Nov. 8, 1955 H. RICHTER ET AL 2,723,176

DOOR OPERATED TRAFFIC SURFACE FOR TEXTILE TREATING CABINET

Filed Feb. 20, 1952 2 Sheets-Sheet 1

Fig. 1.

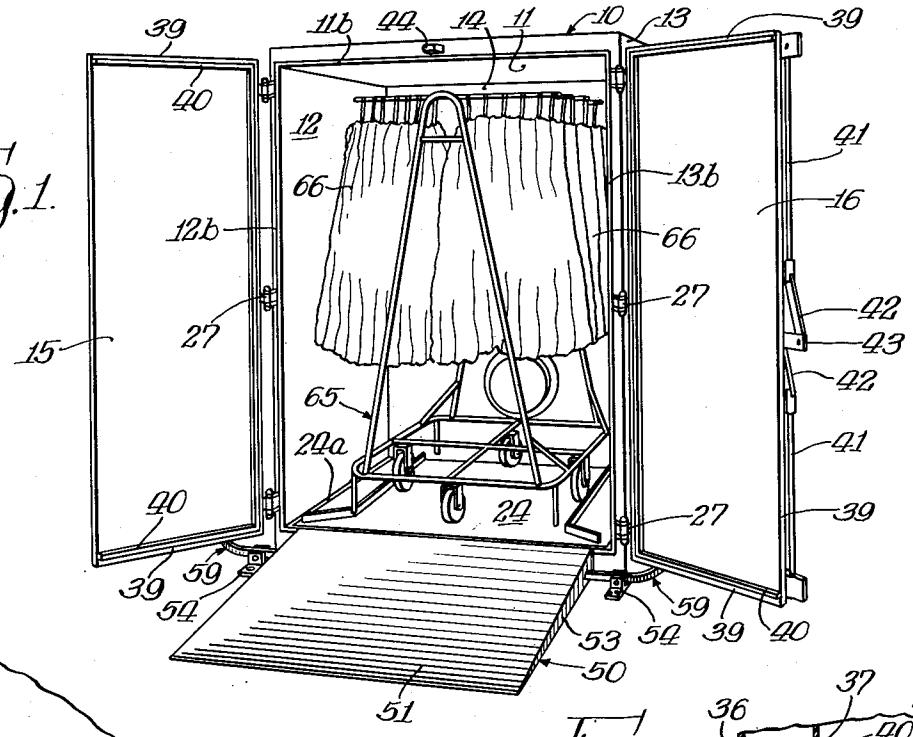


Fig. 2.

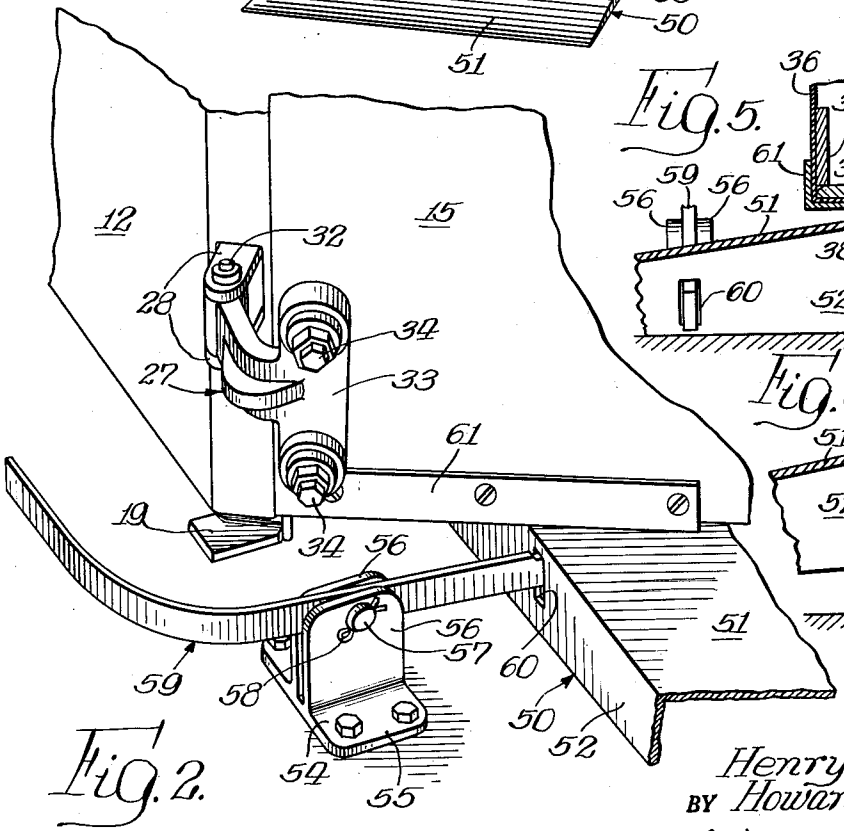
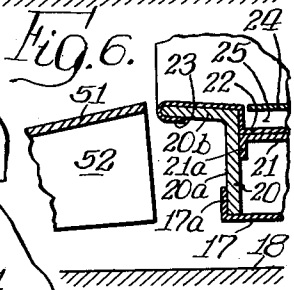


Fig. 5.

Fig. 6.



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2 Sheets-Sheet 2

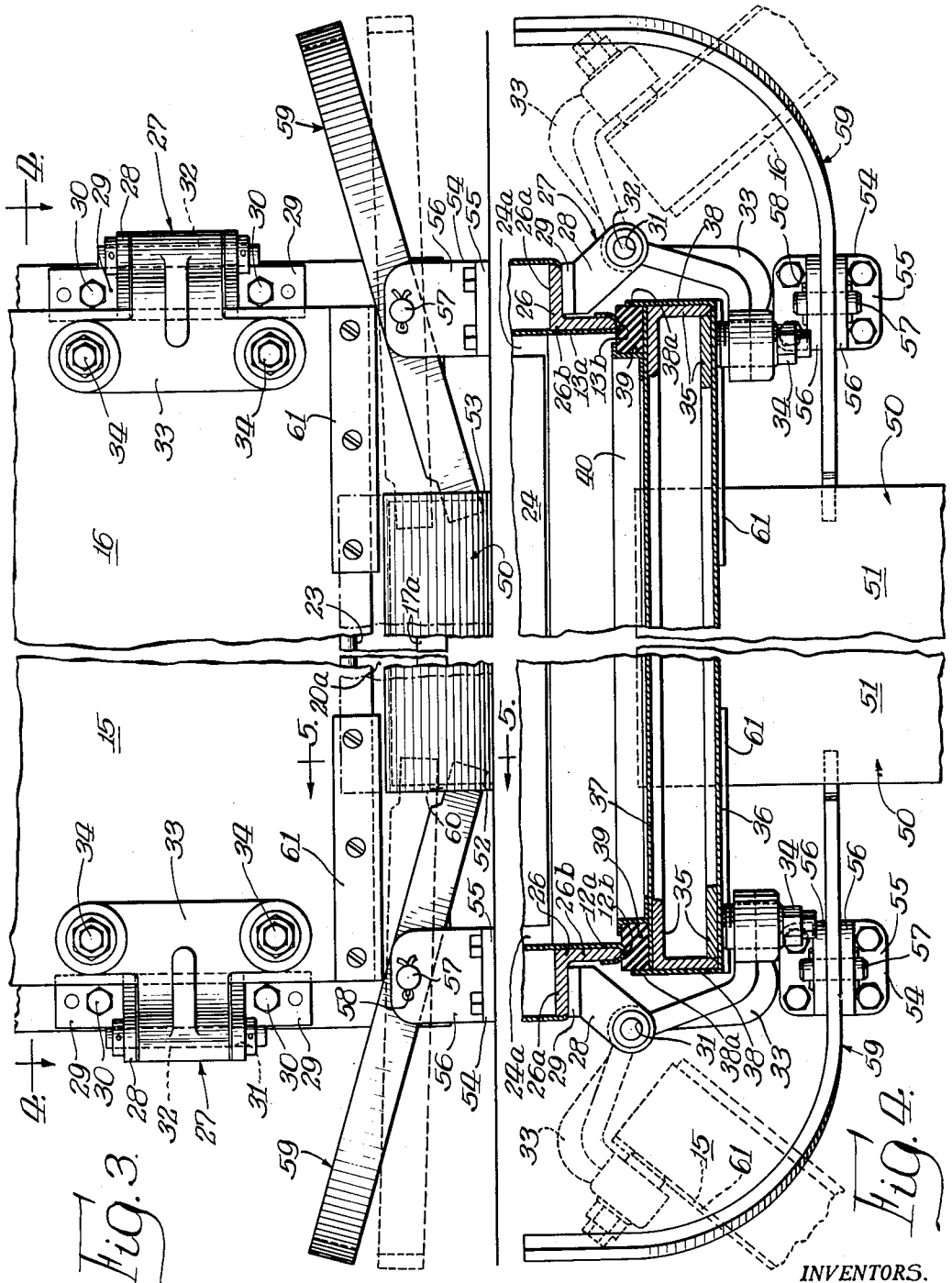


Fig. 3.

Fig. 4.

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DOOR OPERATED TRAFFIC SURFACE FOR TEXTILE TREATING CABINET

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7 Claims. (Cl. 312—318)

The present invention relates to improvements in textile treating cabinets and more particularly to improvements in treating cabinets of the kind having a doorway in an exterior wall thereof through which a truck, carrying numerous articles to be treated, may be moved bodily into the cabinet. Such cabinets are used, for example, in the hosiery industry for subjecting successive batches of hosiery to carefully controlled atmospheric treating mediums such as steam, hot highly saturated air, and dry air, the treating medium or mediums employed in each case depending upon the results desired. In the use of cabinets of this kind, hosiery may be hung upon a mobile truck such as is shown and described in United States Patent to Henry Richter, No. 2,572,893 issued October 30, 1951, and the loaded truck rolled into the cabinet wherein the articles may be subjected to the desired treatment while being supported by the truck.

In order that substantially identical treating atmospheres may be reproduced time after time in a cabinet of the kind just referred to, it is important that the cabinet be provided with doors that fit tightly in closed position and that they serve hermetically to seal the cabinet. To this end it is desirable to use external, outwardly swinging doors that overlap the outer edge of the door sill and the other outer edges of the doorway in sealing engagement, for such doors are relatively inexpensive to construct and maintain and they may be moved to a wide open position that will not interfere with movement of the truck into and out of the cabinet.

The use of doors of this kind, however, creates a problem in the provision of a satisfactory traffic surface over which a truck may be rolled into the cabinet. In order that the outwardly swinging doors may overhang or overlap the front edge of the door sill when in closed position, the sill must be disposed well above the plane of the lowermost edges of the doors. Thus, a stationary traffic surface fixed on a level with the door sill cannot be employed in front of the doorway outside the cabinet, for the traffic surface would be in the path of the lower edges of the doors and would interfere with the opening and closing of the doors.

Heretofore this problem has been met by employing a ramp plate such as is shown in the above mentioned patent to Henry Richter, the plate being hinged at one of its edges to the floor of the cabinet just inside the doorway and being arranged, when the cabinet doors were open, to be folded forwardly and downwardly from its normal position inside the cabinet to an operative position across the door sill to provide a ramp up which a truck laden with hosiery or other articles may be rolled into the cabinet. In order for the doors again to be closed, however, it has been necessary that the plate be lifted and rotated upwardly and inwardly back to its normal position within the cabinet, the movement of the plate from one of its positions to the other being accomplished manually.

The principal object of the present invention is to provide, in combination with a textile treating cabinet of the general character described above, a movable traffic

surface disposed outside the doorway of the cabinet, the traffic surface having a receded position outside the path of movement of the door or doors of the cabinet to permit the same to be opened or closed and having an operative position substantially on a level with the door sill of the cabinet in the path of the doors to permit movement of a truck across the traffic surface into the cabinet, the movement of the traffic surface from one of its positions to the other being accomplished entirely automatically in response to movement of the doors. Another object of the invention is to provide a vertically movable ramp outside the doorway of a textile treating cabinet, the ramp being automatically lifted from a position below the path of movement of the doors of the cabinet to a position substantially on a level with the door sill of the cabinet by means engaged by the doors upon movement to their open position.

These and other objects and advantages of the present invention will be apparent from the following description of a preferred embodiment thereof, taken together with the accompanying drawings in which:

Fig. 1 is a perspective view of a textile treating cabinet embodying the present invention, the doors of the cabinet being shown in open position with a ramp-like traffic surface in front of the cabinet in corresponding raised position to permit a mobile textile supporting truck to be rolled out of the cabinet;

Fig. 2 is an enlarged fragmentary perspective view of the lower left corner of the front of the cabinet showing a ramp lifting lever that is engaged by the lower edge of the door to lift the ramp when the door is moved to its full open position;

Fig. 3 is a fragmentary elevational view of the lower portion of the front of the cabinet showing the doors in closed position and the ramp in its receded position;

Fig. 4 is a fragmentary cross-sectional view taken substantially on line 4—4 in Fig. 3 showing in broken lines the position of the doors in their full open positions;

Fig. 5 is a fragmentary cross-sectional view taken on the line 5—5 in Fig. 3 showing the relative position of the ramp with respect to the lower edge of one of the doors and with respect to the door sill of the cabinet when the doors are in closed position; and

Fig. 6 is a similar view showing the position of the ramp with respect to the sill of the doorway when the doors are in open position.

In the drawings the numeral **10** designates generally a textile treating cabinet having an upper wall **11**, side walls **12** and **13** and a back wall **14**, each of the walls being of hollow construction and, if desired, containing suitable heat insulating materials. The entire front of the cabinet is open to provide a doorway through which a mobile textile supporting truck may be moved into the interior of the cabinet, a pair of outwardly swinging doors **15** and **16** being provided for opening and closing this doorway.

The bottom of the cabinet, in the form shown in the drawings, comprises a bottom plate **17** which may be supported on a floor or other level surface **18** (Fig. 5) by means of legs **19** (Fig. 2). At the front of the cabinet this bottom plate has an upturned flange **17***a* within which is secured, by welding or otherwise, a lower leg **20***a* of a door sill frame **20** which extends across the cabinet from one side wall to the other at the bottom of the doorway. The upper portion of this door sill frame **20** comprises a second leg **20***b* that extends forwardly substantially horizontally from the top of the leg **20***a* to provide a sill for the doorway of the cabinet. A floor supporting plate **21** occupies the entire bottom of the cabinet above the bottom plate **17** and is suitably secured to the inside surface of the side walls **12** and **13** and the back wall **14** of the cabinet. At the front of the cabinet

the floor supporting plate 21 has a downwardly extending flange 21*a* that is welded or otherwise secured to the inner surface of the vertical leg 20*a* of the sill frame 20. Resting on the upper surface of the floor supporting plate 21 is a floor liner 22 that may be welded along its side edges to the inner surface of the side walls 12 and 13 of the cabinet and along its back edge to the inner surface of the back wall 14 to provide vapor-tight joints therebetween. At the front of the cabinet the floor liner 22 extends upwardly and forwardly over the leg 20*b* of the sill frame, the forward extremity of the floor liner being formed around the front edge of the sill frame as at 23.

An upper floor 24 of the cabinet rests upon the floor liner 22 substantially on a level with the top of the substantially horizontally and forwardly extending leg 20*b* of the door sill frame 20, suitable supports (not shown) being disposed between the upper floor 24 and the floor liner 22 in order to maintain the two in parallel, spaced-apart relationship. The side edges of the upper floor 24 are spaced inwardly from the side walls 12 and 13 of the cabinet as at 24*a*, and the forward edge of the upper floor may be spaced inwardly slightly from the rear edge of the door sill. Steam or other textile treating medium may be introduced under the floor 24 into the space 25 between the floor and the floor liner 22, a suitable means for so introducing steam being illustrated and described in the above mentioned patent to Henry Richter. From the space 25 the textile treating medium will flow upwardly into the interior of the cabinet proper through the spaces 24*a* provided along the sides of the upper floor 24 and through the space between the front edge of the upper floor and the door sill frame 20.

In the form of the cabinet shown in the drawings, the forward edges of the side walls 12 and 13 and the top wall 11 are each defined by a frame member 26 of L-shaped cross-section (Fig. 4) having one leg 26*a* disposed in position parallel to the plane of the doorway at the front of the cabinet and another leg 26*b* extending forwardly therefrom. The inner surfaces 12*a* and 13*a* of the side walls 12 and 13, respectively, may extend forwardly along the sides of the legs 26*b* and may be folded around the forward ends of these legs to provide door engaging surfaces 12*b* and 13*b* along the front edges of the walls 12 and 13. The inner surface of the top wall 11 may be similarly treated to provide a door engaging surface 11*b* across the top of the doorway.

The doors 15 and 16 are mounted at the front edges of the side walls 12 and 13 by means of a plurality of hinges shown generally at 27. The base portions 28 of these hinges are provided with flanges 29 that may be secured to the forward surface of the legs 26*a* of the upstanding L-shaped frame members 26 by means of bolts 30. The base portions 28 of the hinges are bifurcated and extend forwardly and outwardly from the mounting flanges 29 where they are apertured, as at 31, to receive hinge pins 32 (Fig. 2) that carry the outer portions 33 of the hinges. These outer hinge portions of the hinges may be bolted to the doors 15 and 16 by means of bolts 34.

The doors 15 and 16 may be constructed in any suitable manner depending upon the type treatment to be given to textiles within the cabinet. The cabinet shown in the drawings is one that has been found suitable for use in the treatment of hosiery and the like with dry air, highly saturated air, or with steam, and the doors are shown as being of hollow construction that may be lined with any suitable heat insulating material. The doors each comprise a frame 35 of U-shaped cross-section defining the periphery of the door. An outer metal sheet 36 is applied to this frame 35 on the front of the door and a similar sheet 37 is applied to the frame on the inner side of the door, each sheet being secured to the frame 35 as by welding or the like. The four edges of the front sheet 36 are folded rearwardly along the sides of the frame 35 as at 38, the rear portion 38*a* of the edges of the front sheet extending rearwardly beyond the sheet 37. A strip of soft rubber or other pliable material 39 is secured around the inner edges of the doors by means of a Z-shaped mounting strip 40 as shown in Fig. 4, the strip 39 being so positioned that when the doors 15 and 16 are moved to their closed positions the strip will engage sealing surfaces 11*b*, 12*b* and 13*b* on the front of the top and side walls of the cabinet and the front edge of the door sill as shown in Fig. 5.

The doors 15 and 16 are arranged to overlap along their adjoining edges when the doors are in closed position and the door 16 has mounted on the front thereof a pair of vertically sliding rods 41 operated by links 42 actuated by door latching lever 43. When the doors are moved to closed position the latching lever 43 may be rotated to cause the upper rod 41 to engage a lug 44 mounted at the top of the doorway and to cause the lower rod 41 to engage a similar lug (not shown) on the sill of the doorway.

Directly in front of the doorway on the outside of the cabinet is a vertically movable, wedge-shaped ramp member designated generally by the numeral 50. If desired, this ramp member may be of hollow construction comprising a top piece 51 providing a traffic surface and two tapering upstanding side members 52 and 53. In its normal position the ramp member rests on the floor 18 on the lower edges of the vertical side members 52 and 53, as will be best seen in Fig. 5. In this position it will be seen that the inner end of the ramp member adjacent the door sill is disposed below the level of the sill and below the path of movement of the lower edges of the doors 15 and 16, thus permitting the doors to be moved to closed position.

Bolted to the floor 18 on each side of the ramp member 50 is a base member 54 for supporting means operated by the doors, during opening movement thereof, for raising the ramp member from its normal receded position below the path of the doors to a position wherein the inner end of the ramp member is substantially on a level with the door sill. Each base member 54 comprises a flat bottom plate 55 having formed on its upper side two parallel upstanding plates 56 having opposed openings therein for receiving a pivot pin 57 which may be held in place by any suitable means such as cotter keys 58. Pivotally mounted upon each pin 57 between the two upstanding plates 56 is a lever designated generally by the numeral 59. One end of each lever 59 is received in a slot 60 cut in the vertical side members 52 and 53 of the ramp member 50, the opposite end of each lever being curved rearwardly on a radius about the axis of the hinge pins 32.

When the ramp member 50 is in its normal position resting on the floor 18, the curved ends of the levers 59 extend diagonally upwardly into a path traversed by the lower edges of the doors 15 and 16 when the doors are moved from their closed positions to their open positions. Thus, when the doors are opened, the lower edges of the doors, upon which may be mounted scuff plates 61, come into contact with the upper edges of the curved ends of the levers 59 to pivot the same downwardly to the positions shown by the broken lines in Fig. 3. The pivoting of the levers 59 lifts the inner end of the ramp member 50 to its operative position shown in Fig. 6 wherein the innermost end of the ramp member and the traffic surface 51 thereon is substantially level with the door sill. Thus, as the doors are moved to their open position, the ramp member 50 is automatically lifted by the doors to its elevated position and a mobile truck, such as a truck 65, may be rolled up the ramp member 50 and into the interior of the cabinet. The truck 65 may be of any suitable construction, the truck shown in the drawings being of the construction illustrated in the above mentioned patent to Henry Richter and being particularly adapted for supporting a plurality of batches of hosiery 66 that may be treated in the cabinet.

With the truck disposed within the cabinet as shown in Fig. 1, the doors **15** and **16** may be moved to closed position. In so doing, the lower edges of the doors pass off the upper edges of the curved portions of the levers **59** permitting the ramp member **50** to be lowered by its own weight to its normal position out of the path of the doors and below the lower edges thereof, thus permitting the doors to be moved to their completely closed positions and latched, whereupon the textile articles supported by the truck may be subjected to any desired treating medium inside the cabinet. When the treating operation has been completed, the doors may be unlatched and moved to their open positions, the ramp member **50** being automatically raised again to its operative position substantially on a level with the door sill as the doors are moved. The truck **65** may then be rolled out of the cabinet across the door sill and down the traffic surface **51** of the ramp member **50**.

Although one form of the invention has been shown and described by way of illustration, it will be understood that the invention may be constructed in various other embodiments which come within the scope of the appended claims.

We claim:

1. In combination with a textile treating cabinet having a doorway therein through which a truck may be moved into said cabinet, an external, outwardly swinging door mounted on said cabinet for closing said doorway, a movable traffic surface outside said cabinet in front of said doorway, said traffic surface having a first position outside the path of movement of said door when said door is closed to permit opening and closing thereof and a second position in the path of said door and immediately adjacent said doorway when said door is open to permit movement of said truck across said traffic surface and into said cabinet when said surface is in said second position, and a lever engaged by said door during opening movement thereof for moving said traffic surface from said first position to said second position.

2. In combination with a textile treating cabinet having a doorway therein through which a mobile textile supporting truck may be moved into said cabinet, a door mounted on said cabinet for opening and closing said doorway, a traffic surface movable with respect to said doorway, said traffic surface having a first position outside the path of movement of said door when said door is closed to permit opening and closing thereof and a second position in the path of said door and immediately adjacent said doorway when said door is open to permit movement of said truck across said traffic surface and into said cabinet, and means cooperating with the lower edge of said door and operated thereby during opening and closing of said door for moving said traffic surface from one of its said positions to the other.

3. In combination with a textile treating cabinet having a doorway therein through which a mobile textile supporting truck may be moved into said cabinet, a door mounted on said cabinet for opening and closing said doorway, a traffic surface movable with respect to said doorway, said traffic surface having a first position outside the path of movement of said door when said door is closed to permit opening and closing thereof and a second position in the path of said door and immediately adjacent said doorway when said door is open to permit movement of said truck across said traffic surface and into said cabinet, and means operated by movement of said door for moving said traffic surface from one of its said positions to the other.

4. In combination with a textile treating cabinet having a doorway therein and a door sill over which a truck

may be moved into said cabinet, an external, outwardly swinging door mounted on said cabinet for closing said doorway, said door having a lower edge extending below said sill, a movable traffic surface outside said cabinet in front of said doorway, said traffic surface having a first position outside the path of movement of said door when said door is closed to permit opening and closing of said door and a second position in the path of said door and immediately adjacent said sill when said door is open to permit movement of said truck across said traffic surface and said sill into said cabinet when said surface is in said second position, and a pivotally mounted lever engaged by said lower edge of said door during opening movement of said door for shifting said traffic surface from its said first position to said second position.

5. In combination with a textile treating cabinet having a doorway therein and a door sill over which a truck may be moved into said cabinet, an external, outwardly swinging door for closing said doorway, said door having a lower edge extending below said sill, a vertically movable traffic surface outside said cabinet and in front of said doorway adjacent said door sill, said traffic surface having a receded position below the level of said lower edge of said door when said door is closed to permit opening and closing movement of said door and a raised position when said door is open to permit movement of said truck across said traffic surface and said sill into said cabinet, and means operated by movement of said door for moving said traffic surface from one of its said positions to the other.

6. In combination with a textile treating cabinet having a doorway therein and a door sill over which a truck may be moved into said cabinet, an external, outwardly swinging door for closing said doorway, said door having a lower edge extending below said sill, a vertically movable traffic surface outside said cabinet and in front of said doorway adjacent said door sill, said traffic surface having a receded position below the level of said lower edge of said door when said door is closed to permit opening and closing movement of said door and a raised position when said door is open to permit movement of said truck across said traffic surface and said sill into said cabinet when said surface is in said raised position, and a pivotally mounted lever engaged by said lower edge of said door during opening movement of said door for shifting said traffic surface from its said first position to said second position.

7. In combination with a textile treating cabinet having a doorway therein and a door sill over which a truck may be moved into said cabinet, a pair of external, outwardly swinging doors for closing said doorway, said doors having lower edges extending below said sill, a vertically movable ramp member outside said cabinet and in front of said doorway adjacent said door sill, said ramp member having a receded position below the level of said lower edges of said doors when said doors are closed to permit opening and closing movement of said doors and a raised position when said doors are open to permit movement of said truck up said ramp member and across said sill into said cabinet, and means operated by movement of said doors for moving said ramp member from one of its said positions to the other.

References Cited in the file of this patent

UNITED STATES PATENTS

1,077,505 Angus ---------- Nov. 4, 1913

OTHER REFERENCES

Architectural Record, October 1948, p. 179.