

No. 614,511.

Patented Nov. 22, 1898.

R. M. SPENCER.  
WINDOW SCREEN.

(Application filed Sept. 30, 1897.)

(No Model.)

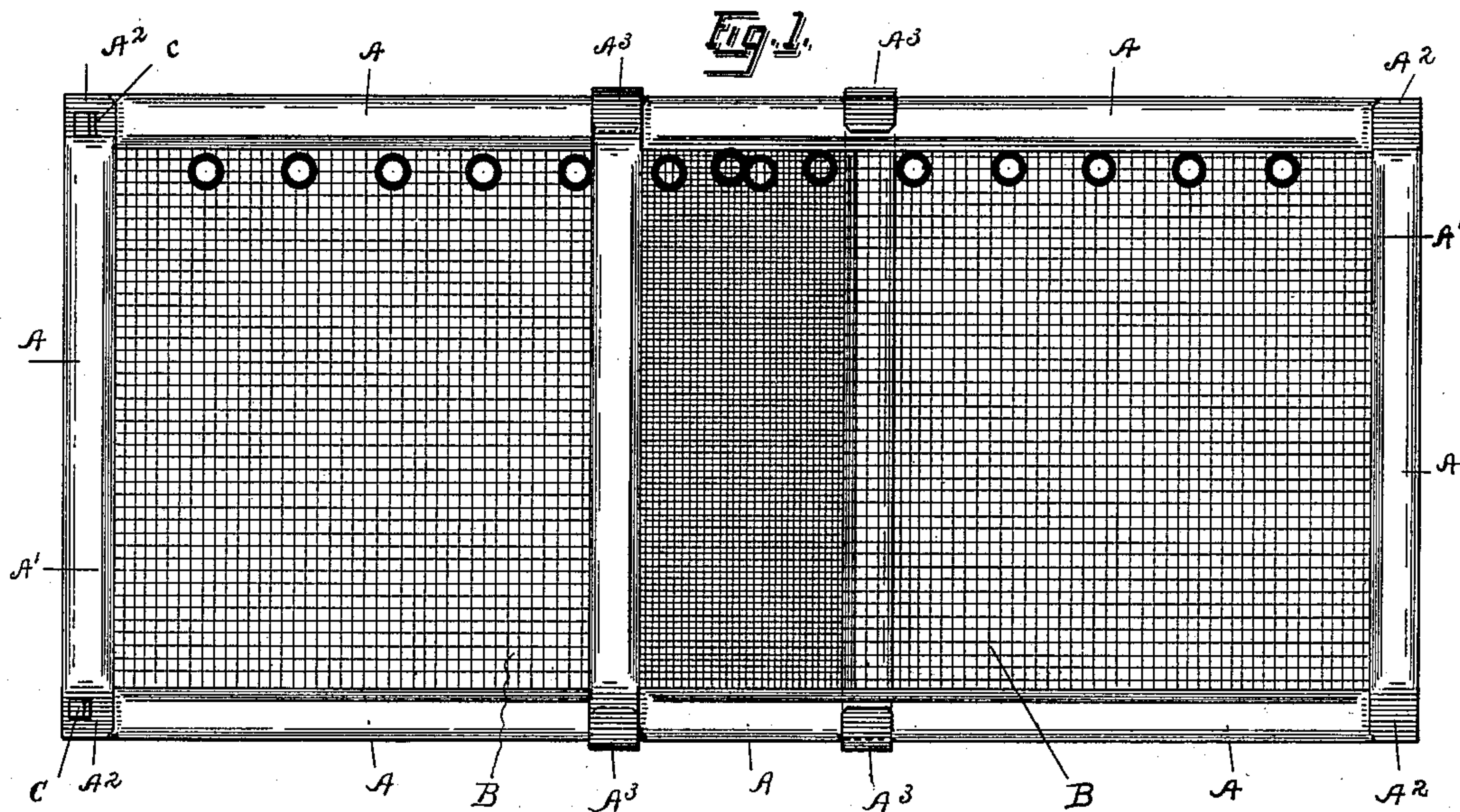


Fig. 5.

Fig. 6.

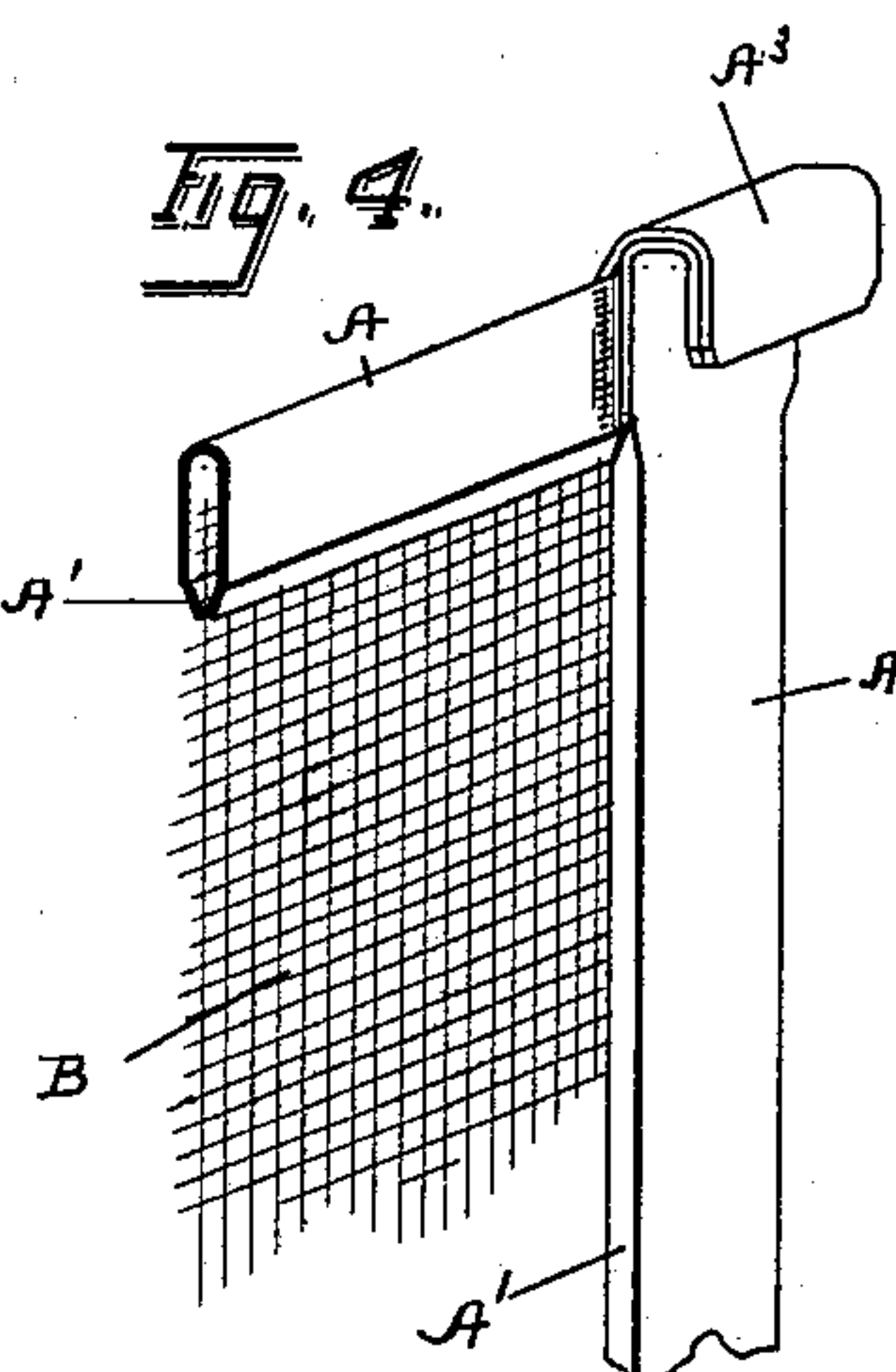
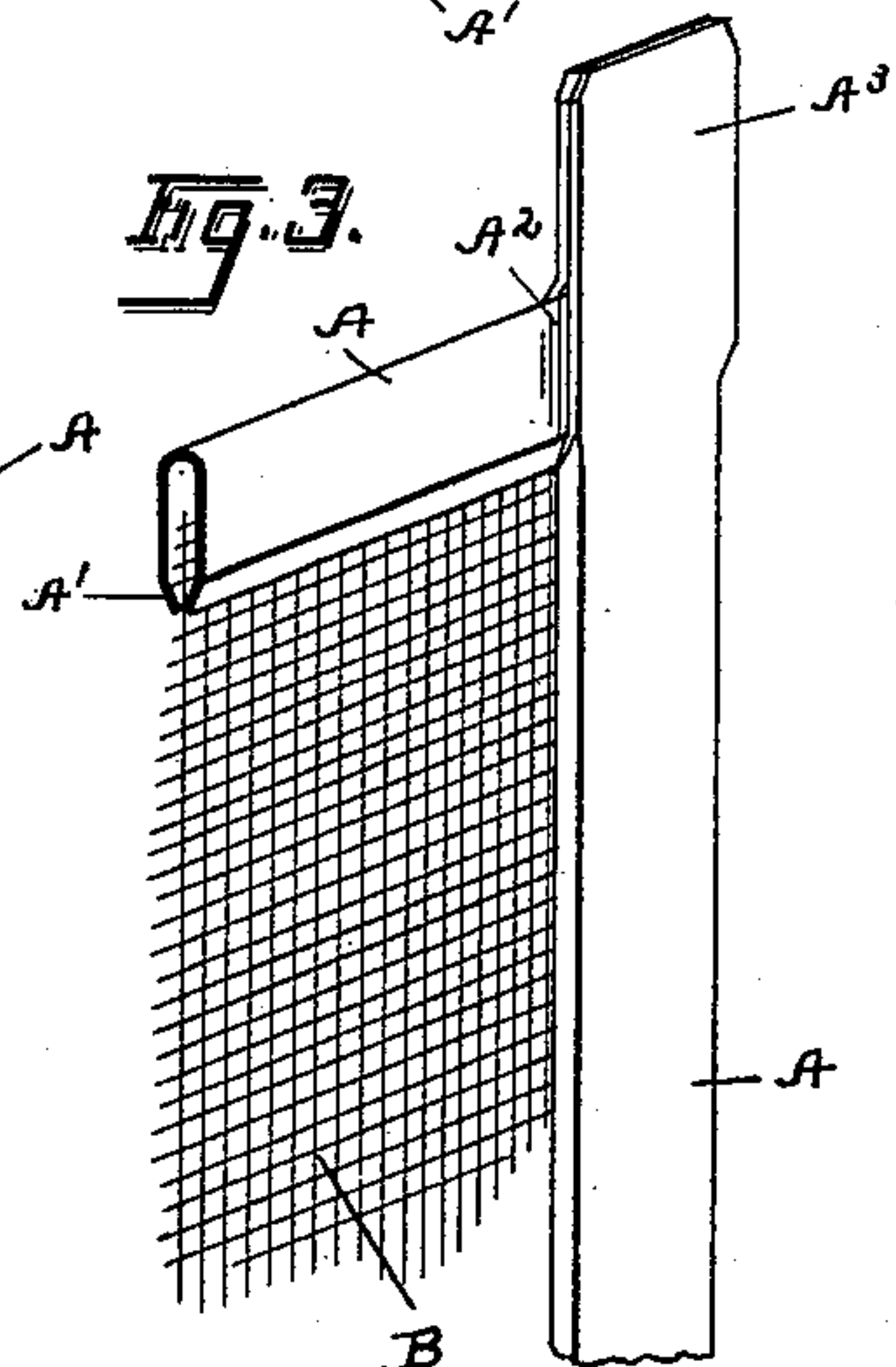
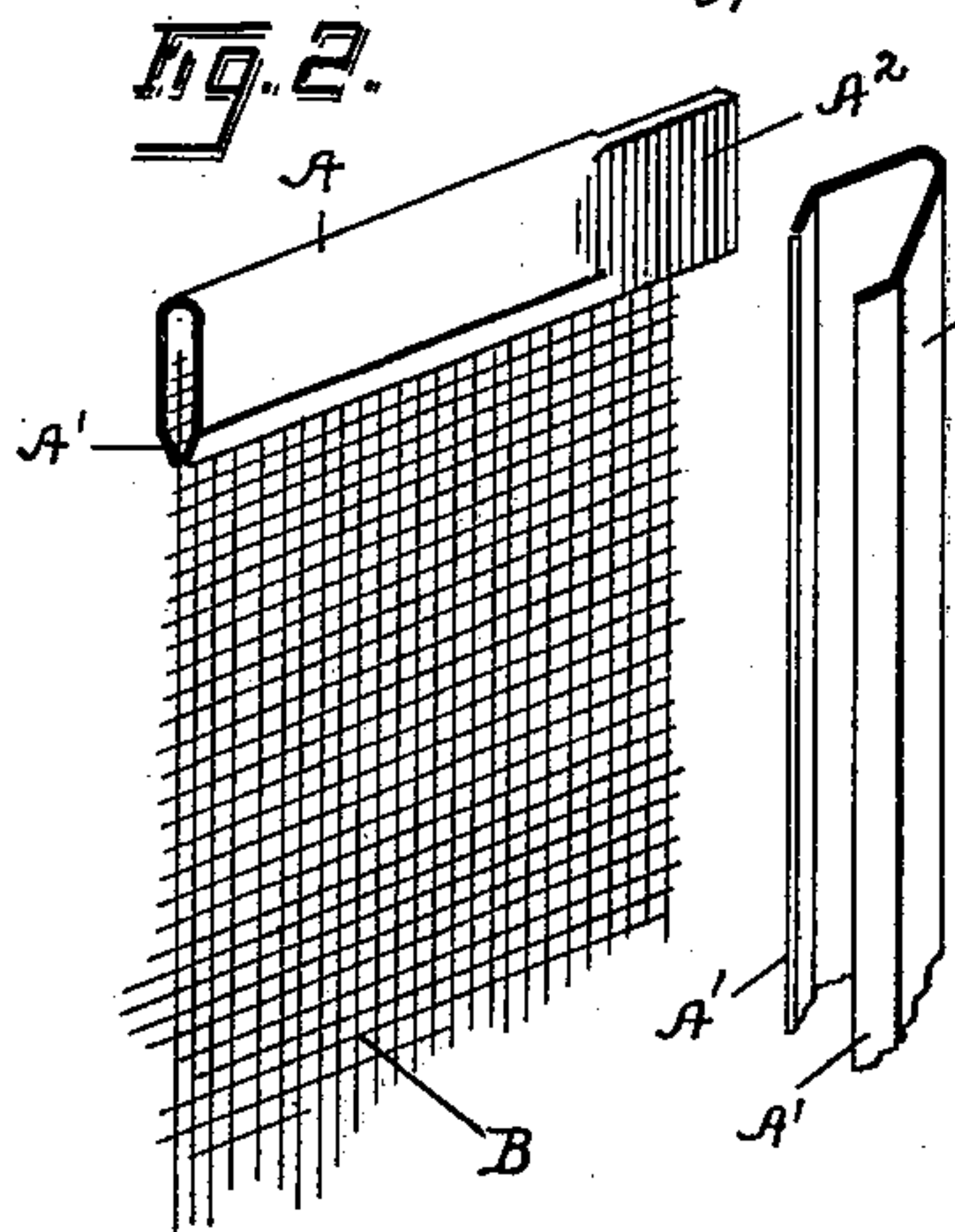
Fig. 7.

Fig. 8.

Fig. 2.

Fig. 3.

Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

RICHARD M. SPENCER, OF SAN FRANCISCO, CALIFORNIA.

## WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 614,511, dated November 22, 1898.

Application filed September 30, 1897. Serial No. 653,645. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD M. SPENCER, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Window-Screens; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in screens for windows and in the method of constructing the same.

The objects which this invention has in view are to cheapen and to simplify the construction of fly-screens and to make the frame as inconspicuous and as narrow as possible, to present a light appearance, and to overcome the obstruction to the light, which has been one of the serious objections to the fly-screens as heretofore constructed.

In the drawings, Figure 1 is a side elevation of the fly-screen constructed in accordance with this invention. Fig. 2 is a detail view showing the manner of constructing a corner of the frame, the parts being separated to more clearly show them. Fig. 3 is a detail view showing the corner formed by one of the meeting or sliding sides, upon which the sliding guides are formed, and showing the first step in forming the said guides. Fig. 4 is a detail view of the same as shown in Fig. 3, the sliding guide having been formed. Figs. 5, 6, 7, and 8 are detail views in section showing the successive steps employed in forming the sides or rails of the frame.

Heretofore these screens have been constructed on a frame composed of wood strips. The strips have necessitated joints being formed at the corners of more or less complicated construction. They have in the very simplest forms necessitated an amount of manual labor which has raised the cost of the article quite considerably. The construction in wood has further necessitated, particularly in the form of screen known as "sliding" screen, more or less complicated construction to provide for the one part sliding on the other, or have required considerable fitting and adjustment when other devices have been added to the parts of the screen to guide them

in their sliding action. It is to overcome these objections that the construction shown in the drawings and the manner of constructing the same have been designed.

The rails or bars A, which constitute the frame for holding the screen-cloth B, are constructed from sheet metal of narrow width, as shown in Fig. 5 of the drawings. The strips are provided in the first step of the operation with the slightly-turned edges A'. These edges may be turned in many known ways, but that most preferred by me is to pass the strips between jaws which will turn the edges as the strip is passed between them. When the edges A' have been formed, the strip is further bent in the center to the form shown in Fig. 7 of the drawings, in which form the edges A' approach each other, but do not join.

The metal strips may have been at any time during or previous to the operation described cut to the desired lengths, or that operation may have been omitted until the form shown in Fig. 7 has been attained.

When the strips have been cut to the desired lengths, the cloth B is secured in them after having been cut to the desired size. The cloth B is inserted between the flared edges A' of the strip, as shown in Fig. 7. When in this position, the sides of the strip, with the edges A', are pressed together closely, compelling the edges A' to jam upon the screen-cloth B with a sufficient pressure to prevent the cloth from being readily withdrawn from their grasp. The ends of the rails A are now flattened, as shown at A<sup>2</sup> in Fig. 2. These ends may be rigidly maintained in their flattened form by a rivet driven through them or a drop of solder joining them. When these ends A<sup>2</sup> are thus compressed, it will be found that the screen-cloth B is secured firmly in the rail A. Having provided the upper and lower horizontal edges of the cloth B with the rails A, as described, the perpendicular rails are then placed in position, in doing which the edges A' of the perpendicular rails are caused to extend over the compressed ends A<sup>2</sup> of the horizontal rails in the same manner as that in which they enfold the screen-cloth, as shown in Figs. 2 and 3. In this operation the operation is repeated upon the perpendicular rails substantially



as described with reference to the horizontal rails, consisting in compressing the metal forming the rails to drive the edges A' together to embrace the screen-cloth and in  
 5 compressing the ends which enfold the ends A<sup>2</sup> of the horizontal rails. At the point of junction between the perpendicular and horizontal rails the metal is secured together by being soldered, which method is preferred  
 10 because of its neatness of finish. It will now be observed that I have a complete frame about the screen-cloth B, which is secured therein rigidly at the four corners of the frame and only by the pressure of the turned  
 15 edges A' between the corners or along the sides of the rail.

The grasp or detention of the edges A' upon the screen-cloth I have found sufficient to maintain the cloth in position for all practical  
 20 purposes, and by manipulating the material as described I have avoided the necessity of using the number of separate fastening devices for securing the cloth to the side of the screen, and also have avoided the production  
 25 by unskilled labor of unequaled tensions on the cloth.

To form the sliding screen, it becomes necessary to form guides rigidly attached to the one frame and enfolding the other. This has  
 30 been performed in this invention by constructing the perpendicular rails which are designed to form the meeting or central rails of the sliding screen of greater length than the other perpendicular or end rails, as shown  
 35 in Fig. 3. When the metal of these rails has been pressed firmly together, it is secured by being soldered to form a single thickness. This extended metal is now bent over a form to produce at either end of this rail the hook  
 40 or guide A<sup>3</sup>. (Shown in Fig. 4 of the drawings.) Both hooks are extended from the same side of the frame to which they belong. When both frames have been thus provided with the hooks A<sup>3</sup>, the two frames are joined by  
 45 extending the outer ends between the hooks and lengthwise through the hooks, as shown in Fig. 1. The two frames, it will now be found,

may be extended or contracted lengthwise, the hooks A<sup>3</sup> acting as guides.

To prevent the frames from becoming separated when contracted, the frame is provided  
 50 with the stops C, which are set outward through or on the corners of the one frame into the path of the hooks of the other frame to prevent their passing beyond the stops.  
 55 In this manner the two frames are prevented from becoming separated.

Having thus described this invention, what is claimed is—

1. In a two-part frame, a meeting strip extending beyond the body of the frame, said  
 60 extending portion being formed into a hook; substantially as described.

2. In a two-part frame, a meeting strip upon one part, and on the side of said part  
 65 which does not lie against the second part, said meeting strip extending beyond the body of the frame and being bent over the edge of the first part to form a hook adapted to engage the second part; substantially as de-  
 70 scribed.

3. In a two-part frame, a meeting strip embracing the body portion of one part, said  
 75 meeting strip having its side lying away from the second part extending beyond the said body portion, the extending portion being bent over the edge of the first frame part and formed into a hook adapted to engage the second frame part; substantially as de-  
 80 scribed.

4. In a two-part frame, a meeting strip embracing the body portion of one part, said  
 85 meeting strip having both its sides extending beyond the said body portion, the extending portions being formed into a hook adapted to engage the second frame part; substantially as described.

In testimony whereof I have hereunto set my hand this 24th day of September, 1897.

RICHARD M. SPENCER.

Witnesses:

BALDWIN VALE,  
 MAYNARD HAWES.