combination, with a darning-block, a frame or band for securing a fabric thereto, and mechanism, substantially such as described, for securing the frame to the block, of a series of oscillating hooks C<sup>2</sup>, having arms c<sup>4</sup>, and a plate or bar D engaging with the arms c<sup>4</sup> and serving as a means for oscillating the hooks simultaneously, substantially as specified.

6. The combination, with a darning-block, a frame or band for securing a fabric thereto, and mechanism, substantially such as described, for securing the frame to the block, of a series of oscillating hooks C<sup>2</sup>, having arms c<sup>4</sup>, a box c<sup>2</sup>, in which said hooks are journaled, a plate or bar engaging with the arms for oscillating the hooks simultaneously, and pins for securing the hooks to the block, substantially as specified.

CHARLES H. SHAW.

Witnesses:

S. O. EDMONDS,  
C. R. FERGUSON.