L. I. LOCKWOOD.

CURTAIN STRETCHER.

APPLICATION FILED MAR. 12, 1914.

1,142,823.

Patented June 15, 1915.

2 SHEETS—SHEET 1.

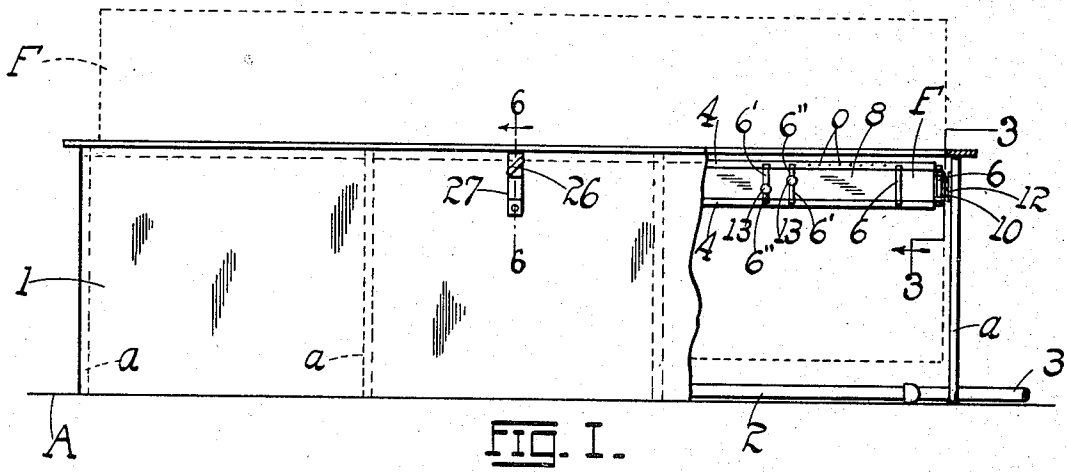


FIG. 1.

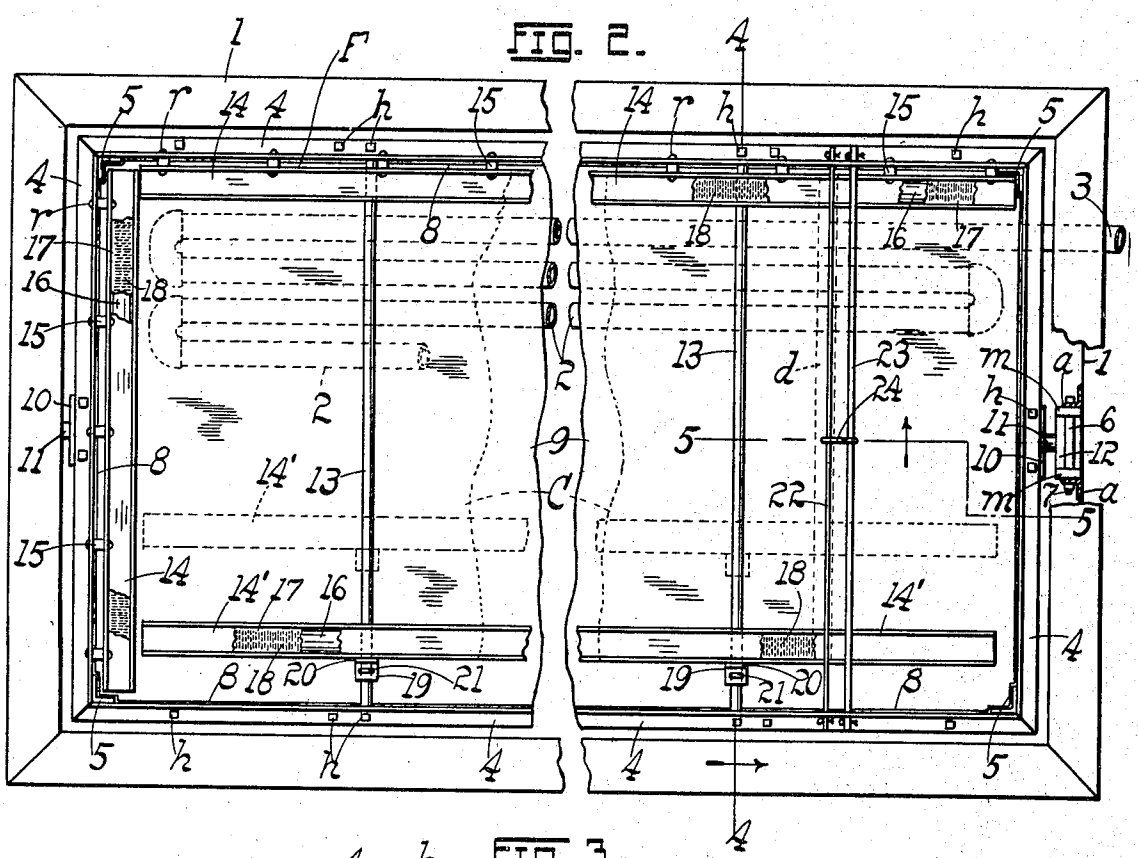


FIG. 2.

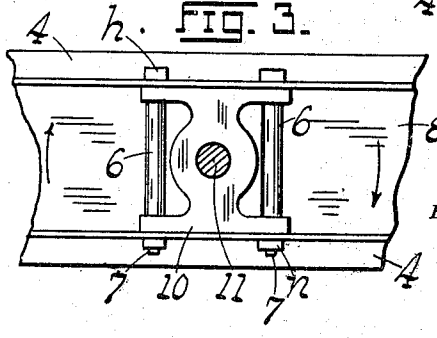


FIG. 3.

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2 SHEETS—SHEET 2.

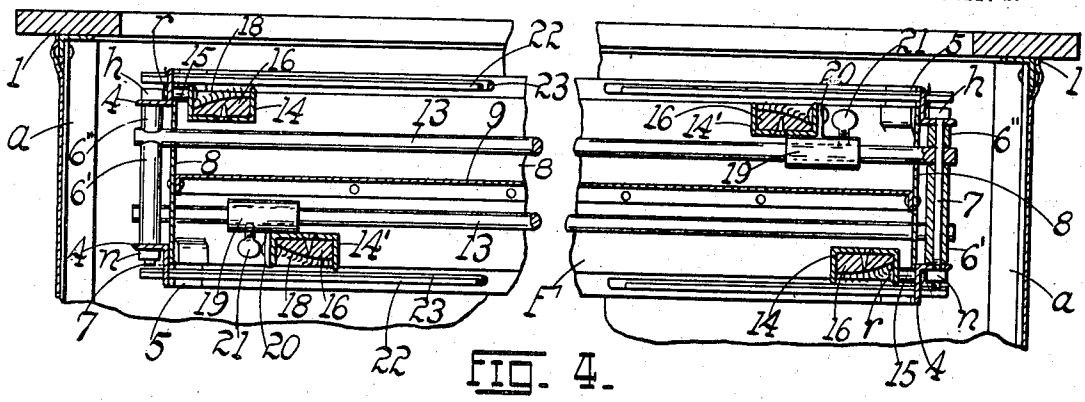


FIG. 4.

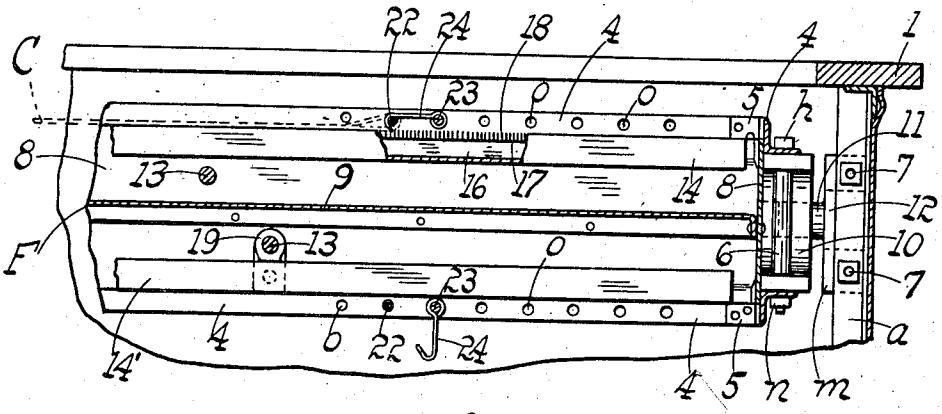


FIG. 5.

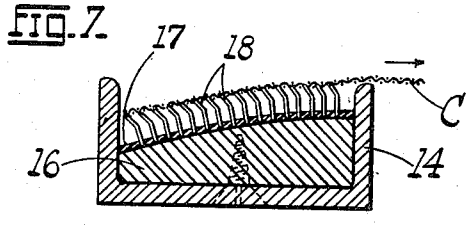


FIG. 7.

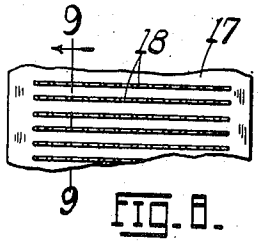


FIG. 8.

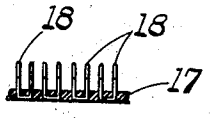


FIG. 9.

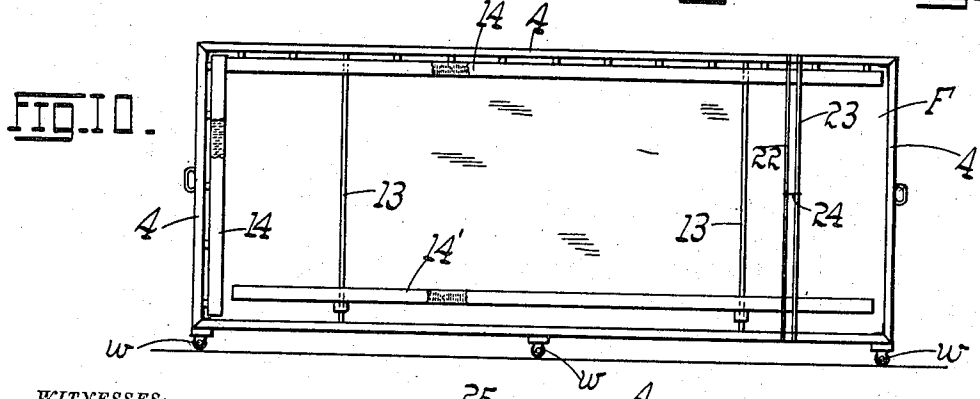


FIG. 10.

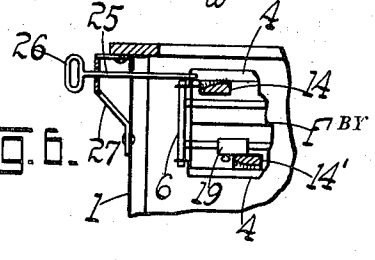


FIG. 6.

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CURTAIN-STRETCHER.

1,142,823. Specification of Letters Patent. Patented June 15, 1915.

Application filed March 12, 1914. Serial No. 824,282.

To all whom it may concern:

Be it known that I, LYNNEAUS I. LOCKWOOD, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Curtain-Stretchers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in curtain-stretchers; and it consists in the novel features of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a drying casing or box, with walls partly broken, showing my stretcher in operative position; Fig. 2 is an enlarged top plan broken in the middle transversely; Fig. 3 is an enlarged cross-sectional detail on the line 3—3 of Fig. 1; Fig. 4 is an enlarged vertical cross-section on the line 4—4 of Fig. 2, broken in the middle longitudinally; Fig. 5 is an enlarged longitudinal vertical sectional detail on the line 5—5 of Fig. 2; Fig. 6 is a vertical cross-sectional detail on the line 6—6 of Fig. 1; Fig. 7 is an enlarged cross-section taken through one of the channels which support the carding cloth or brush by which three of the edges of the curtain are anchored or held to the frame; Fig. 8 is a top plan of a section of the carding strip or brush; Fig. 9 is a cross-section on the line 9—9 of Fig. 8; and Fig. 10 is a modification showing a roller-mounted stretcher frame.

The object of my invention is to provide a curtain-stretcher to which the curtain or equivalent sheet may be attached in a minimum amount of time, and subjected thereafter to any desired tension for purposes of stretching the same; one which will in no wise damage the edges of the curtain; one which will leave an even edge on the curtain after the latter has been subjected to the stretching operation; one which may be adjusted to any size curtain; one which has a maximum capacity; one which is simple in construction; one capable of ready manipulation; and one possessing further and other advantages better apparent from a detailed description of the invention which is as follows:

Referring to the drawings, and for the present to Figs. 1 to 9 inclusive, 1, represents a sheet metal box or casing open at the top and bottom and resting on the floor A, thereby forming a hot-air chamber, at the bottom of which is disposed a steam coil 2 to which steam is supplied from a pipe 3 leading to any suitable source of steam supply (not shown). The sheet metal walls of the box are reinforced by posts of angle iron *a* as shown, or by any equivalent structural members. At the top of the box is rotatably mounted the stretcher to which the present invention is in the main, directed. The stretcher proper comprises a double, open frame, each member of which is composed of angle-bars 4, 4, secured together at the corners by angle-brackets 5, the individual frames being spaced apart by thimbles 6 bearing against the opposed (normally horizontal) legs of the angle-bars, and being secured by means of bolts 7 passed through the thimbles, the heads *h* of the bolts bearing against the leg of the angle-bar of one frame, whereas the nuts *n* are forced against the opposing leg of the angle-bar of the opposite frame. The inner legs of the angle-bars of the respective individual frames are connected by a sheet-metal wall 8 to which is secured (preferably by rivets) a centrally disposed flanged sheet-metal partition wall or plate 9, said sheet or member 9 forming the upper wall of the hot-air or drying chamber whose other walls are formed by the box 1 and floor A, respectively. The double-frame thus formed is trunnioned between two opposing walls (the end walls) of the box 1, the frame being provided with blocks 10 secured to the members 4, 4, by the same bolts 7 which couple together the individual stretcher frames referred to (Fig. 3). The blocks 10 are provided with sockets which receive the studs or trunnions 11 of suitable blocks or bearings 12 secured between a pair of angle-posts *a*, *a*, identified with the casing 1, the blocks 12 being coupled to the posts *a* by means of bolts 7 passed through the lugs *m*, *m*, formed with the blocks. These details however are common expedients and are not here claimed.

Disposed across the double-frame heretofore described on opposite sides of the partition wall 9 are pairs of rods or rails 13, the adjacent members of each pair being arranged out of alinement (for convenience) as shown in Fig. 1, the ends of the rails being traversed by the bolts 7 (Fig. 4). In that case the spacing thimbles 6 are made of two sections 6′ 6″ to accommodate the

ends of the rails through which the bolts pass. The bolts 7 at these points thus serve as anchors for the rails or rods 13, the purpose of the rails being explained later on. Secured to the vertical legs of two of the angle-bars 4 forming two contiguous sides (the side and end) of each individual frame, are channels 14, the same being spaced from the angle-legs by means of spacing thimbles 15 which are traversed by the securing rivets *r*. To the bottom or web of each channel is secured a wooden strip 16 having an outer convexed face, the cross-section of which slopes downwardly and outwardly (Fig. 7) and is depressed considerably below the free edges of the flanges of the channel. To this convexed face is cemented or otherwise secured the rubber strip or sheet 17 to which are secured the teeth or wire prongs 18 collectively forming a wire-brush or card, the strip 17 forming the back of said brush. The teeth 18 are bent so as to deflect or point outwardly or away from the center of the stretcher frame, the points of the pins being disposed along a convexed surface substantially parallel to the convexed face of the supporting strip 16. This arrangement brings the outer portions of the brush considerably below the free upper edge of the outer leg or flange of the channel (Fig. 7), the inner edge of the brush being substantially of a height even with the free edge of the inner leg or flange of the channel. The outer channel flange serves as a guide or straight edge to which the edge of the curtain C to be stretched, is brought, while being deposited over the card or brush, the inner channel-flange serving as a guard against injury to the teeth 18 should any object accidentally fall on the curtain undergoing stretching, or on the stretcher-frame, it being apparent that such object would be arrested by the inner channel-leg and thus clear the brush. The channels 14, 14, (or their equivalents) are relatively stationary or fixed. There is however a third channel 14′ which is transversely adjustable or movable across the stretcher frame. This channel (there are of course two of these, one on each side of the partition 9) is mounted to traverse the rails 13, 13, there being riveted or otherwise secured to the outer leg of said channel, a sleeve 19, the securing rivet passing through a lug 20 on said sleeve. The sleeve when once adjusted along its rail is clamped thereto by means of a set-screw 21 as well understood in the art. Adapted to be passed transversely of the stretcher frame, and through a terminal loop *d* of the curtain (or other sheet to be stretched) is a rod 22 which is adjustable along the length of the stretcher-frame, the opposite ends of the rod being insertible into suitable openings *o* in the vertical legs of the frame angles 4, 4, the precise position to which the rod is initially secured along the frame depending on the length of the curtain to be stretched. The rod 22 being usually a thin rod, is liable to sag or give under the tension to which the curtain is subjected while drying, and to prevent such sag I employ a thicker parallel brace-rod 23 inserted into adjacent registering holes *o*, and then coupling the rods at the middle by a catch 24 hinged to the rod 23 and hooking over the rod 22 and the curtain loop *d*. The parts above described are of course duplicated on opposite sides of the partition 9, and a description of one set is applicable to the other set, it being understood that the present is a double frame, it being made double to permit one curtain being treated while the other curtain is being removed from and a fresh curtain applied to, the upper side or that turned away from the drying chamber of the box 1. To lock the stretcher-frame in a horizontal position while performing service, I employ a pin or rod 25 terminating in a handle 26, said rod being inserted through registering openings of a bracket 27 fixed to the side wall of the box 1, and of the box wall and stretcher-frame. For convenience, the stretcher-frame as a whole is herein designated by the reference letter F, irrespective of the component parts thereof heretofore described.

The operation will now be readily understood and is substantially as follows: Let us assume that the curtain to be stretched is of a length from the left-hand channel 14 to where the rod 22 is shown inserted into its openings *o* in Fig. 2. The operator thereupon secures two edges of the curtain by passing the same over the brushes 18 of the side and terminal channels 14, 14, respectively and then secures the third edge by passing the same over the brush of the adjustable channel 14′. The channel 14′ is then moved toward or from the adjacent side of the frame to a point where the curtain is initially well stretched, said adjustable channel moving freely along the rails 13, 13. When once adjusted the said channel is clamped to the rails by a proper manipulation of the screws 21. The edges of the curtain are properly alined or adjusted to the outer flanges of the channels 14, 14′, said flanges insuring a straight edge for each of the three sides of the curtain, the fourth side being the loop *d* through which the rod 22 is passed. The rod 22 is then anchored to the rod 23 by means of the latch 24, and the frame is turned about its axis so as to bring the curtain thus secured to the bottom of the double-frame. This exposes the curtain to the drying air currents, and while such curtain is thus undergoing drying and stretching, the upper face of the frame F is used for securing a second curtain. When the bottom curtain is

stretched the frame is revolved 180 degrees so as to bring the top curtain to the bottom, after which the stretched curtain is removed, and while the bottom curtain is drying and stretching, a fresh curtain is secured to the top face of the frame. During the drying and stretching operation and during the removal of one curtain and the placing of a fresh curtain, the frame is held locked in position by the pin or rod 25, which of course is removed each time the frame is revolved to remove a stretched curtain.

As well understood in the art, the curtains are more or less moist when placed on the stretcher, and in drying they shrink and consequently stretch. It is therefore apparent that the strain imposed on the curtain is in a direction opposite to the direction of deflection of the teeth or prongs 18. That is to say, the strain is in a direction indicated by the arrow in Fig. 7. In this way the points of the teeth 18 grip the curtain and prevent slipping thereof from off the teeth, the strain or stretch causing the teeth to embed themselves into the fabric. The brush or card composed of the teeth 18 engaging as it does, the curtain over an extended area insures a firm grip for the curtain, and an even tension, and is a decided improvement over the prevailing method of pinning the curtain to the frame. In depositing the curtain over the card 18, the edges thereof are brought squarely up against the inner face of the outer leg of the channel 14 (14′) so that the said edge is alined to the face of said channel leg, and when the curtain is finally stretched the edges thereof are straight and not sinuous, and the curtain is of uniform width throughout its length. It will be seen that the rods 22, 23 and channel 14′ being adjustable, a curtain of any length and width may be treated. In lieu of a drying box 1, the frame F may be mounted on wheels *w* disposed along one of the longitudinal edges thereof, as shown in the modification in Fig. 10, and wheeled into a drying chamber (not shown). The frame shown in Fig. 10 is however, in other respects, identical with the first form described.

By "frame" is not necessarily meant herein a double frame, as it is within the scope of my invention to provide a single frame for mounting a single curtain. The double frame however has the advantage in that one curtain may be stretching while the opposite one is being removed and a fresh curtain attached. The wall 9 prevents the hot air from striking the operator while removing a curtain and mounting a fresh one. The wall 9 too serves in a measure to confine the heat in the chamber of the box 1.

I do not wish to be limited to the details here shown as they may be departed from without affecting the nature or spirit of my invention. Neither do I wish to be understood as restricting the invention to the stretching of curtains. Any sheet or web may be treated on the apparatus. In first mounting the curtain, the members 22, 23, and 14′ should be adjusted to impose a proper tension on the curtain when the two remaining edges thereof are gripped by the brushes 18, of the stationary side and end members 14, of the frame, as an initial or preliminary stretch of the curtain insures the desirable final stretch after the curtain shrinks as a result of the drying operation. A curtain so finally stretched has the appearance of having been ironed.

Having described my invention, what I claim is:

1. In a curtain-stretcher, an anchoring member for the curtain comprising a channel, a member in the channel having an outer surface inclined to the base of the channel and depressed below the free edges of the channel flanges, a card-strip secured to said inclined surface and provided with teeth collectively forming a rough surface for engaging the curtain to be stretched, said surface conforming substantially to the inclination of the surface of the member supporting the card-strip and disposed at an incline to the general plane of disposition of the curtain supported on the stretcher.

2. In a curtain-stretcher, an anchoring member for the curtain comprising a channel, a strip deposited on the bottom of the channel and having an outer convexed face depressed below the free edges of the channel flanges and inclined to the bottom or web of the channel, a strip of carding cloth secured to said strip and having teeth bent toward the channel-flange toward which the convexed face of the strip aforesaid inclines, the points of the teeth of said carding cloth being disposed along a surface conforming to the curvature of the convex face of the strip, whereby the teeth on one side of the resulting brush are depressed below the free edge of the flanges of the channel, the free edge of the opposite channel-flange being substantially even with the teeth adjacent thereto.

In testimony whereof I affix my signature, in presence of two witnesses.

LYNNEAUS I. LOCKWOOD.

Witnesses:

EMIL STAREK,

ELSE M. SIEGEL.