Jan. 11, 1955 H. D. REED 2,699,010

DRAPERY SIZER

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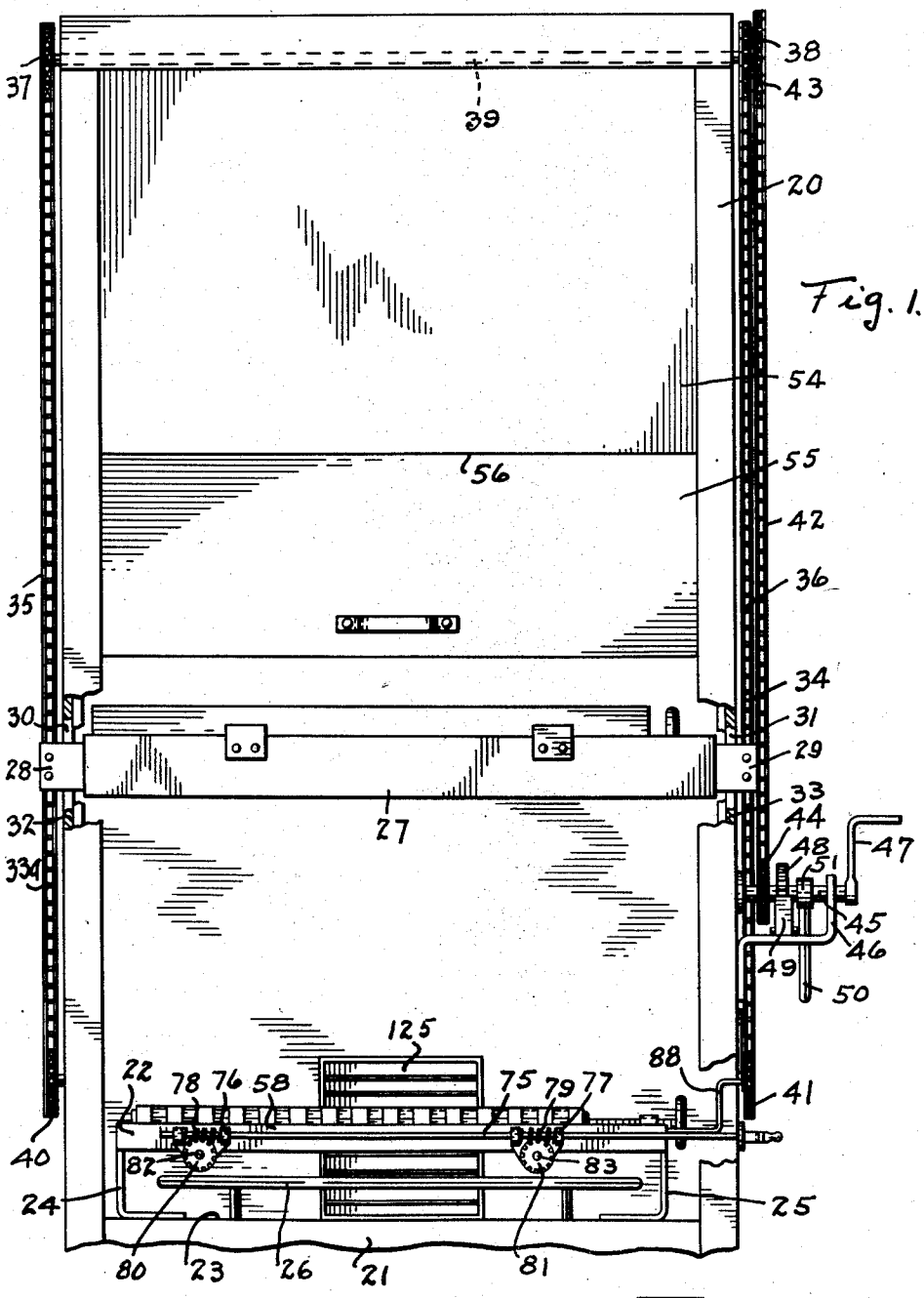


Fig. 1.

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Jan. 11, 1955 H. D. REED 2,699,010

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Filed March 17, 1954 5 Sheets-Sheet 2

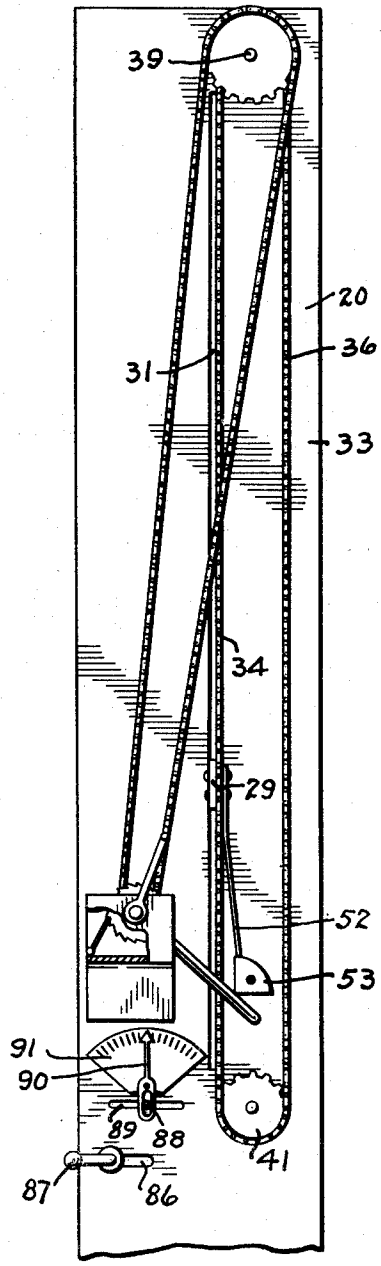


Fig. 2.

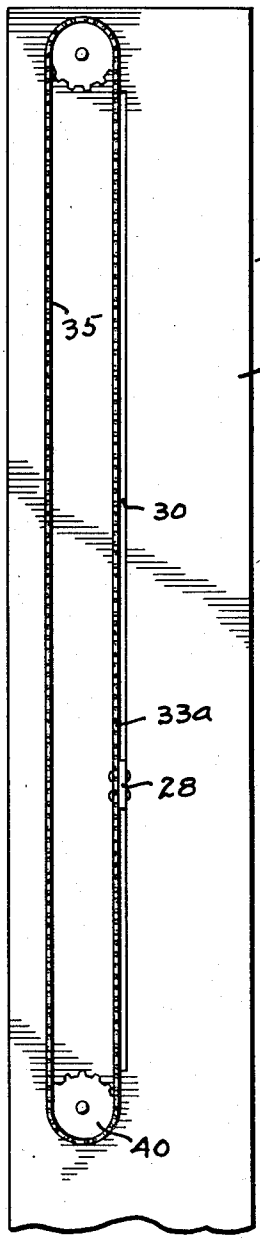


Fig. 3.

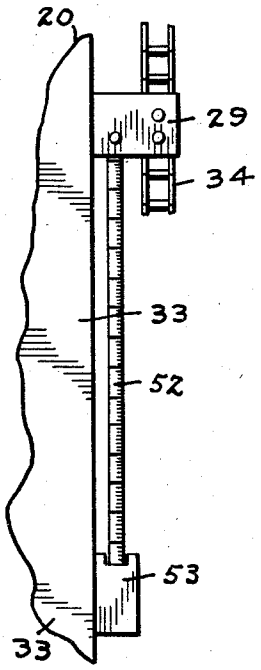


Fig. 4.

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Jan. 11, 1955 H. D. REED 2,699,010

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Filed March 17, 1954 5 Sheets-Sheet 3

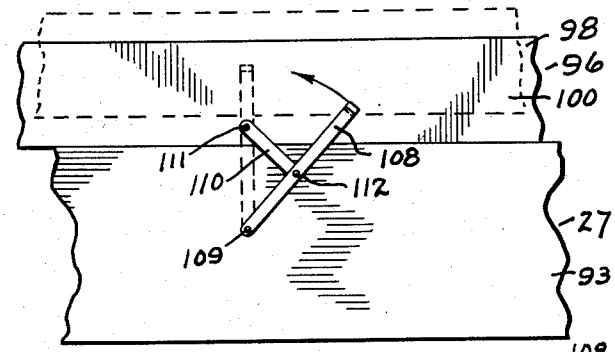


Fig. 7.

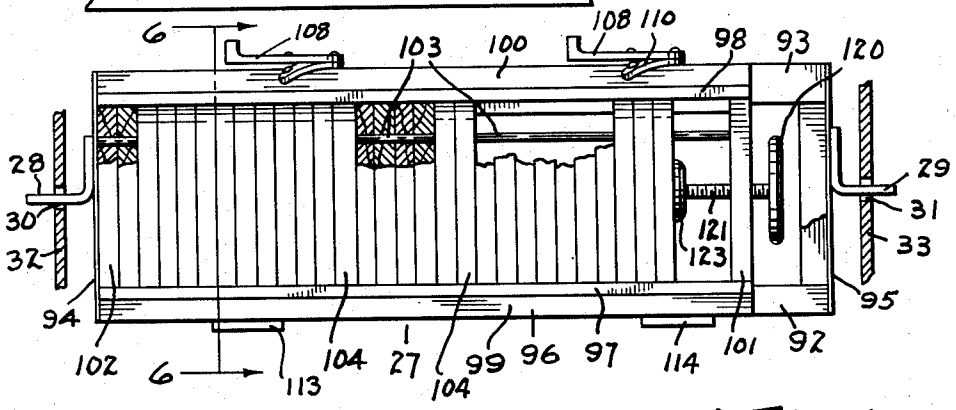


Fig. 5.

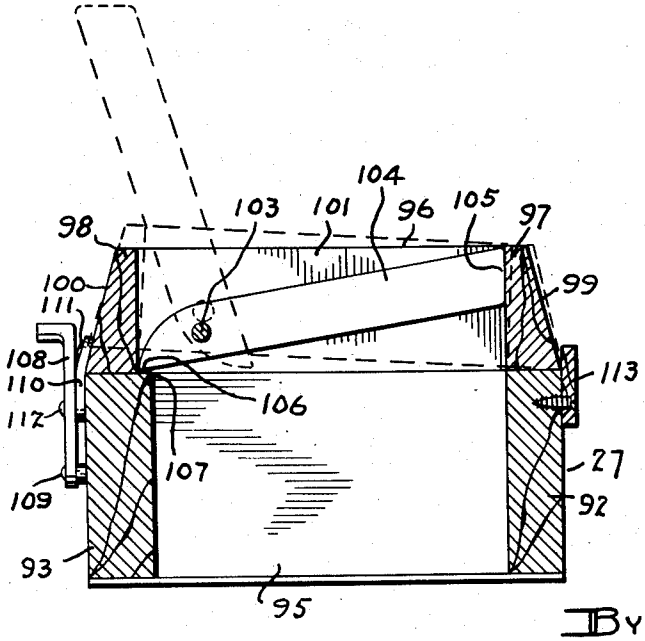


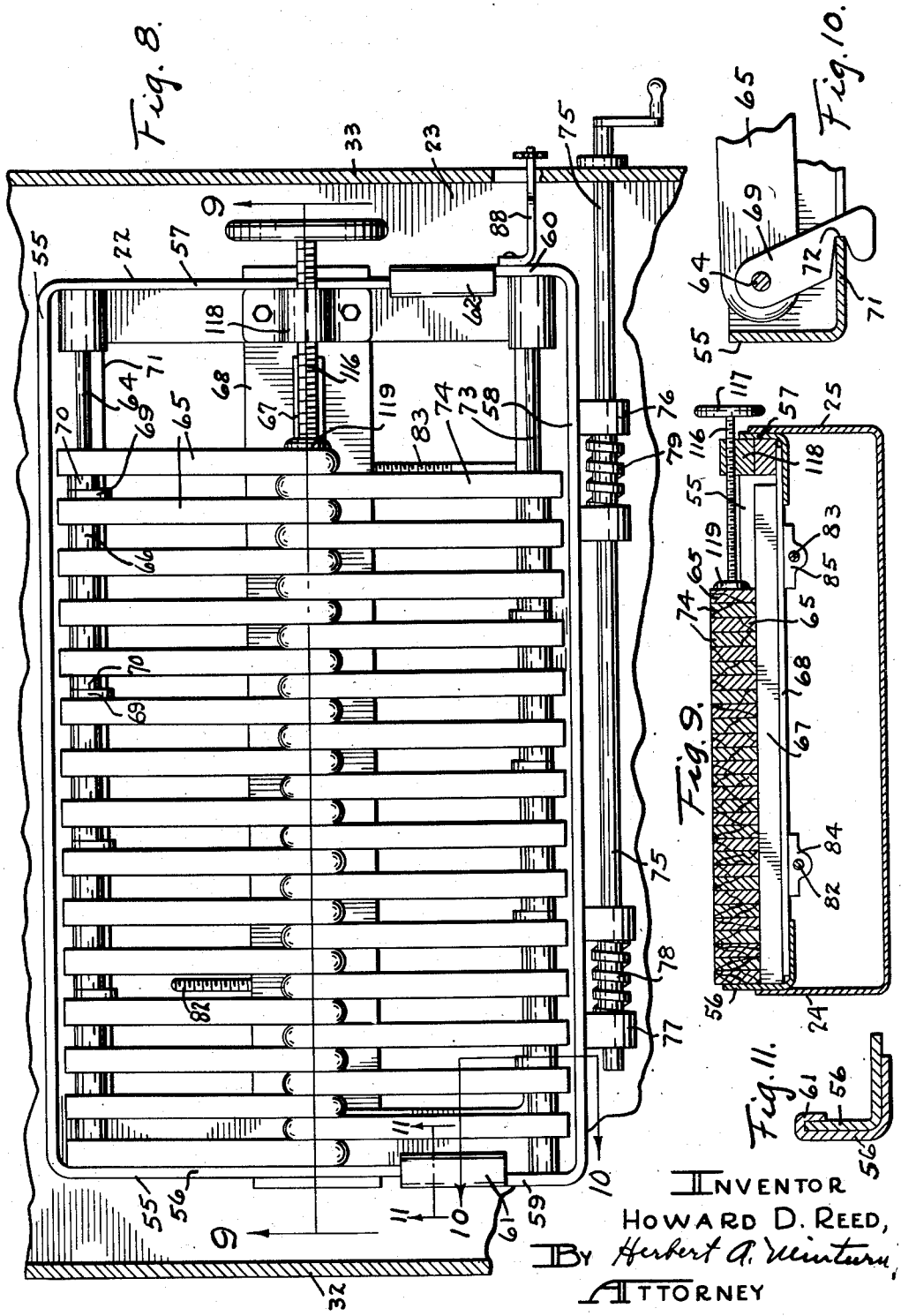
Fig. 6.

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Jan. 11, 1955 H. D. REED 2,699,010

DRAPERY SIZER

Filed March 17, 1954 5 Sheets-Sheet 4



Jan. 11, 1955 H. D. REED 2,699,010

DRAPERY SIZER

Filed March 17, 1954 5 Sheets-Sheet 5

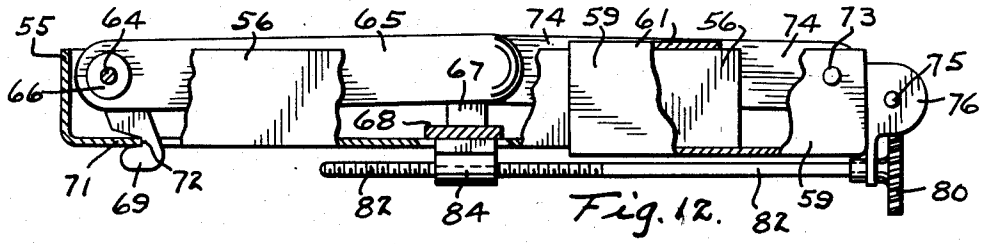


Fig. 12.

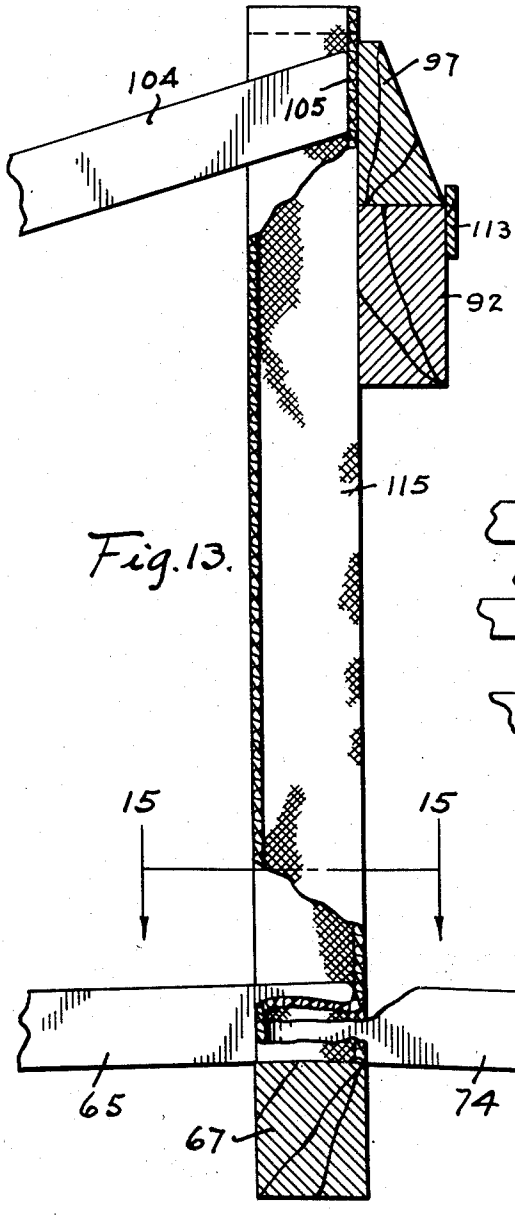


Fig. 13.

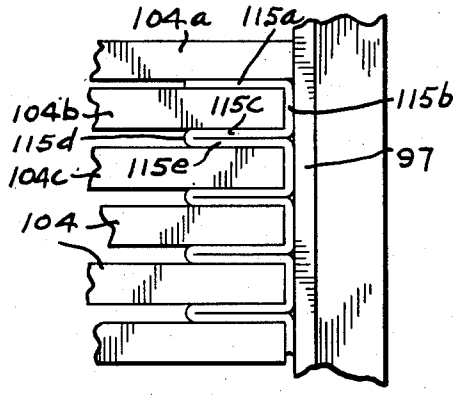


Fig. 14.

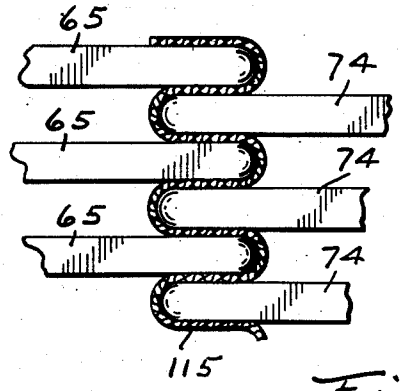


Fig. 15.

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2,699,010

DRAPERY SIZER

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Application March 17, 1954, Serial No. 416,803

20 Claims. (Cl. 45—24)

This invention relates to a device for receiving and holding draperies and has as a primary purpose the fixing to size in respect to vertical and transverse dimensions of the draperies after they have been cleaned and finally dried. The structure involved in the invention retains the draperies at both the bottom and top ends in fixed spacings and also causes pleats to be formed in the draperies of predetermined lateral spacing apart as well as depth.

By reason of the use of this particular invention, dry cleaners may guarantee that draperies after being cleaned may be returned to the owners in proper shape, such as having the hemline square with the side edges, and having the vertical and lateral dimensions correctly preserved.

Heretofore, much difficulty has been encountered in dry cleaning draperies in that when the draperies have been finally cleaned and pressed, they have departed considerably from their original sizes with the result that the customer is very much dissatisfied with the results, particularly when the draperies are rehung and they show signs of having been shrunk or becoming out of square so that the corners or even middle portion of the draperies do not hang evenly across the lower edges. Furthermore, the original pleats have disappeared from the draperies following the dry cleaning, and they have heretofore been usually restored simply by using the fingers to attempt to press them in after the draperies have been rehung.

By use of my invention, the draperies have, as above indicated, been dry cleaned and then have the pleats restored therein during a "pressing" operation as will be hereinafter described in detail.

These and many other objects and advantages of the invention including ease of operation as well as accuracy in securing the end result sought, and also including a relatively low cost of production, will become apparent to those versed in the art in the following description of one particular form of the invention as illustrated in the accompanying drawings, in which

Fig. 1 is a view in front elevation and partial section of a structure involving the invention;

Fig. 2 is a view in right hand end elevation;

Fig. 3 is a view in left hand end elevation.

Fig. 4 is a detail on an enlarged scale in front elevation of a measuring indicator;

Fig. 5 is a top plan view in partial section of the drapery upper end holder box;

Fig. 6 is a view on an enlarged scale in transverse vertical section on line 6—6, Fig. 5;

Fig. 7 is a detail in rear elevation of an operating mechanism for controlling the rear elevation of the upper end finger cage;

Fig. 8 is a transverse, horizontal section through the structure immediately above the lower draper finger frame;

Fig. 9 is a vertical section on the line 9—9 in Fig. 8;

Fig. 10 is a detail in vertical section on the line 10—10 in Fig. 8;

Fig. 11 is a detail in vertical section on the line 11—11 in Fig. 8;

Fig. 12 is a view in end elevation and section of the lower finger frame;

Fig. 13 is a diagrammatic view in vertical section showing the drapery held between the upper and lower fingers;

Fig. 14 is a detail in top plan of the finger engagement with the upper end of the drapery; and

Fig. 15 is a view in horizontal section on the line 15—15 in Fig. 13.

Referring to Figs. 1–4, there is formed any suitable

housing generally designated by the numeral 20, herein shown as being rectangular in cross-section and extending to a height above the supporting base 21 sufficiently to receive therein the full length of the longest drapery to be handled. Also the structure is sufficiently wide to receive the widest drapery to be handled.

At the lower end of the structure or cabinet 20, there is mounted preferably above the floor level a finger frame 22 to be horizontally disposed. In the form herein shown, this frame 22 is supported above the floor 23 of the cabinet 20 by means of a pair of brackets 24 and 25, the exact means of support being immaterial so long as they are rigid. Below the frame 22 is a coil 26 for admission of steam into the cabinet 20. The exact conformation and location of the coil 26 again is immaterial so long as the coil 26 will fill the interior of the cabinet 20 with steam for sufficient steaming or moistening of the draperies as may be required.

An upper finger carrying box 27 is carried by the cabinet 20 to be above the frame 22. This box 27 has a bracket 28 on one end and a bracket 29 on the other end each extending through a vertically disposed slot 30 and 31 respectively in the end panels 32 and 33 respectively of the cabinet 20. These brackets 28 and 29 are secured to flights 33*a* and 34 of endless chains 35 and 36 respectively. These chains extend around upper sprockets 37 and 38 fixed on a shaft 39 extending across the upper portion of the cabinet 20, in such manner that the chains 35 and 36 are free to travel. The chains 35 and 36 also extend around lower sprockets 40 and 41. Since the two sprockets 37 and 38 are tied together, the sprockets being fixed on the shaft 39, the box brackets 28 and 29 are maintained at fixed horizontal elevations regardless of the travel of the box 27 in accordance with the movement of the chains.

The box 27 is to be raised and lowered in respect to the fixed position of the frame 22. In order to accomplish this travel of the box 27, a third endless chain 42 is employed to have its upper portion wrap around the sprocket 43 which is fixed to the shaft 39 and extending on through the sprocket 38, and then this chain 42 is carried down to wrap around a sprocket 44 at some suitable height, herein shown as on that side of the cabinet 20 as appears the side or end panel 33. The sprocket 44 is fixed on a short shaft 45 which extends outwardly from the panel 33 through a bracket 46, and a handle 47 is fixed to the shaft 45 outside of the bracket 46 as a means of revolving the shaft 45 and thus carrying the chain 42 around the sprocket 44. In so doing, both chains 35 and 36 are caused to move in unison and thereby carry the box 27 horizontally upwardly or downwardly depending upon the direction of turning of the crank 47. To hold the box 27 against dropping either by gravity or downward pull thereon, there is fixed on the shaft 45 a ratchet wheel 48 against which a pawl 49 may bear. The teeth of the wheel 48 are so directed that the dog 49 will engage therewith to prevent downward travel of the box 27. For easier and more positive turning of the shaft 45, a ratchet lever 50 having a hub 51 mounted on the shaft 45 interconnected therewith through a ratchet mechanism may be employed, the ratchet mechanism not being shown in detail since it does not form a part of my invention per se. It becomes desirable in the operation of the device to know the exact spacing apart of the box 27 from the frame 22, and in order to give this information, there is provided a measuring device, herein shown as in the form of a tape 52, flexible in nature, and of that type which is normally retractable within a housing 53. The free end of the tape 52 is carried from the housing 53 and in the present instance, fixed to the bracket 29 so that when the box 27 is carried upwardly, the tape 52 will give an indication of the spacing apart of the box 27 from the frame 22, the tape 52 being calibrated so that it may be read directly. The housing 53 in the present showing is mounted on the end panel 33, Fig. 2, on which side all of the control devices are located.

The front of the cabinet 20 has an upper closure 54, and a door 55 is provided so that it may be pulled downwardly to close off the entire front opening between the under edge 56 of the panel 54 and the floor 23 whereby steam

may be confined in the cabinet 20, although some may escape through the vertical slots 30 and 31, but not in any appreciable amount, since the interior of the cabinet 20 is not intended to be pressurized.

The frame 22 is generally rectangular in shape as viewed from the top, and is extensible and retractable in fore and aft directions. In the form herein shown, the frame 22 has a rear angle iron frame 55 with forwardly extending legs 56 and 57. A front angle iron member 58 extends entirely across the front side and has rearwardly turned legs 59 and 60. The legs 59 and 60 have their vertical portions sliding over the outside faces of the legs 56 and 57, and also carry overturned lips 61 and 62 respectively to hold the legs 59 and 60 up against the legs 56 and 57 so that the front portion of the frame 22 actually telescopes over the forward end portions of the legs 56 and 57, a detail in respect to the legs 56 and 59 being shown in Fig. 11.

The rear portion 55 of the frame 22 carries a shaft 64 along its back portion, and on this shaft are alternately placed forwardly extending work fingers 65 and intervening spacer spool 66, 15 of these fingers being herein shown, although the exact number is not to be limited by that figure. These fingers 65 and spacer spool 66 are free to slide along the shaft 64. Also the fingers 65 are free to revolve therearound. These fingers extend forwardly from the shaft 64 to rest normally on a strip 67 which is carried on a bar 68 extending between the legs 56 and 57, and fixed thereto, Fig. 9. These fingers 65 normally rest on this strip 67 freely and may be lifted upwardly therefrom without any restrictions. A number of hold down fingers 69, herein shown as four in number, are spaced along the shaft 64 between fingers, herein shown as between a finger and a short length spacer spool 70. These hold down fingers, illustrated on an enlarged scale in Fig. 10, are long enough to extend downwardly and over the forward edge of the forwardly turned leg 71 of the angle iron forming the back member 55, and further these fingers 69 are notched out as at 72 so that they normally will hook over the forward edge of this leg 71, whereby upward pull on the shaft 64 will not permit it to spring upwardly by reason of these fingers 69 resisting that upward pull. On the other hand, these fingers 69 are free to slide along the leg 71 should the fingers 65 be required to be spaced differently therealong. Also they may be released simply by rocking them around and upwardly.

In like manner, a shaft 73 is carried along inside of the forwardly positioned frame member 58 to be fixed thereto at its ends in any suitable manner, and there are slidingly carried along this shaft 73 a plurality of rearwardly extending fingers 74, herein shown as 14 in number, these fingers 74 being sufficiently long to extend between adjacent fingers 65 and rest by their rear free ends over the strip 67, Fig. 8. The amount of overlap of the adjacent fingers 65 and 74 is determined by the spacings of the member 58 from the member 55.

To control the overlapping of these fingers 65 and 74 by their free ends, there is carried across the front side of the member 58 a shaft 75 extending revolubly through brackets 76 and 77, these brackets being spaced apart. Each bracket 76 and 77 carries a worm 78 and 79 respectively which is in constant mesh with worm wheels 80 and 81 respectively. These wheels 80 and 81 are fixed on the outer ends of shafts 82 and 83 supported at their forward ends by the brackets 76 and 77 and these shafts 82 and 83 extend rearwardly to screw-threadedly engage in brackets 84 and 85 fixed to the under side of the bar 68, Fig. 12. The shaft 75 extends on out through a horizontally disposed slot 86 through the end panel 33, and carries an operating handle 87 on its outer end whereby the turning of the handle or crank 87 will turn the shaft 75 and thus turn the shafts 82 and 83 and advance or retract the forward frame member 58 in respect to the rear member 55. To give a visual indication of the degree of the lapping of the free ends of the fingers 65 and 74, there is provided an arm 88 fixed to the leg 60 and extending through a slot 89 in the end panel 33 to engage with a needle 90 which is swung by horizontal travel of the arm 88 over a card 91. This card 91 may be graduated to give the amount of travel and the overlapping of these fingers.

The upper box 27 has front and back rails 92 and 93 interengaged in spaced apart relation by end plates 94 and 95. The brackets 28 and 29 are fixed respectively to these plates 94 and 95, Fig. 5.

On the top of the box 27 there rests freely a cage 96 having front and back members 97 and 98 respectively, these members having inclined faces 99 and 100 respectively in the present showing, although this inclination is not essential to the invention. The front and back rails 97 and 98 are tied together at their ends by the cross-rails 101 and 102 respectively. Between these rails 101 and 102 there is supported a shaft 103 adjacent the rear rail 98. On the shaft 103 there are carried a plurality of fingers 104, herein shown as 28 in number, the exact number depending upon the width of the drapery to be handled and the number of pleats to be carried or formed therein. As is to be noted in Fig. 6, each of these fingers 104 has a front end 105 shaped in relation to the length of the finger to bear substantially by its full area against the inside face of the rail 97. The shaft 103 is mounted toward the lower edges of the rails 101—102 and the rear rail 98, as best shown in Fig. 6 so that the finger 104 will slope upwardly from the shaft 103 to the upper edge of the rail 97, by the top surface at least of the finger 104. Furthermore, the finger 104 in each instance is formed to have a heel 106 which will normally rest on the top side of the box rail 93 when the front end 105 bears against the rail 97. The thickness of the lower edge of the rail 98 is made to be less than the thickness of the rail 93, that is the thickness measured horizontally across those rails so that a shoulder 107 is left entirely along the upper edge of the rail 93 forwardly of the lower edge of the cage rail 98. The relationship of the heel 106 to the shoulder 107 is such that downward pull on the fingers 104 will cause the heel 106 to bear against the shoulder 107 while at the same time the front end 105 is compressibly urged against the inside face of the rail 97.

However in this type of construction, the finger 104 cannot be hinged upwardly about the shaft 103 on account of the heel 106 striking the shoulder 107. Therefore the cage has to be rocked to some such position as indicated by the dash lines in Fig. 6, and this is accomplished by means of a lever 108 pivoted to the box rail 93 by its lower end at a pivot axis 109 spaced below the top of the rail 93. A link 110 is pivoted by one end to the lower portion of the cage rail 98 at the pivot axis 111, and has its other end pivotly connected to the lever 108 intermediate its ends at the pivot axis 112, Fig. 7. When the lever 108 is rocked down to the position shown by solid line, the cages rail 98 will rest on the top of the box rail 93, and when the lever 108 is rocked to the left as viewed in Fig. 7, to the dash line position, the link 110 will come around into parallelism with the lever 108 and thus lift the cage by its rear portion to the dash line position as shown in Figs. 6 and 7. In this regard, it is essential that the forward rail 97 be anchored against forward travel across the rail 92 of the box, and this is accomplished by any means such as by providing the upturned stop members 113 and 114 fixed respectively to the front side of the box rail 92 so that the lower edge of the front rail 97 of the cage may bear thereagainst. These stop members 113 and 114 also serve to limit the forward travel of the finger 104 in respect to its heel bearing on the shoulder 107.

Operation

The drapery is first dry-cleaned in the usual and well known manner, and brought to the device constituting the present invention in a dry state. The box 27 is lowered to a convenient height, and the drapery 115, Fig. 13 is brought by its upper end up through the box 27, and brought forwardly against the rail 97, the fingers 104 having previously been rocked rearwardly to permit the drapery to be pulled up freely within the box.

Referring to Fig. 14, finger 104*a* is lowered and a length 115*a* of the drapery 115 is placed thereagainst; the next finger 104*b* is lowered to come along the side of the length 115*a*, and have a length 115*b* of the drapery extend across the front of the finger 104*b* whereupon the finger 104*b* is pushed downwardly to compressibly engage the drapery portion 115*b* against the rail 97; a drapery portion 115*c* is carried along the side of the finger 104*b*, folded as at 115*d* and back along itself by the portion 115*e* and then around the front end of the next finger 104*c* and so on with the succeeding fingers 104 across the top end portion of the drapery. As indi-

cated in Fig. 13, a portion of the drapery **115** may extend above the rail **97** particularly where there is a "traverse" hem provided thereon. The width of the drapery portions **115***e* and **115***c* and **115***a* will be substantially equal, and will normally already have been sewed into the top of the drapery so that such preformed pleats will serve as guides, although the preformed pleats do not necessarily have to be present since they may be formed as above indicated. After the drapery has thus been engaged by the fingers **104**, the box **27** may be elevated so that the lower end of the drapery may then be over the fingers **65** and **74**. These fingers will have been rocked about their respective shafts **64** and **73** to permit the drapery to come down and hang by its lower end onto the member **67**, and then the drapery will be engaged by its lower end in a manner indicated in Fig. 15, where the drapery has its lower end portions folded around the fingers **65** and **74** in a sinuous manner, the ends of the fingers being lapped one past the other in accordance with the depth of pleats to be desired in the finished drapery. When these fingers **65** and **74** have been so brought into engagement with the drapery, they are clamped laterally in compressive engagement through the drapery folds so that the length of the drapery is held. This clamping arrangement is herein shown in one particular form as consisting of a screw-threaded shaft **116** having an outer end operating wheel **117** to cause the shaft **116** to be screw-threadedly advanced through the bracket **118** by a foot **119** bearing against the first appearing finger which is a finger **65** in the present showing, Fig. 8. By tightening up the wheel **117**, the fingers are compressibly interengaged through the lower end of the drapery so that they are effectively locked against being raised from the transverse member **67**.

In this regard, the upper fingers **104** have been compressibly urged one towards the other through the intervening folds of the drapery **115** by means of a similar clamping device consisting of the operating wheel **120** fixed on the end of a screw shaft **121** screw-threadedly passing through the cross rail **101** of the finger cage and forcing a foot **123** against the first appearing finger **104** so that all of these fingers may be compressed one against the other and thus prevent the drapery from slipping downwardly from between the fingers themselves and also from between the fingers and the forward rail **97**.

The upper box **27** is then raised from the lower frame **22** by manipulation of the crank **47** or the ratchet lever **50**, and the elevation maintained by means of the pawl engaging the wheel **48**. In this manner, the drapery may be engaged and stretched to some extent into its proper dimensions to be square across both the top and bottom ends in respect to the vertical edges, and also to have the correct vertical dimensions on both edges as well as throughout the central area. The drapery had been previously measured when it first came into the dry-cleaning plant, and a record of the dimensions has been kept, so that the depth of pleats may be known in advance in order to set the fingers **65** and **74** in the required overlapping arrangement by means of the crank handle **87** as determined by the reading of the card **91**. Also the overall length of the drapery is determined by pulling the box **27** upwardly to the dimension which will give the original length of the drapery all as determined by the reading of the tape **52**.

The door **55** is then pulled closed, and steam is admitted to the interior of the cabinet **20** from the coil **26**, so that the drapery is thoroughly steamed while it is being held in the required position in respect to its demensions, and after a thorough steaming, then the steam is shut off, and warm air is admitted to the cabinet **20** by some suitable means such as through a duct **125**, Fig. 1. Preferably the air should be quite turbulent within the cabinet **20**, so that the drapery is uniformly dried throughout, for best results. This drying is accomplished while the drapery is held to give the precise dried shape in respect to pleats and dimensions in respect to the overall height as well as the overall width. Following the drying, the door **55** is opened, and the box **27** allowed to remain in its upper position or slightly lowered while the fingers **65** and **74** are released by turning out the wheel **117** to permit the lower end of the drapery to be pulled from therebetween and therearound, whereupon the box **27** may then be lowered so that excess may be had to the upper fingers **104** which are released from their compressive engagement by turning out the upper wheel **120** to permit the fingers **104** to be rocked around out of the way. The drapery is then completed in respect to its cleaning and "pressing" and may be folded into the desired delivery form, such as longitudinally along the pleats.

While I have shown and described my invention in the one particular form in more or less minute detail, it is obvious that structural variations may be employed without departing from the spirit of the invention, and I therefore do not desire to be limited to that precise form beyond the limitations which may be imposed by the following claims.

I claim:

1. For a drapery sizer, the combination of a lower finger frame; an upper finger box; a rail across one side of said box; a plurality of drapery engaging fingers hingedly supported by the box to swing vertically downwardly against said rail; a plurality of pairs of drapery engaging fingers hingedly carried by said lower frame, the lower frame fingers being mounted to swing vertically on spaced apart axes and have free ends overlap side by side; both said box fingers and said lower frame fingers being shiftable horizontally on their hinge axes; means forcing said box fingers one laterally toward the other; means forcing said lower fingers laterally toward the other; and means shifting apart said box and said frame one from the other; the upper end of the drapery being engaged across the end portions of said box fingers and compressed against said rail by downward pull on the drapery, and said first lateral compressing means compressibly engaging folds of the drapery between the box fingers; and the lower end of the drapery being folded around and between the ends of the overlapping lower frame fingers and held against travel therefrom by said second forcing means gripping the drapery folds therebetween.

2. The structure of claim 1 in which said lower frame finger axes are shiftable longitudinally one in respect to the other for variable finger end overlapping.

3. The structure of claim 1 in which there is a stop bar limiting downwardly swinging of said lower fingers in respect to said frame.

4. The structure of claim 1 in which there is means actuated by travel of said box visually indicating the spacing of the upper fingers from said lower fingers, and means visually indicating the amount of overlap of said lower fingers.

5. The structure of claim 1 in which there is means retaining said box at a selected position spaced from said frame to hold said drapery under tension between said upper and lower fingers.

6. A drapery sizer and shaper comprising a cabinet; a finger frame carried in fixed position at one portion of the cabinet; a plurality of fingers carried by said frame along laterally spaced apart axes, one axis along one side of the frame and the other axis along the other side of the frame, the fingers having lengths extending from their respective axes and overlapping by free ends across a central zone of the frame; means limiting swinging of the fingers back of a predetermined level; a carrier of a second set of fingers traversably mounted in said cabinet; means shifting said carrier for variable spacing from said frame; fingers rockably carried by said carrier about an axis spaced to one side thereof; and a rail against which, end portions of said carrier fingers are rockable in a direction toward said frame.

7. The structure of claim 6 in which there is means carried by said frame for variable spacing apart of said frame finger axes.

8. The structure of claim 6 in which there is clamping means urging said frame finger free ends longitudinally of the finger rocking axes one toward the other.

9. The structure of claim 8 in which there is a second clamping means urging said carrier fingers one against another.

10. The structure of claim 6 in which there is an endless chain carried over sprockets at opposite end portions, along each of the sides of said cabinet; one set of common cabinet end sprockets being fixed to revolve in unison one with the other; said carrier being interconnected with common flights of said chains as means for said carrier traversing of the cabinet; and means retaining said carrier at selected spaced positions from said frame.

11. A drapery sizer and shaper comprising a set of fingers; a rail, toward which said fingers normally swing; the upper end of said drapery being compressed by ends

of said fingers carrying said drapery against said rail, the fingers approaching said rail in inclined directions to have drapery pull tend to bring the fingers toward right angled positions with the rail in respect to direction of the drapery extending therefrom; a second set of fingers sidelapping by free ends and between which ends the lower end portion of the drapery is carried in a sinuous manner; means urging said second fingers laterally one toward the other to engage compressibly therebetween said lower drapery end portion; and means carrying apart said first fingers and rail from said second set of fingers for setting up tension in the drapery therebetween.

12. The structure of claim 11 in which said second finger compressing means retains the second fingers against travel in respect to their free ends toward the first fingers.

13. The structure of claim 11 in which there is means to vary the degree of said second fingers sidelapping.

14. The structure of claim 11 in which there is a second finger resting bar limiting travel of the fingers initially oppositely from subsequent drapery pull.

15. The structure of claim 11 in which there is means confining said fingers carrying apart means to parallel travel as between respective lines of drapery engagement by said two sets of fingers.

16. The structure of claim 11 in which said first set of fingers may be laterally separated to let upper drapery end portions enter therebetween, and a second clamping means urging said upper fingers one toward the other to engage said upper drapery end portions therebetween compressibly and retain said engagement under said drapery tension.

17. The structure of claim 13 in which there is a gauge operable by relative travel of said second finger ends along each other indicating degree of finger overlap comparable to depth of pleats to be formed in the drapery.

18. The structure of claim 11 in which there is a measuring device operable by travel apart of said two sets of fingers to indicate the spacing thereapart for finished sizing and shaping of the drapery.

19. The structure of claim 11 in which said first fingers are rockable about a shaft spaced laterally from said rail; said fingers each having a heel back of said shaft; a shoulder on which said heel normally rests to relieve said shaft from bending stress under said drapery tension; and means for lifting said shaft permitting clearance of said heel from said shoulder under rocking of the fingers from said rail.

20. The structure of claim 12 in which there is a frame; a pair of laterally spaced shafts; said second fingers have ends removed from their free ends rockably carried by said respective shafts, the fingers extending therefrom into said sidelapping arrangement; and members spaced along and carried by said shafts and engaging said frame to hold the shafts from bending under said drapery tension.

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