G. W. NEWGASS.

FRAME FOR FABRIC SCREENS.

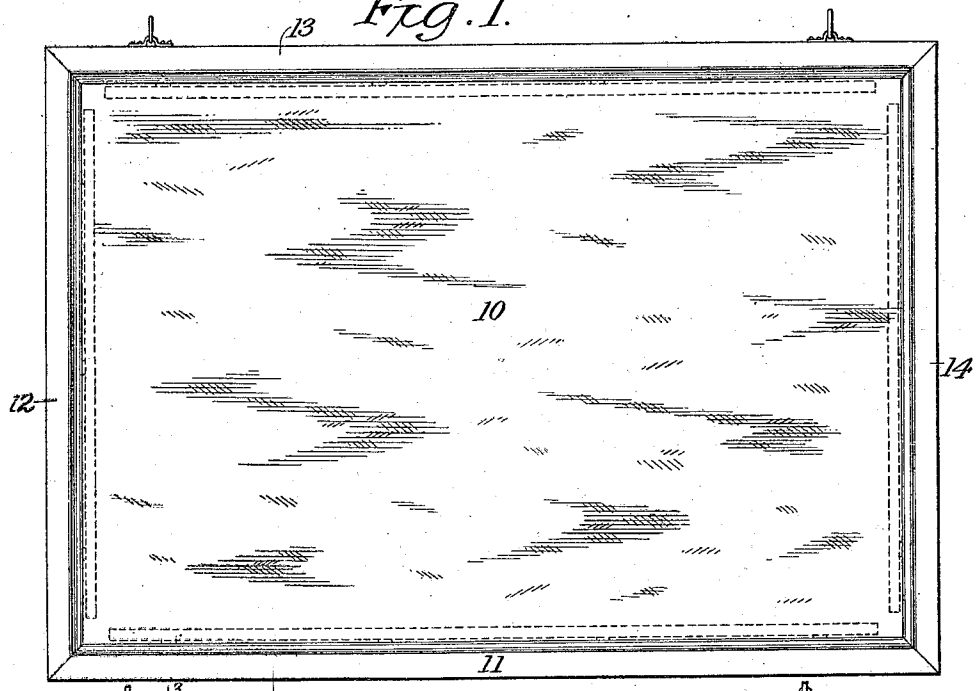
APPLICATION FILED AUG. 3, 1916.

1,277,248.

Patented Aug. 27, 1918.

3 SHEETS—SHEET 1.

Fig. 1.



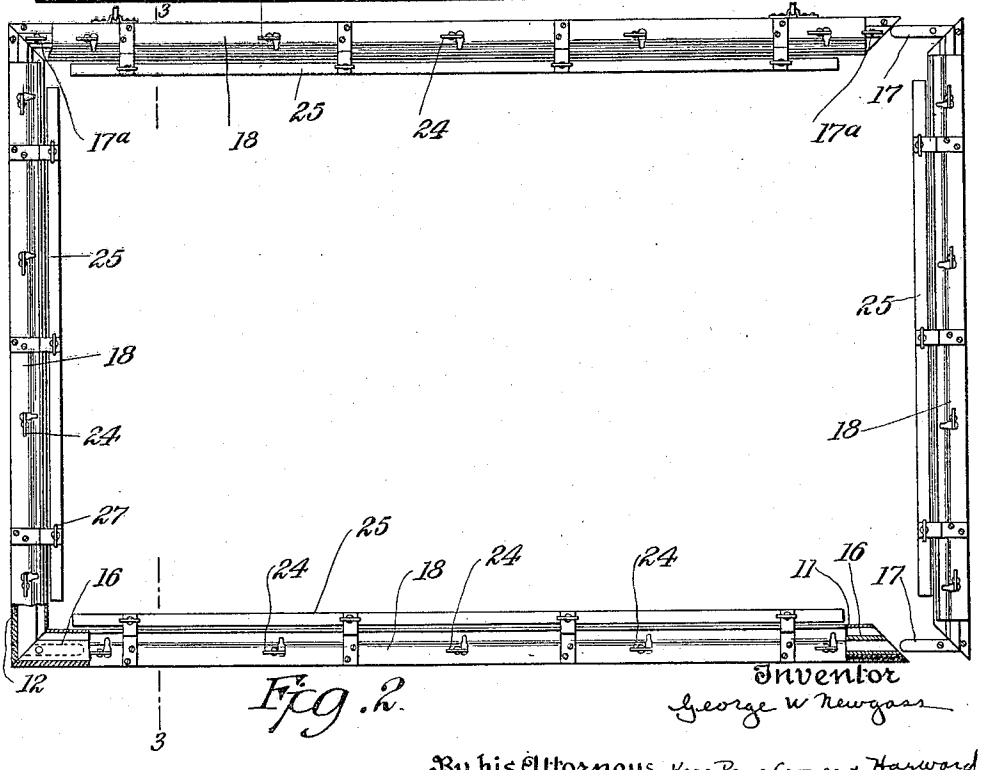


Fig. 2.

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3 SHEETS—SHEET 2.

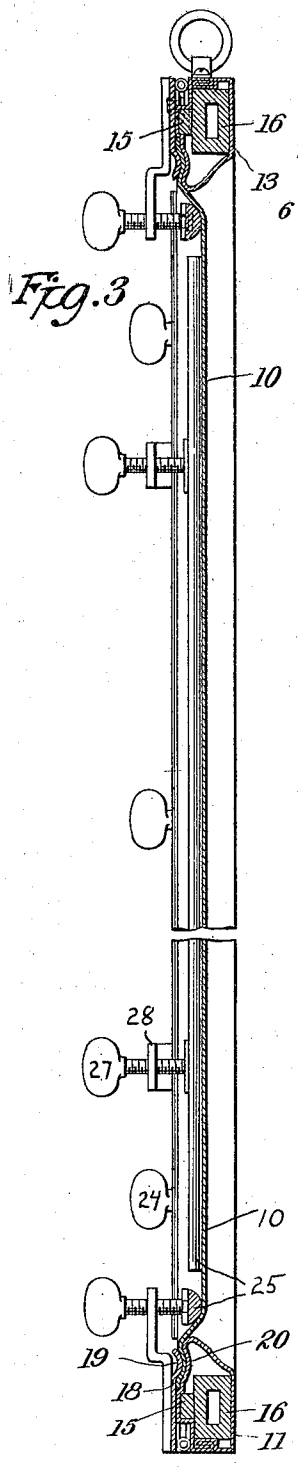


Fig. 3

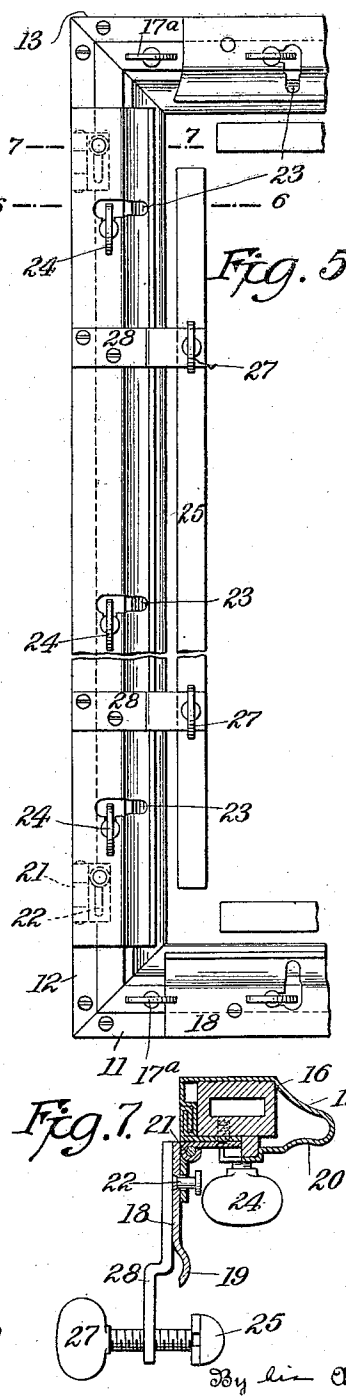


Fig. 5

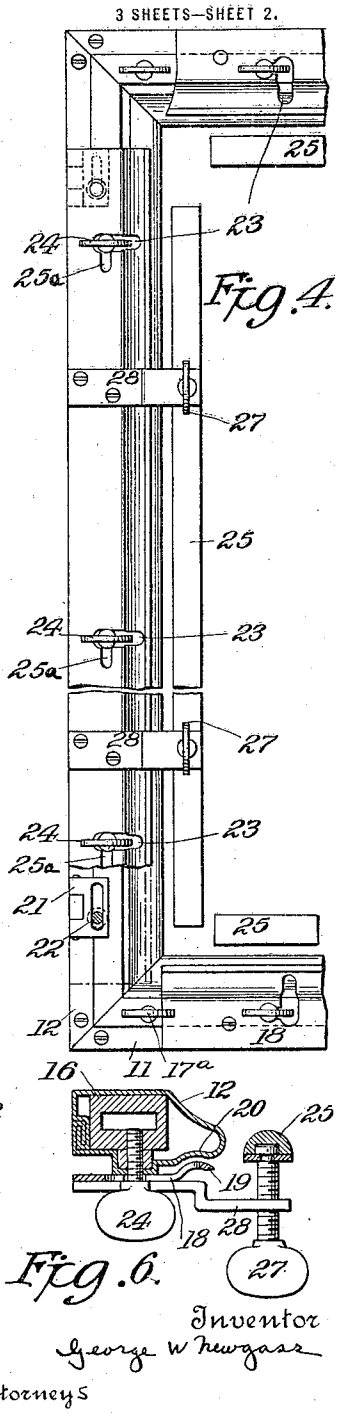


Fig. 4.

Fig. 7.

Fig. 6.

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3 SHEETS—SHEET 3.

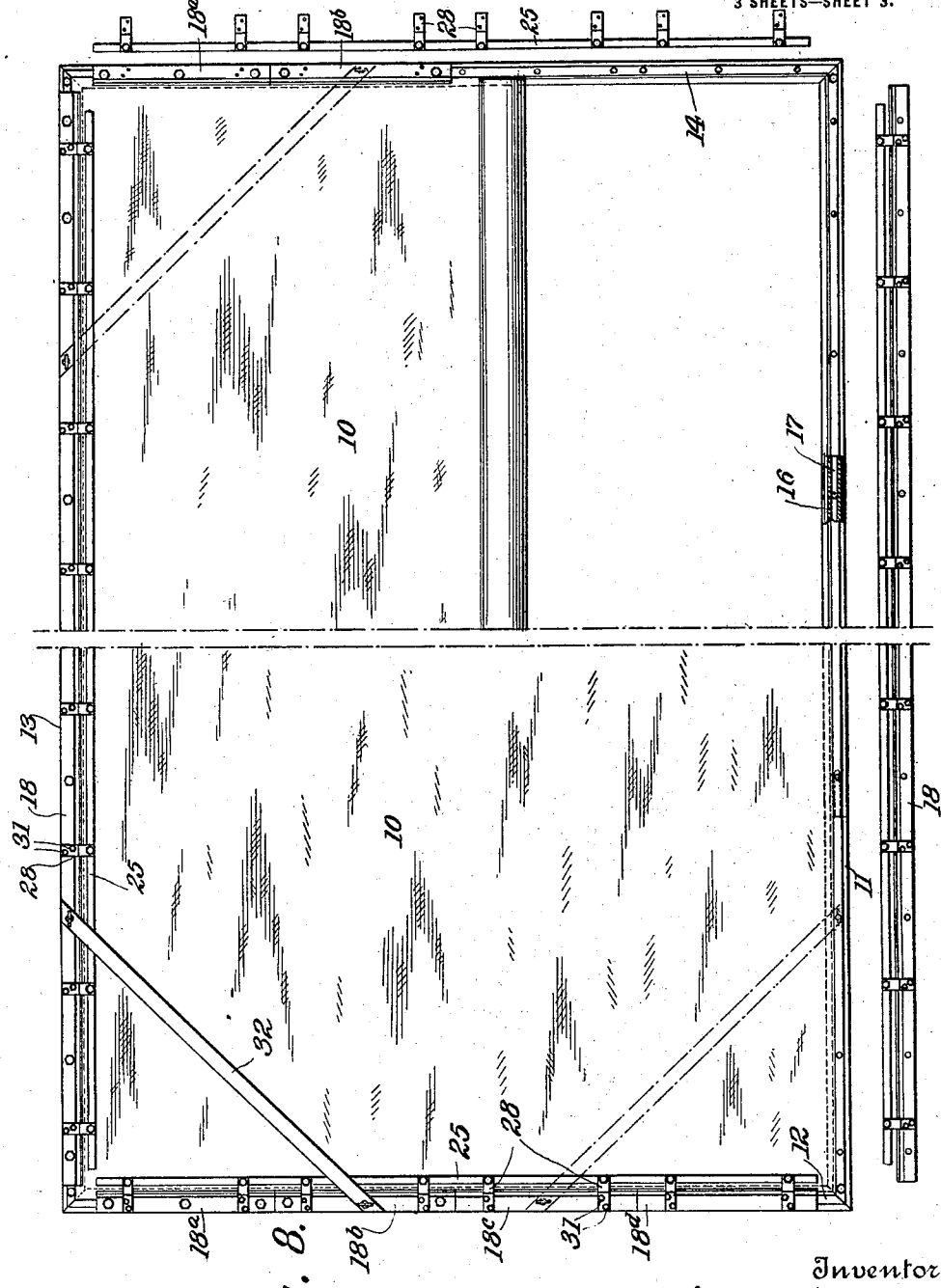


Fig. 8.

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UNITED STATES PATENT OFFICE.

GEORGE W. NEWGASS, OF NEW YORK, N. Y.

FRAME FOR FABRIC SCREENS.

1,277,248. Specification of Letters Patent. Patented Aug. 27, 1918.

Application filed August 3, 1916. Serial No. 112,897.

To all whom it may concern:

Be it known that I, GEORGE W. NEWGASS, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Frames for Fabric Screens, of which the following is a full, clear, and exact description.

This invention relates to improvements in stretching frames for fabric screens and is particularly adapted for use in connection with moving picture screens.

The objects of this invention reside in the provision of a frame which is collapsible and readily portable. The frame is made in sections and these sections are provided with a means for securing a screen in place and for thereafter stretching the same. My invention contemplates the use of a screen securing means which obviates the use of tacks or nails which would mutilate and otherwise damage the screen. The operating parts are so arranged that they are not likely to become detached and lost and the construction is exceedingly simple so that unskilled persons can assemble and disassemble the frame and properly apply a screen thereto without the use of tools.

Other objects of the invention will be pointed out in detail in the accompanying specification, shown in the drawings and more particularly set forth in the appended claims.

In the drawings:

Figure 1 shows a front view of the frame with the screen applied and stretched.

Fig. 2 is a rear view of the frame and shows the screen clamping and stretching devices.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2 and with the screen clamped and stretched.

Fig. 4 is a detail view of the frame and shows the clamping members released and ready to be swung upward to receive the screen.

Fig. 5 is a detail view showing the clamping members in the position which they occupy when the screen is in place and clamped between the clamping members and the frame.

Fig. 6 is a detail sectional view taken on line 6—6 of Fig. 5.

Fig. 7 is a detail sectional view taken on line 7—7 of Fig. 5, but with the clamping members swung down about their hinge pivot. The parts are swung to this position preparatory to clamping the screen on the frame.

Fig. 8 shows my invention applied to a large sized screen. In this figure the left hand half shows the screen completely applied ready for the bottom clamping plate and the right hand half of the figure shows the screen being applied to the frame.

In more detail in the drawing 10 is the fabric sheet, or as I will term it, screen, and 11, 12, 13 and 14 are frame members. These members may be of wood, but preferably they are of sheet steel rolled to shape and interlocked as shown in Figs. 6 and 7. Each frame member carries an interior stiffening and bolt receiving bar 15. Members 11 and 13 also carry socket members 16 adapted to receive angle shaped tongues 17 which are securely fastened to members 12 and 14 as shown in Fig. 2. To hold the frame members together after the tongues are in place in the sockets thumb screws 17ª are provided. These extend through the sheet metal frame, the stiffening bars and the socket members and bear against the tongues within the socket members. The construction just described enables the frame to be quickly knocked down or assembled, thus making the device readily portable.

Screen clamping devices.

In order to obviate the use of tacks and similar fastening devices which perforate and mutilate the fabric screen, I provide clamping plates 18 which are provided with curved lip portions 19 which are complementary to the grooves 20 in the frame members. The clamping plates 18 are hinged to the frame members by means of hinges 21. In order that the plates 18 may be shifted endwise relatively to the frame members (for a purpose to be hereafter explained), the said plates have a pin and slot connection with the hinges 20 as shown at 22 in Figs. 4, 5 and 7.

When it is desired to clamp a screen to the frame, the clamping plates are swung about their hinges away from the frame members to the position shown in Fig. 7. The screen is then placed in position with the margins of the screen extending over the grooves 20. Each clamping plate is then swung downwardly to the position shown in Figs. 4 and 6, a series of slots 23 permitting the passage of the thumb screws 24 therethrough. These

thumb screws are threaded into the frame members and the stiffening bars 15. Thereafter the plates 18 are shifted endwise with respect to the frame members to the position illustrated in Fig. 5. When in this position the stems of the thumbscrews have passed into the relatively narrow slots 25[a] in the plates. Thumbscrews 24 are then tightened thereby clamping the plates against the frame members and tightly clamping the fabric screen between the lip portion 19 and the complementary groove 20. The screen is then held rigidly to the frame and is ready to be stretched to remove wrinkles and undulations therefrom. To remove the screen from the frame the sequence of operations is reversed as will be readily understood.

Screen stretching devices.

In order to evenly stretch the screen on the frame, I provide stretching rods 25. These rods extend from one end of the frame to the other and are swiveled to the ends of thumbscrews 27 as best shown in Fig. 6. The threaded portions of these screws engage threads in brackets 28 which brackets are secured in any desired manner to the clamping plates as by screws. It will be understood that when the screen is being clamped to the frame the thumbscrews 27 are retracted thereby bringing the stretching rods 25 close to the brackets. After the screen is clamped in place, the thumbscrews 27 are turned thereby bringing the stretching rods laterally into contact with the screen and stretching the same in the manner illustrated in Fig. 3. The amount of stretch that can be obtained depends upon the length of the brackets 28 and upon the length of the thumbscrews 27, and in view of the fact that the frame has four sides and four stretching devices are employed the amount of stretch will be approximately equal to the length of the set screws multiplied by four. By the above instrumentalities a screen, cloth or fabric, may be readily and uniformly stretched to remove the wrinkles and undulations therefrom.

It will be understood that my invention is also adapted for use in large sized frames, as shown in Fig. 8. With such frames the side frame members 12 and 14 as well as the top members 11 and 13 if desired may be made up of a plurality of sections joined together by the tongue and socket construction, as shown at 17 and 16 in Fig. 8. The clamping plates 18 for the top and bottom may be of one piece construction, as illustrated.

The side frame members 12 and 14 may be longer than shown in Fig. 8. I therefore prefer to make the clamping plates in sections, as shown at 18[a], 18[b], 18[c], 18[d]. The stretching devices are similar to those heretofore described except that their brackets 28 are preferably attached to the clamping plates and the frame members by bolts 31. The top and bottom stretching devices may be permanently secured to their respective clamping plates, as shown, but where the sectional clamp plate construction is employed it is necessary that the stretching devices be a separate unit as shown at the right in Fig. 8. It will be appreciated that it is necessary for the stretching rods to be continuous rather than in sections in order that there be no wrinkling which would occur at the junction of the rods if a sectional construction were used. In order to stiffen the frame I may employ suitable cross braces as 32.

In placing the screen in the larger sized frame, the screen would be unrolled for a few inches from its wooden roll and the top clamping plates fastened down. The screen would be then unrolled for about the length of one of the clamping plate sections and the two plates 18[a] at opposite sides of the frame would be bolted to the side frame members. This operation would be repeated until the entire screen is in place and clamped to the frame. This procedure with large sized screens would prevent the screen sagging between the sides as the clamps were being applied. The stretching of the screen would then be performed as heretofore explained.

It will be understood that for the larger sized screen bolts would be substituted for the thumbscrews, the bolts being tightened by any suitable wrench.

It is to be understood that my invention is not limited to use in moving picture screens. The device is susceptible to varying uses as for stretching fabrics, tapestries and the like.

My invention is adapted to be modified in various ways as will occur to those skilled in the art, and what I claim as my invention is particularly pointed out in the appended claims.

I claim:—

1. In a moving picture screen of the kind described, in combination, a frame adapted to receive a fabric screen, a manually operated clamp associated and coextensive with its sides for securing the entire marginal edges of the fabric to the frame, a means independent of but coextensive with the clamp for exerting upon the fabric a uniform pressure along lines adjacent to the clamped marginal edges thereof for stretching and smoothing the said screen after it has been clamped to the frame.

2. In a moving picture screen of the kind described, in combination, a frame composed of a plurality of detachable sections, means for securing said sections rigidly together, clamps attached to each of said sections and coextensive therewith for securing the entire marginal edges of a fabric screen

thereto, means also secured to each of said sections in position and adapted to exert a uniform pressure upon the fabric along lines adjacent to the clamped edges thereof, whereby said fabric when clamped to the associated sections of the frame may be uniformly and evenly stretched upon said frame as described.

3. In a moving picture screen of the kind described, in combination, a frame having flat surfaces along its inner edges, adapted to receive the marginal edges of a fabric screen, clamping plates extending along said edges, hinged to the frame and adapted to be forced down upon the fabric and clamp the same against the aforesaid flat surfaces, and a means coextensive with, but mounted independently of, the said clamping plates and adapted to exert a uniform pressure upon the fabric along its edges which are clamped to the frame and to thereby stretch and smooth the same uniformly.

4. In a device of the class described, a frame having provisions to receive the margins of a fabric screen, clamping means adjustably secured to the frame, means for clamping the said clamping means tightly against the frame whereby the margins of the fabric screen are clamped tightly to the said frames, a stretching rod positioned adjacent the margins of the screen and having provisions for advancing the same laterally against the screen for stretching the said screen.

5. In a device of the class described, in combination, a frame having provisions to secure a fabric screen adjacent the edges thereof, a fabric clamping means adjustably secured to the frame and adapted to clamp the margins of the fabric tightly to the frame, said clamping means being shiftable endwise with respect to the frame to release the same from clamping position, stretching means for uniformly stretching the fabric clamped to the frame, said means comprising stretcher rods to press against the fabric, thumbscrews swiveled to the said rods to advance the same against the fabric screen and supporting bracket members for the said thumbscrews.

6. In a device of the class described, in combination, a frame having provisions for receiving a fabric screen at the margins thereof, clamping plates carried by the frame and adapted to clamp the fabric screen to the frame by pressure against the surface of the fabric, stretching means for uniformly stretching the fabric screen when clamped to the frame, said means comprising stretcher rods disposed adjacent the face of the fabric screen near the clamped margins thereof, the bracket means secured to the said frame, and screw threaded means associated with the said brackets and the said stretching rods for advancing the said rods laterally against the fabric screen for stretching the same, substantially as described.

7. A portable moving picture screen frame composed of detachable sections which are capable of association into a rectangular or four sided frame, in combination with manually manipulated means for securing the said sections rigidly together, a clamp secured to each section and coextensive therewith and means for causing it to bind the entire marginal edges of a screen to such section, and independent means secured to each section and coextensive therewith adapted to exert a pressure upon the clamped fabric along lines closely adjacent to the margin thereof when clamped to said sections.

8. A portable moving picture screen frame, composed of detachable sections which are capable of association into a rectangular or four sided frame, in combination with manually manipulated means for securing the sections together, means for clamping the entire edges of a screen fabric to the sections of the frame, and means for uniformly stretching the screen by pressure applied adjacent to the frame sections, the clamping means and the stretching means of each section forming a single assembled unit when the several sections are disassembled.

9. A moving picture screen frame, comprising in combination, a rectangular frame, clamping plates coextensive with the frame for securing the entire marginal edges of a screen to the frame, brackets secured to the clamping plates and stretching rods adjustably mounted upon the said brackets in position to exert upon the screen along continuous lines adjacent the clamped edges thereof a uniform pressure for stretching and smoothing the said screen when in use.

10. In a moving picture screen frame having flat surfaces to receive a fabric screen, of bars or plates coextensive with the said surfaces, and means for clamping by means of such bars or plates the entire edges of a fabric to the frame, whereby the screen may be secured to its frame without mutilation of the fabric.

In testimony whereof I hereunto affix my signature.

GEORGE W. NEWGASS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."