July 7, 1942. R. V. WESTOVER 2,289,299

DRAPERY STRETCHER AND FINISHER

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Fig. 1

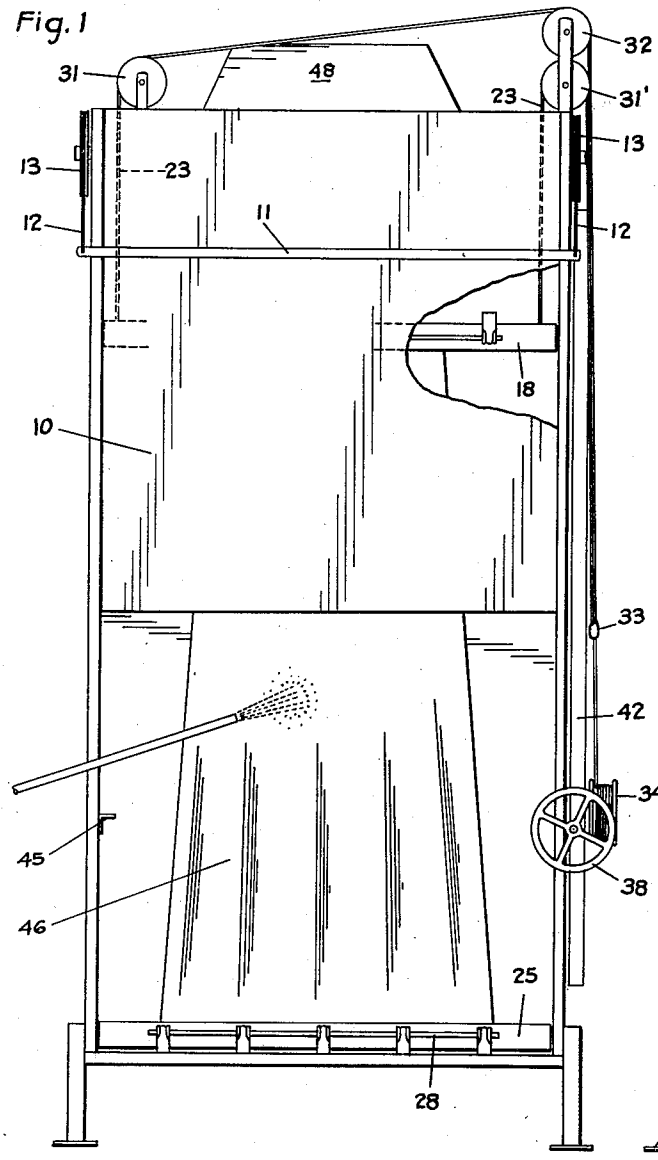
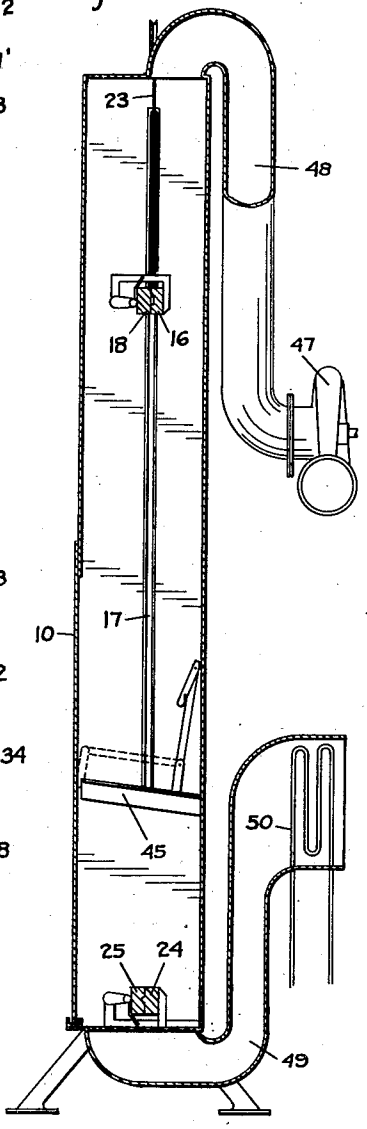


Fig. 3



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Fig. 2

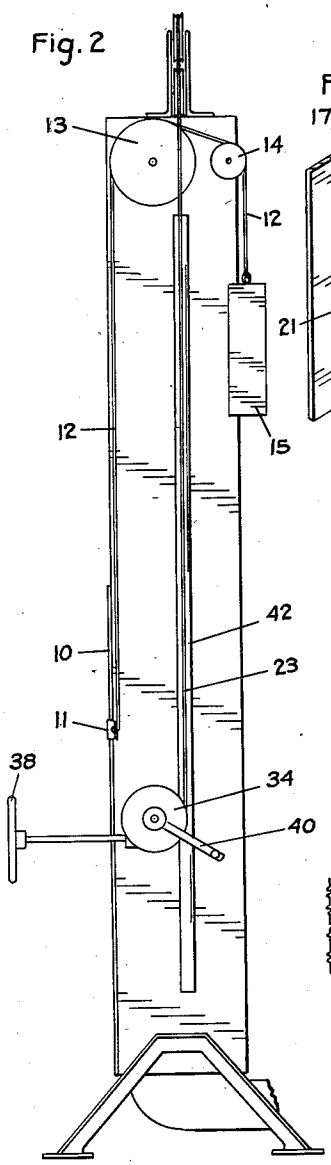


Fig. 4

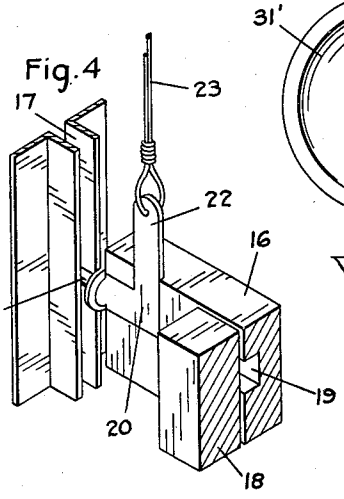


Fig. 10

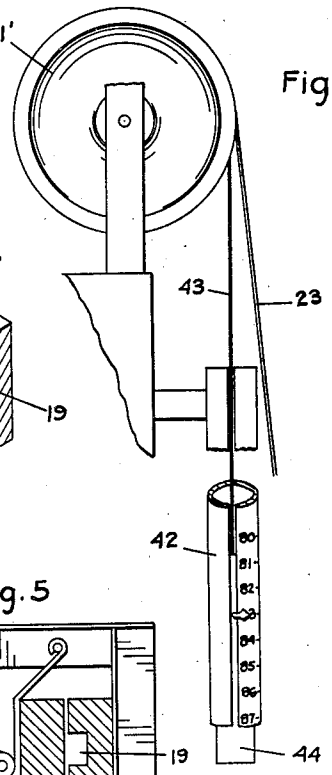


Fig. 5

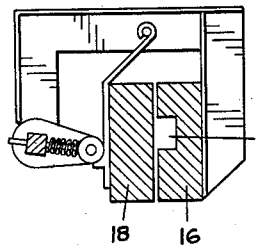


Fig. 8

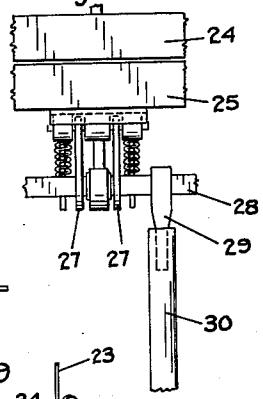


Fig. 6

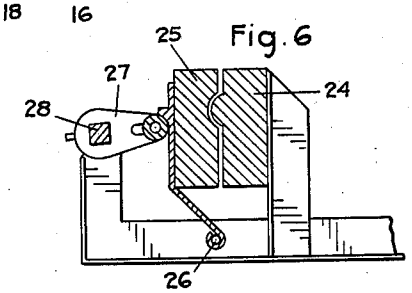


Fig. 9

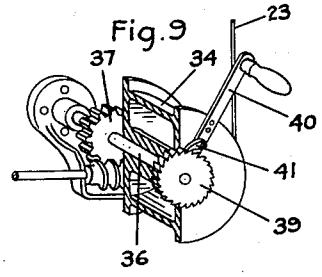
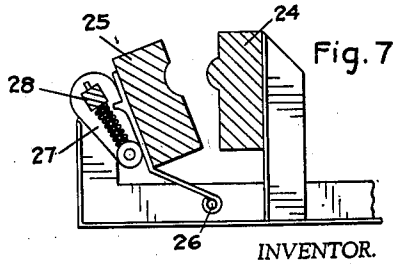


Fig. 7



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UNITED STATES PATENT OFFICE

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DRAPERY STRETCHER AND FINISHER

Richard V. Westover, Lincoln, Nebr.

Application August 5, 1940, Serial No. 351,479

15 Claims. (Cl. 26—68)

My invention relates to appliances for stretching and finishing drapery, especially after the drapery has been cleaned or dyed. Such drapery is usually shortened by the fluids employed in cleaning and dyeing and it remains shortened after drying and it must be lengthened for use. Then again, it is sometimes desired to fit the drapery to openings which require lengthening of the drapery. My invention is therefore designed for stretching the drapery to the desired length and then drying the drapery to maintain the length to which it has been stretched.

One of the objects of my invention is the provision of a stretching device for drapery which has means for the rapid spreading of the drapery until the slack is taken out and having other means for stretching after treatment to soften the fibers of the drapery.

Another object is the provision of a drapery stretcher in which the slack is first taken out of the drapery, the drapery being then treated with steam to soften the fibers, tension being then applied to stretch the drapery to a pre-determined length, and a current of warm dry air being finally passed over the drapery.

Another object of my invention is the provision of a stretching appliance for drapery, the appliance including clamping bars of novel construction for engaging the drapery at opposite ends thereof and means for spreading apart the bars to stretch the drapery.

Another object is the provision of clamps of novel form for firmly engaging the opposite ends of drapery without wrinkling or otherwise marring the drapery.

Having in view these objects and others which will be pointed out in the following description, I will now refer to the drawings, in which:

Figure 1 is a view in front elevation of my drapery stretcher and finisher, a portion being broken away to disclose otherwise concealed structure.

Figure 2 is a view in side elevation of the device.

Figure 3 is a view in transverse section of the same device.

Figure 4 is a view in perspective showing a detail of the upper clamping member and guideway.

Figure 5 is a sectional view of the detail shown in Figure 4.

Figure 6 is a sectional view showing the detail of the lower clamp in operative position.

Figure 7 is a view similar to Figure 6 but showing the clamp in open position and ready to receive the lower edge of the drapery.

Figure 8 is a plan view showing the clamp of Figures 6 and 7 and its operating mechanism.

Figure 9 is a perspective view in section showing the winding mechanism for stretching the drapery.

Figure 10 is an elevational view of a fragment showing the calibrated device for determining the point at which the winding must stop in order to obtain the desired length for the drapery.

The cabinet is elongated and in the rectangular form shown in Figures 1, 2, and 3. All sides are closed except the portion of the front side which is provided with a sliding door or window 10. The opening of the door or window 10 leaves the lower portion of the front exposed in order to give access to the interior of the cabinet for the manipulation of the drapery. The door has secured thereto a strap 11 which projects on both sides thereof as best shown in Figure 1. Cables 12 are secured to the projecting ends of the strap 11 and these cables pass over pulleys 13 and 14 at the sides of the casing. The cables 12 are secured to counter-weights 15 which in the present instance are similar to sash weights employed in window construction. It will be obvious that the sliding door or window 10 may be opened or closed by hand without effort.

The length of the cabinet is such as to accommodate drapery of the longest length which would be treated in the cabinet. For supporting the drapery in the cabinet there is provided a pair of clamping bars to engage the upper and lower edges of the drapery. For the upper edge of the drapery I employ a bar 16 which is slidable in the guideway 17 and which is provided with clamping members 18 which hold the upper edge of the drapery firmly in place. The bar 16 is grooved at 19 to receive the hem or binding at the edge of the drapery. Secured to the bar 16 at each end thereof is a member 20 having one portion 21 projecting laterally to slide in the guideway 17 and having an upright projection 22 for the attachment of the cable 23, all of this being shown in Figure 4.

The lower edge of the drapery is secured to the fixed clamp shown in Figures 6, 7, and 8. This clamp remains in fixed position but the two jaws may be opened or closed. One of the jaws has a semi-circular flange while the other has an interfitting semi-circular groove. The drapery can thus be compressed between the two clamping jaws without injury to the drapery and

in such a manner as to leave practically no wrinkles due to the clamp. The clamping jaw 24 is fixed in position but the jaw 25 has pivotal movement about the axis 26. The cam member 27 on the square shaft 28 is employed for moving the jaw 25 into either the position shown in Figure 6 or in the position shown in Figure 7. In the Figure 7 position the clamp is ready to receive the edge of the drapery while in the Figure 6 position the drapery is firmly secured by the clamp. The square shaft 28 must be turned until the parts are slightly beyond center to provide a lock for preventing the accidental release of the clamp. The square shaft 28 has secured thereto a short lever 29 which may be lengthened for use by means of a short length 30 of pipe. This is done merely because the depth of the cabinet is not sufficient to accommodate a lever of the necessary length.

As before stated, the lower clamp is fixed in position but the upper clamp is movable up and down in the guideway 17. The upper clamp bar 16 has cables secured thereto adjacent to its extremities and these cables 23 pass upwardly and over pulleys 31 and 31'. The cable which passes over the pulley 31 passes also over the pulley 32 and it joins the second cable at 33 from which point the two cables pass as one cable to the winding drum 34. Tension on the cable 33 will thus raise the clamping bar 16 and the upper portion of the drapery.

Since the initial raising of the upper edges of the drapery should be expedited in order to save time and since the final upward movement of the clamping bar 16 must be very carefully done, I employ the winding device shown in Figure 9. This device consists of a winding drum 34 loose on a shaft 36 which is provided with a worm gear 37 to be actuated by a hand wheel 38. The shaft 36 has also secured thereto a ratchet wheel 39 with a lever 40 having a pawl 41. The lever 40 is secured to the drum 34. The desired length of the drapery is determined before other treatment of the drapery. The order may be given by the customer to deliver the drapery in the same length as when the drapery was submitted for treatment. Perhaps, on the other hand, the order may specify a definite length for the drapery when it is delivered to the customer. In the former case it would be necessary to make and note the original length before cleaning or other treatment of the drapery. In the latter case it would be necessary only to provide a proper gauge to obtain the same length as that ordered by the customer. This may be done by the device shown in Figure 10 in which the split tube 42 is calibrated and which is adapted to receive the cable 43 which carries a pointer to register with the calibration of the tube and which carries a weight 44 for maintaining the cable 43 in taut condition. The upper end of the cable 43 is secured within the groove of the pulley 31' so that the cable 43 moves up and down with the cable 23.

By manually turning the crank lever 40 about its axis 36 the drum 34 is turned on the stationary shaft 36 and rapidly winds the cable 23 without disturbing the other mechanisms, reverse rotation of the drum being prevented by the pawl 41. When it is desired to lower the upper clamping jaws 16—18, all that is necessary is to release the pawl 41 from the ratchet 39 to permit the free unwinding of the cable 23. Slower winding of the cable 23 on the drum 34 may be had through the hand wheel 38 and the worm which is secured to the shaft 36. The rotation of the shaft 36 is communicated through the ratchet wheel and pawl to turn the winding drum 34.

By turning crank 40 which is attached to drum 39 the clamp 16 can be raised quickly almost to the desired ultimate position, preferably to such height that the drapery is pulled straight without being stretched. Further movement of the clamp 16 is effected by turning the hand wheel 38 which by means of the worm gearing, the pawl, and ratchet mechanism causes the cables 23 to be wound up on drum 39 at a slow rate. Accurate adjustment of the final position of clamp 16 is thereby made easy.

In the use of my appliance, the door 10 is opened to its Figure 1 position to give access to the interior of the cabinet. The clamp 16—18 is then lowered until it comes to rest on the angle iron abutments 45 in which position both clamps will be of convenient access for securing the drapery 46 at its upper and lower ends to the clamps 16—18 and 24—25 respectively. The clamps 16—18 may then be raised as previously described, preferably such a height that the drapery is pulled straight without stretching. The application of steam through the forward opening softens the fibers so that the drapery may be stretched by the turning of the hand wheel 38 to the desired length as indicated by the calibration of the tube. The final operation comprises the drying of the drapery while in stretched condition, this being done by closing the door or window 10 and then subjecting the drapery to a current of warm dry air. A suction device draws the air through the conduit to be replaced by air entering the reticulated floor of the cabinet from a conduit 49 having a suitable heating element 50.

Having thus described my invention in such full, clear, and exact terms that its construction and operation will be readily understood by others skilled in the art to which it pertains, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A drapery stretcher and finisher including an elongated cabinet having upper and lower clamping bars in the interior thereof for clamping drapery at its opposite edges thereto, said lower clamping bar being fixed in position and said upper clamping bar being upwardly movable to stretch the drapery, a pulley, a cable secured to said upper clamping bar and passing over said pulley, a winding drum having a crank axle for winding said cable on said drum to elevate said upper clamping bar and to thus stretch the drapery, a weighted cable secured to said pulley, and a guide for the free extremity of said weighted cable and having thereon indicia to indicate the length of the drapery while the drapery is being stretched.

2. A drapery stretcher and finisher including an elongated cabinet having upper and lower clamping bars in the interior thereof for clamping drapery at its opposite edges thereto, said lower clamping bar being fixed in position and said upper clamping bar beinge upwardly movable to stretch the drapery, a pulley, a cable secured to said upper clamping bar and passing over said pulley, a winding drum having a crank axle for winding said cable on said drum to elevate said clamping bar and to thus stretch the drapery, a weighted cable secured to said pulley, a guide for the free extremity of said weighted cable and having thereon indicia to indicate the

length of the drapery while the drapery is being stretched, and means for passing a current of hot dry air upwardly through said cabinet.

3. A drapery stretcher and finisher including an elongated cabinet having an opening in the lower portion of the front wall thereof to give access to the lower portion of the interior of said cabinet, a slidable closure for the opening, means in said cabinet for clamping the lower edge of drapery thereto, said means including a pair of clamping jaws having interfitting semi-circular flange and groove, a movable clamp positioned above said clamping means and movable toward and away from said clamping means, said movable clamp having the function of securing the upper edge of the drapery, a pulley and a winding drum, a cable passing over said pulley and secured at its extremities to said movable clamp and to said winding drum, manually operable means for rotating said winding drum rapidly for taking the slack out of the drapery, other manually operable means for slowly turning said drum to stretch the drapery, a second cable secured to said pulley, a calibrated device adjacent to the free extremity of said second cable for indicating the length of the drapery during the stretching thereof, and means for conducting warm dry air upwardly through said cabinet.

4. A stretcher and finisher for draperies and other fabric articles varying substantially in thickness, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars and means for yieldably clamping said bars together, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp, and a movable closure for covering said opening.

5. A stretcher and finisher for draperies and other fabric articles varying substantially in thickness, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars and means for yieldably clamping said bars together, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp and to permit the application of a moistening agent to said drapery, a movable closure for covering said opening, and means for circulating heated air through said cabinet to dry said drapery in its stretched condition.

6. A stretcher and finisher for draperies and other fabric articles, including a stationary frame, a clamping bar fixed in position in said frame at one end thereof, a movable clamping bar parallel thereto and slidably secured in said frame, said movable clamping bar being movable into proximity to said fixed clamping bar for securing a drapery thereto and away from said fixed clamp to tension said drapery, and manually movable means selectively operable to move said movable bar with a low value of mechanical advantage so as to move said bar quickly to approximately the desired position or to move said movable bar with a high value of mechanical advantage to stretch said drapery.

7. A stretcher and finisher for draperies and other fabric articles, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, manually movable means selectively operable to move said movable clamp with a low value of mechanical advantage so as to move said clamp quickly to approximately the desired position or to move said movable clamp with a high value of mechanical advantage to stretch said drapery, and an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp.

8. A stretcher and finisher for draperies and other fabric articles, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, means for moving said movable clamp, manually operable means, a high ratio transmission and a low ratio transmission between said clamp moving means and said manually operable means, and an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp.

9. A stretcher and finisher for draperies and other fabric articles, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, a cable secured to said movable clamp, manually operable winding drum for winding said cable to elevate said movable clamp at a relatively high rate of speed, speed reduction gearing having its low speed and connected to said drum, and a further manual operator connected to the other end of said gearing for slowly moving said drum to stretch said drapery.

10. A stretcher for draperies and other fabric articles varying substantially in thickness, including a long cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars and means for clamping said bars together, means for moving said movable clamp towards said fixed clamp and away from said fixed clamp to tension said drapery, and indicating means disposed outside of said cabinet for indicating the spacing of said fixed and movable clamps.

11. A drapery stretcher having upper and lower parallel clamping bars for clamping drapery at its opposite edges thereto, said lower clamping bar being fixed in position and said upper clamping bar being upwardly movable to stretch the drapery, a pulley, a cable secured to said upper clamping bar and passing over said pulley, a winding drum having a crank axle for winding said cable on said drum to elevate said upper clamping bar and to thus stretch the drapery, a weighted cable secured to said pulley, and a

guide for said weighted cable and having thereon indicia to indicate the length of the drapery while the drapery is being stretched.

12. A stretcher and finisher for draperies and other fabric articles varying substantially in thickness, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars, one of which is grooved, and means for clamping said bars together, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp, and a movable closure for covering said opening.

13. A stretcher and finisher for draperies and other fabric articles varying substantially in thickness, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars, one of which is grooved, and means for clamping said bars together, said movable clamp being movable into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp and to permit the application of a moistening agent to said drapery, a movable closure for covering said opening, and means for circulating heated air through said cabinet to dry said drapery in its stretched condition.

14. A stretcher and finisher for draperies and other fabric articles varying substantially in thickness, including an elongated cabinet, a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars and means for yieldably clamping said bars together, said movable clamp being movable into proximity, to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery, an opening adjacent said fixed clamp and of sufficient extent to permit the application of said drapery to said movable clamp when the latter is adjacent said fixed clamp, a movable closure for covering said opening, and indicating means disposed outside of said cabinet for indicating the spacing of said fixed and movable clamps.

15. A stretcher for draperies and other fabric articles varying substantially in thickness, including a clamp fixed in position in said cabinet at one end thereof, a movable clamp parallel thereto, each of said clamps comprising a pair of bars and a plurality of spring pressed abutments secured to a rotatable shaft and rotatable into and out of a clamping position in which said abutments engage one of said bars to yieldably clamp the bars together, and means for moving said movable clamp into proximity to said fixed clamp for securing a drapery thereto and away from said fixed clamp to tension said drapery.

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