April 10, 1951 K. J. UNWIN 2,547,985

CURTAIN STRETCHER

Filed Jan. 30, 1946

Fig. 1.

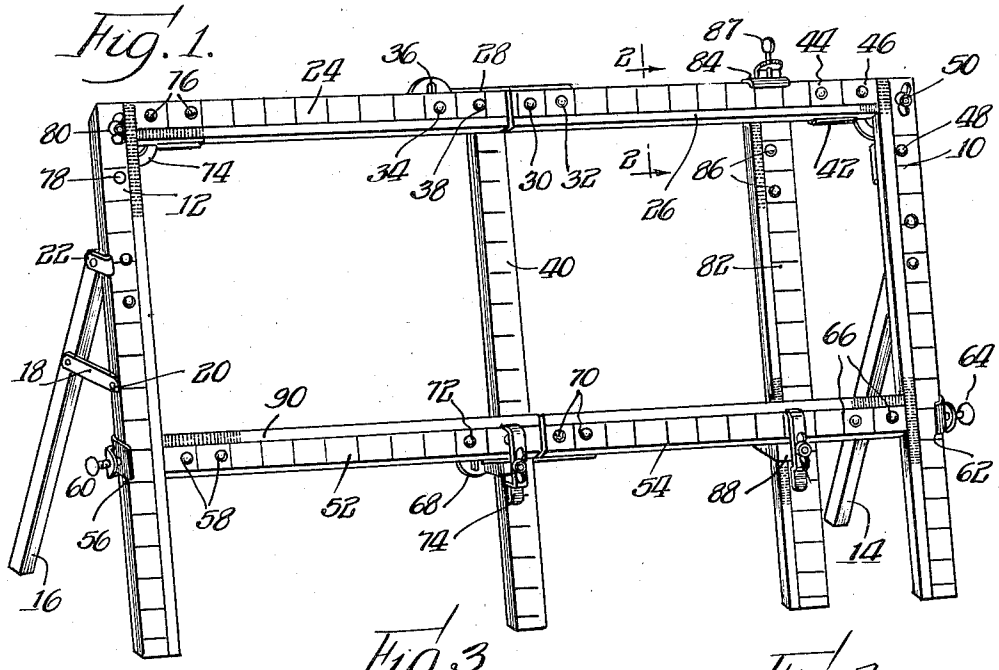


Fig. 3.

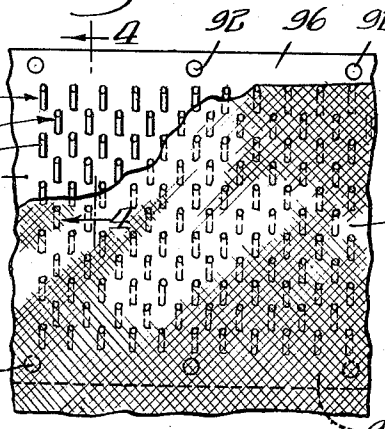


Fig. 2.

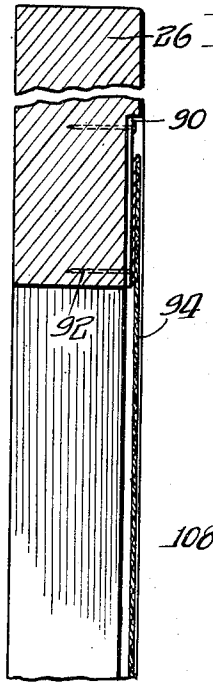
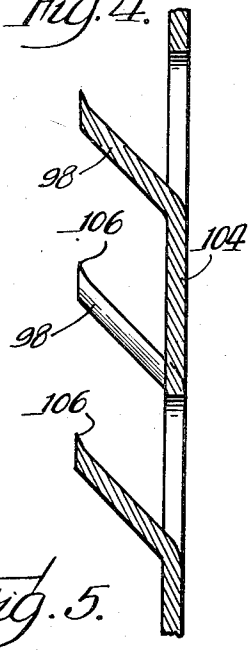


Fig. 4.



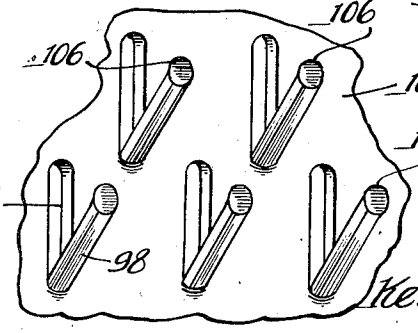


Fig. 5.

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CURTAIN STRETCHER

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6 Claims. (Cl. 45—24)

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The present invention relates to improvements in curtain stretchers and more particularly to a novel construction of the means which engages the peripheral portion of a curtain.

Heretofore it has been common to provide curtain stretchers with a row of impaling pins adjacent the inner edge of the curtain stretcher frame. Such an arrangement requires a relatively precise adjustment of the curtain frame to the exact dimensions of the curtain to be placed thereon. To avoid the precise adjustment heretofore required, it has been proposed to provide a curtain impaling device adjacent the inner edge of a curtain stretcher frame which has a plurality of parallel arranged impaling members. While the latter device obviates the necessity for precise adjustment of the curtain frame, it has the disadvantage inherent in all impaling arrangements of presenting a plurality of sharp points which come in contact with the fingers of the person placing the curtain on the stretcher. Not infrequently such contact is apt to bruise or injure the finger tips. Great care must also be taken during the impaling operation not to tear the edge of the curtain.

In accordance with the present invention a curtain engaging device is provided with a multiplicity of closely arranged needle-like members integrally formed of a sheet of corrosion and rust resistant metal. The needle-like members are at acute angles to the plane surface of the curtain stretcher frame and all terminate in a plane parallel thereto. Preferably the leading edges of such members are formed so as to have fine burrs which readily but harmlessly engage over an extended area of the peripheral portion of the curtain. Engagement of the burrs with the peripheral portions of the curtain secures the curtain in position without substantial perforation of the curtain material. Due to the small space interval between adjacent needle-like projections, there is no danger of injuring the finger tips of the person placing the curtain on the frame, as is common with the usual pin type stretcher. The close spacing of the members further prevents substantial perforation of the curtain material reducing greatly the strain on each thread of the curtain and provides within certain limits an area which obviates the necessity for the precise adjustment of the curtain frame to the exact dimensions of the curtain to be placed thereon.

It is, therefore, an object of the present invention to provide an improved curtain engaging and retaining device which is relatively simple to

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manufacture and to attach to a curtain stretcher frame.

It is another object of the present invention to provide an improvement in curtain stretchers whereby it is unnecessary to adjust the curtain stretcher frame for small variations in the dimensions of the curtain to be stretched.

Other and further objects of the present invention subsequently will become apparent by reference to the following description taken in connection with the accompanying drawing wherein

Figure 1 is a perspective view of a curtain stretcher provided with the present invention;

Figure 2 is a cross-sectional view in the direction of the arrows along the line 2—2 of Figure 1 showing a curtain mounted on the frame;

Figure 3 is a plan view of the curtain engaging device forming a part of the frame members of the curtain stretcher shown in Figure 1;

Figure 4 is an enlarged cross-sectional view of the curtain engaging device as seen in the direction of the arrows along the line 4—4 of Figure 3; and

Figure 5 is an enlarged view of the device shown in Figure 3 as seen at an angle thereto.

Referring more particularly to Figure 1 of the drawing, there is shown a curtain stretcher having upright end members 10 and 12 provided with rearwardly extending legs 14 and 16 respectively. Each of the legs is retained in a fixed position by a pivoted bracket such as the bracket 18 visible at the left end of the frame. The pivoted bracket 18 is provided at its forward end with a slot which engages a head member 20 mounted on the side of the upright member 12. Each leg such as the leg 16 is secured to the upright member 12 by a hinge 22.

At the upper extremity the upright frame members 10 and 12 are secured to horizontally arranged members 24 and 26 which are joined together by a plate-like member 28. The plate-like member 28 is rigidly secured to the horizontal member 26 by means of bolts 30 and 32. A bolt 34 extends through the member 24 and through a slot 36 in the member 28. Upon loosening the bolt 34 the members 24 and 26 may be folded so as to be parallel to each other. A bolt 38 also extends through the member 24 and the plate 28 and passes through an upright support member 40. At the right end of the horizontal member 26 there is provided a plate 42 which is secured thereto by a plurality of bolts 44 and 46. The plate 42 is also secured to the upright member 10 by the bolt 48 and a removable bolt hav-

ing a wing nut 50. Upon removing the wing nut 50 the member 10 may be swung on the pivot bolt 48 so as to lie parallel to the horizontal bar 26. Thus, the plates 28 and 42 are provided for folding the frame for storage.

A second horizontal member formed in two portions 52 and 54 extends between the end upright members 10 and 12. The member 52 at one end carries a clamp member 56 secured thereto by a pair of bolts 58. The clamping member is provided with a clamping screw 60. The other end of the other lower horizontal member 54 is similarly provided with a clamping bracket or member 62 having a clamping screw 64. The clamping member 62 is secured to the member 54 by a plurality of bolts 66. The inner ends of the lower horizontal members 52 and 54 are retained together by means of a plate 68 secured to the member 54 by a pair of bolts 70. The plate 68 is also secured to the member 52 by a plurality of bolts one bolt 72 being visible in the drawing. The member 68 is of a construction similar to the member 36 on the upper horizontal members. The intermediate portion of the lower horizontal bars 52 and 54 is retained in position with respect to the central support 40 by means of a clamping device 74 which engages the vertical member 40.

The vertical end upright 12 is connected to the upper horizontal member 24 by means of a plate 74 secured thereto by bolts 76. The plate 74 is secured to the upright member 12 by means of a bolt 78 and another bolt having a wing nut 80. The arrangement of the plate 74 relative to the vertical member 12 and the horizontal member 24 is similar to the arrangement of the plate 42 at the other end of the curtain stretcher. Thus by means of the plates 74, 36 and 42 the curtain stretcher may be folded for storage so that the members 12, 24, 26 and 10 are arranged parallel to each other.

Between the vertical member 40 and the end support member 10 there is provided an intermediate support or guide member 82 which at its upper extremity carries a clamping member 84 secured thereto by bolts such as the bolt 86. The clamping member 84 includes a clamping screw 87 arranged to engage the upper edge of the horizontal bar 26. The lower portion of the intermediate support 82 carries a clamping member 88 which is similar to the construction of the clamping member 74 which interconnects the intermediate support 40 with the lower horizontal members 52 and 54. By adjusting the various clamps it becomes apparent that the area delineated by the members 10, 24, 26, 82, 54 and 52 may be set so as to conform generally to the measurement of a curtain which is to be stretched thereon.

Each of the vertical and horizontal frame members 10, 12, 24, 26, 52, 54 and 82 is provided at the inner edge with a curtain engaging device 90. The curtain engaging device 90 consists of an elongated metal strip having integrally formed projections, and which is located adjacent the inner edge of the curtain frame member for engaging the peripheral portions of a curtain. The details of the curtain engaging member 90 will be better appreciated by reference to the subsequent figures. Figure 2 illustrates with particularity that the curtain engaging device 90 is secured to the frame member such as the member 26 by a plurality of fastening means such as the nails 92 which pass through suitable apertures at the edges of the member 90 into the wood frame member 26. Figure 2 also shows a curtain 94 having its peripheral portion in engagement with a substantial area of the curtain engaging device 90. Figure 3 also shows a portion of the curtain in engagement with the curtain engaging device 90. From Figure 3 it will be seen that the curtain engaging device 90 is provided with flat border portions 96 having longitudinally spaced apertures through which the nails or fastening means 92 are passed. The area between the two border portions 96 is covered with a multiplicity of upwardly-struck closely adjacent needle-like projections 98 which preferably are arranged in staggered rows such as the rows 100 and 102 etc.

The member 90 is formed of a very thin sheet of rust and corrosion resistant metal formed in a strip 104 from which the projections 98 are struck upwardly so that each projection is angularly inclined to the plane of the base of the strip. The outer end of each of the upwardly-struck projections 98 is arranged in a plane common to a plane parallel to the surface of a curtain stretcher bar or member. After the projections 98 are struck upwardly, the upper ends are ground to form the terminating plane for all of the projecting members and to form on each leading edge of the projecting members 98 a burr 106. From Figures 4 and 5 it will be seen that each projecting member 98 is struck upwardly so as to have generally parallel sides, thus forming a plurality of parallel-sided apertures 108 from which the members 98 have been struck. The projecting members 98 are closely spaced together so that adjacent members are separated by a very small fraction of an inch, for example a fraction of the order of 1/8 inch. The projections are very narrow, one embodiment having projections of the order of 1/100 of an inch wide. It is to be understood that the dimensions given as examples are not to be considered limitations but merely indicative of the type of construction employed by the present invention. By thus having the angularly arranged members 98 at acute angles in directions away from the inner edges of the frame members as is evident from Figure 2, a large number of burrs 106 will engage the underside of the material of the curtain 94 to secure the curtain in position without any substantial perforation, puncture, or deformation of weave of the curtain material. In other words, the curtain material is not impaled upon the projections 98 so that the upper ends of the projections protrude through the curtain material. It, of course, will be understood that this description of the engagement of the curtain is generally accurate and correct, but in certain larger mesh materials the outer ends of the projecting members 98 may be clearly visible and upon examination appear to be substantially coincident with the upper or outer surface of the curtain. In the finer mesh materials, however, the projections 98 do not pierce the cloth as is the case with pins or barbed impaling members heretofore employed in curtain stretcher construction. Due to the fact that a relatively large area is provided with the multiplicity of projecting members 98 between the border portions 96, it will be appreciated that the present device also obviates the necessity for meticulously minute exact adjustment of the curtain stretcher frame to the exact dimensions of the curtain. This greatly facilitates the use of the stretcher. A very large area provided between the border portions 96 of the fastening device 90 also operates to preclude an impaling action of the projections 98 relative to the curtain material and also precludes the

possibility of damaging or injuring the finger surfaces of the operator.

While in order to illustrate the invention, it has been convenient to show the invention as applied to a wood frame curtain stretcher, it is to be understood that the invention is susceptible of other embodiments. For example the curtain engaging device **90** has been shown as secured to the frame by means of nails **92** whereas it is to be understood that any other approved manner of fastening the device **90** to the frame may be employed. It furthermore will be appreciated that the curtain engaging device may be formed integrally where the curtain stretcher is of the metal frame type. It also will be appreciated that the upwardly extending needle-like projecting members **98** may be formed in other manners than that shown and that while the preferred embodiment illustrated shows the projections **98** at a certain angle to the base, that other angles may be employed including an angle of ninety degrees.

While a particular embodiment of the invention has been shown to facilitate illustration and description, it is to be understood that it is not to be limited thereby since such variations are contemplated as may be commensurate with the spirit and scope of the invention set forth in the following claims.

This invention is hereby claimed as follows:

1. A curtain engaging device for curtain stretchers comprising a strip of metal adapted to be secured to the surface of a curtain stretcher frame and having a multiplicity of punched struck-upwardly needle-like projections respectively terminating in sharp-edged, pointless outer end portions disposed substantially in a plane parallel to said strip so as to engage curtain material stretched on a frame without substantial perforation of the material.

2. A curtain engaging device for curtain stretchers comprising a strip of thin rust resistant metal adapted to be secured to the surface of a curtain stretcher frame and having a multiplicity of punched struck-upwardly needle-like projections respectively terminating in sharp-edged, pointless outer end portions disposed substantially in a plane parallel to said strip, each of said projections having a leading edge burr whereby a plurality of burrs in an extended area are adapted to be engaged by curtain material stretched on a curtain frame.

3. A curtain engaging device for curtain stretchers comprising a strip of thin rust resistant metal adapted to be secured to the surface of a curtain stretcher frame and having a multiplicity of punched struck-upwardly angularly arranged relatively narrow parallel-sided projections arranged at acute angles to said strip, said projections having sharp-edged, pointless outer ends disposed substantially parallel to said strip and being formed with leading edge burrs extending in the direction of inclination whereby

a plurality of burrs in an extended area are adapted to engage curtain material without substantial perforation thereof.

4. A curtain engaging device for curtain stretchers comprising an elongated strip of rust resistant metal adapted to be secured to the plane surface of a curtain stretcher frame and having a multiplicity of punched struck-upwardly angularly arranged relatively narrow parallel-sided projections arranged closely adjacent each other in staggered rows, said projections being arranged at acute angles to said strip and having sharp-edged, pointless outer end portions formed with leading edge burrs arranged in a plane parallel to said strip for engagement by curtain material without substantial perforation of the material.

5. A curtain stretcher frame having secured to its inner edges longitudinally extending material engaging devices formed of relatively thin rust resistant metal strips each having a plurality of staggered rows of punched struck-upwardly angularly inclined relatively narrow parallel-sided projections each terminating in a sharp-edged, pointless outer end portion substantially parallel to said strip and having a leading edge burr whereby a plurality of burrs in an extended area are adapted to engage curtain material stretched on said frame without substantial perforation of the material.

6. An adjustable curtain stretcher frame formed of a plurality of members having plane surfaces provided adjacent their inner edges with longitudinally extending strips of thin rust resistant metal, said metal strips each having a multiplicity of punched struck-upwardly relatively narrow parallel-sided projections arranged at acute angles to said strip to point away from the inner area of the frame, said projections terminating in sharp-edged, pointless outer ends disposed substantially in a plane parallel to said strip and being provided with burrs at the leading edges of the respective projections whereby said projections present in an extended area a plurality of burrs adapted to engage curtain material stretched on said frame without substantial perforation of the material.

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