July 6, 1948. A. S. MANN ET AL 2,444,783

HOSIERY DRYING TABLE

Filed Aug. 1, 1945 4 Sheets-Sheet 1

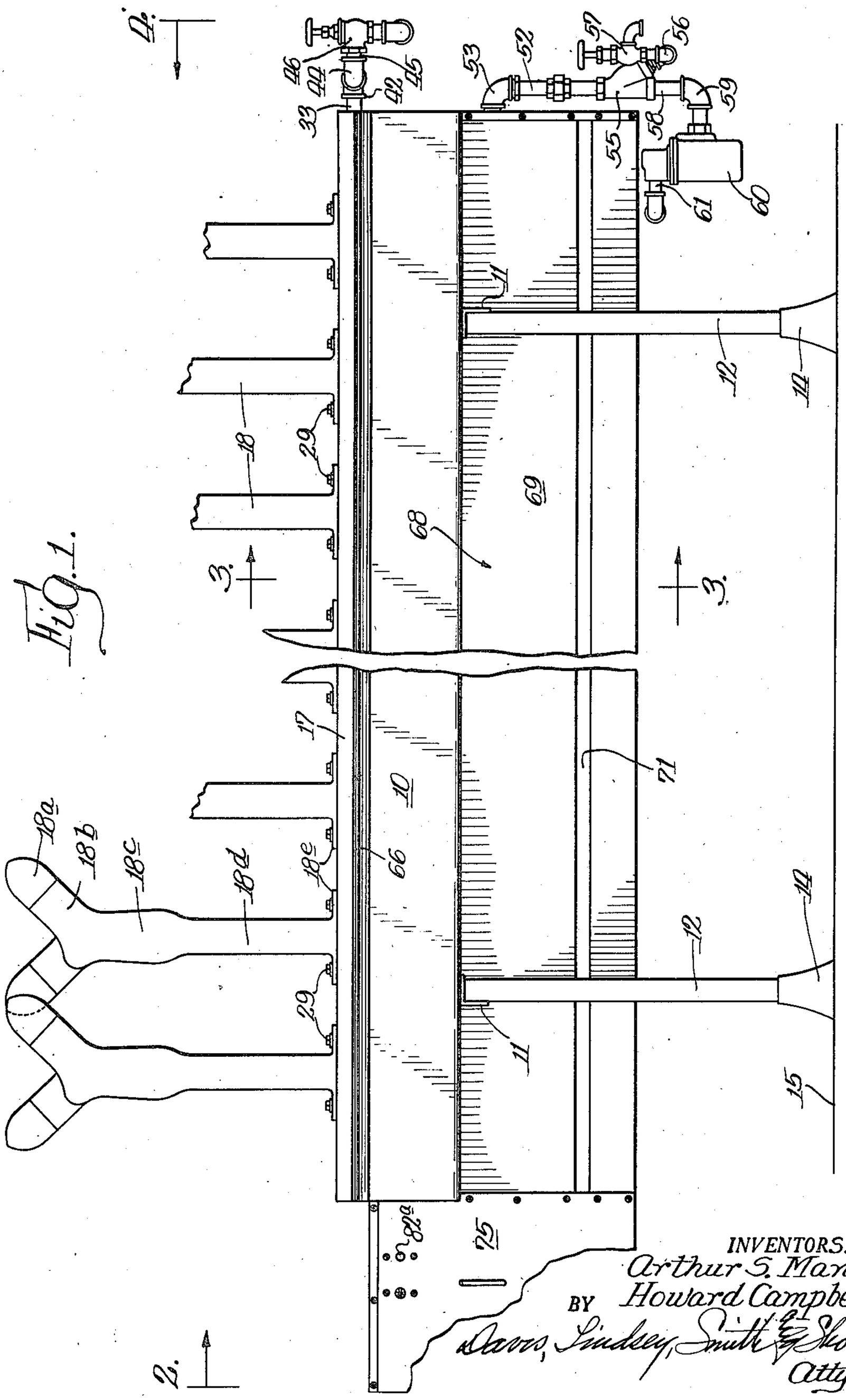

Fig. 1.

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Fig. 2.

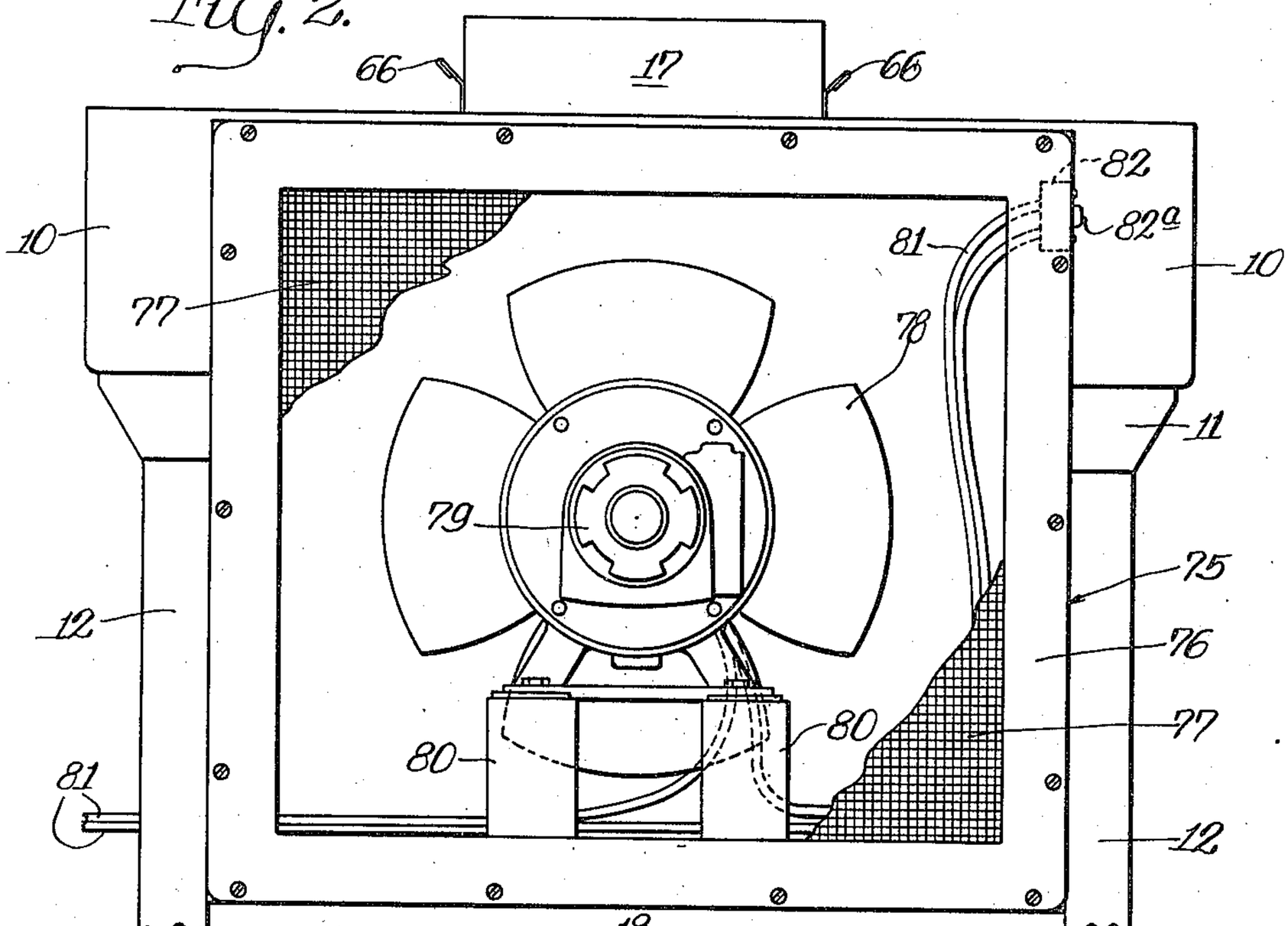
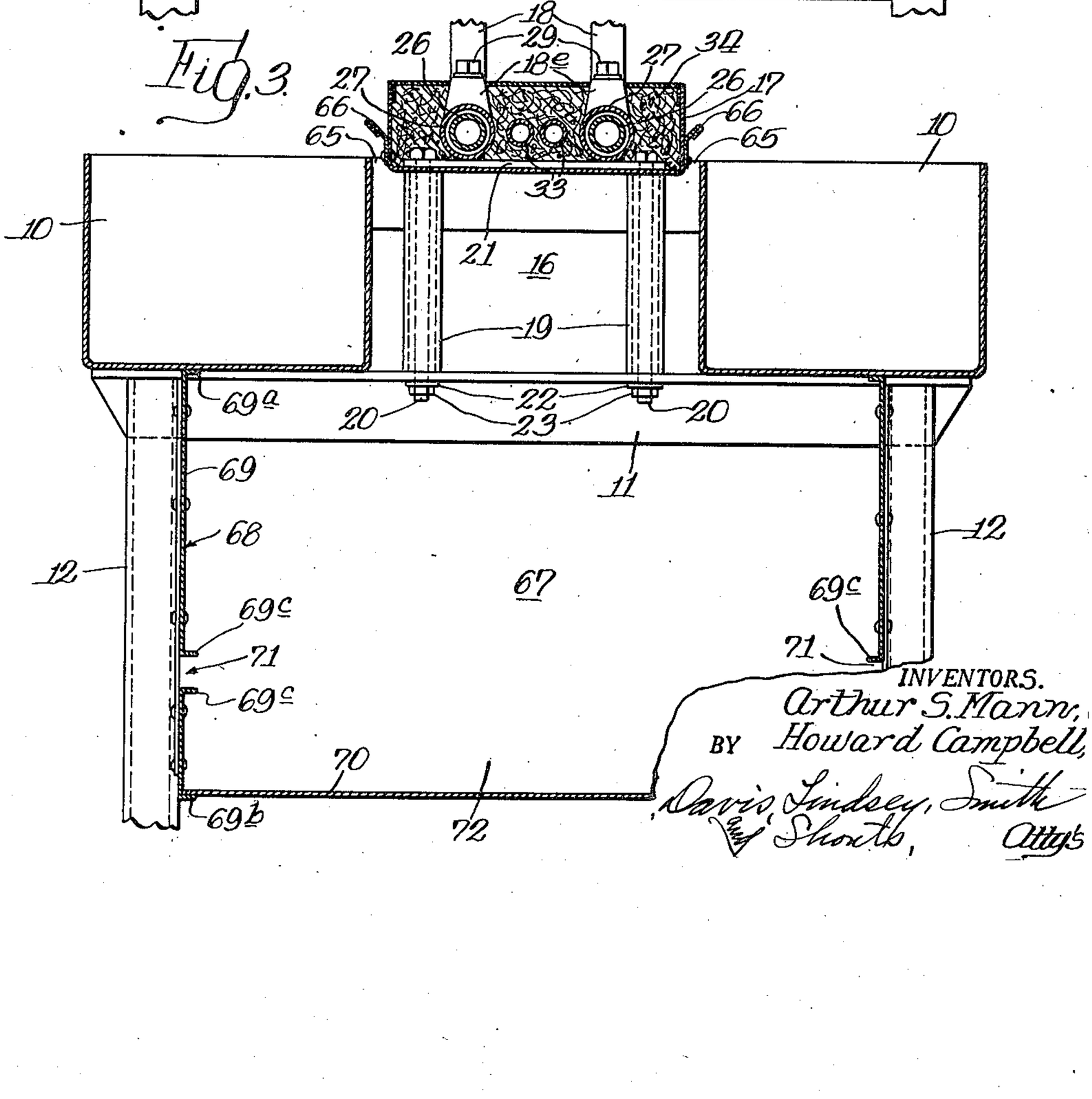


Fig. 3.



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HOSIERY DRYING TABLE

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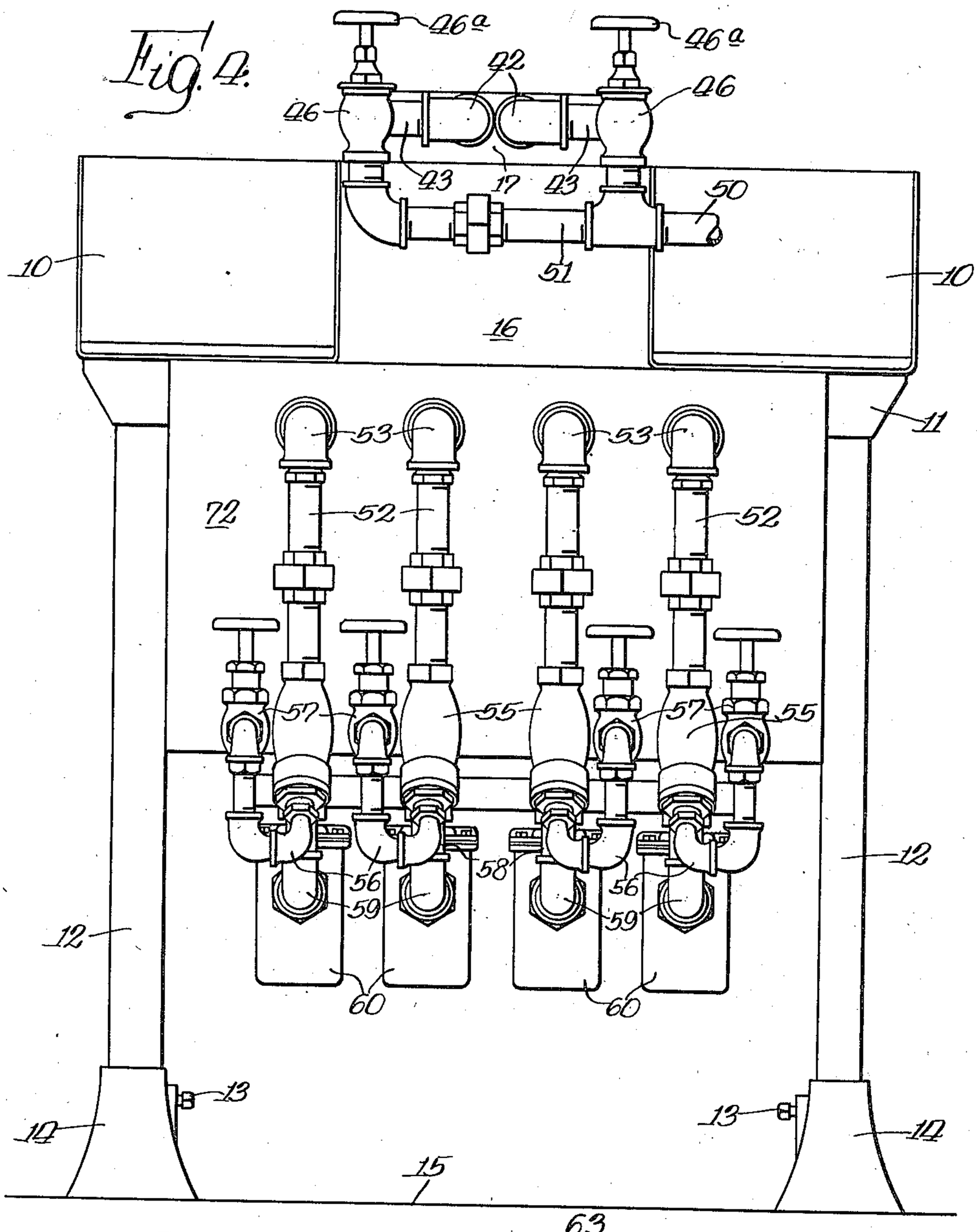
Fig. 4.



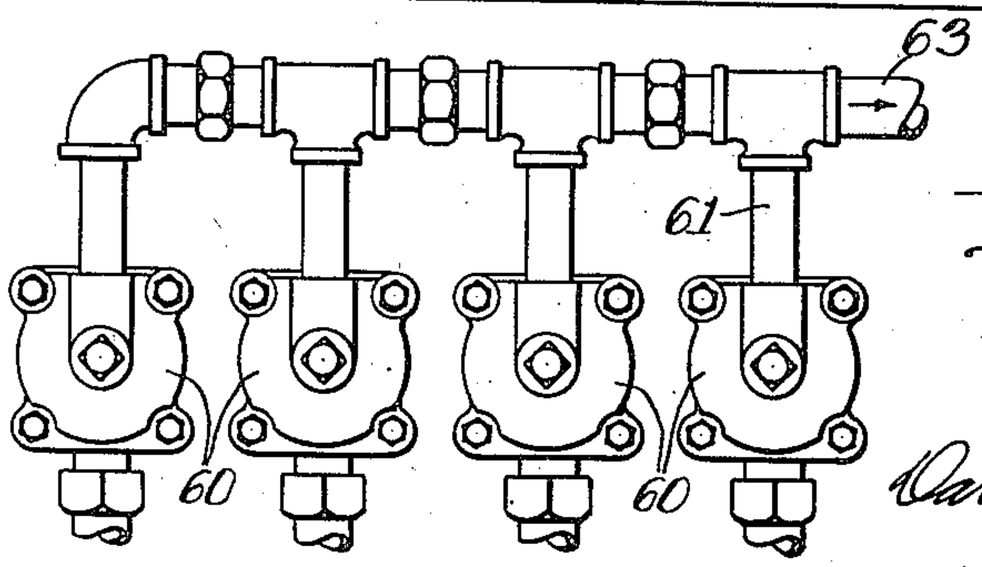


Fig. 5.

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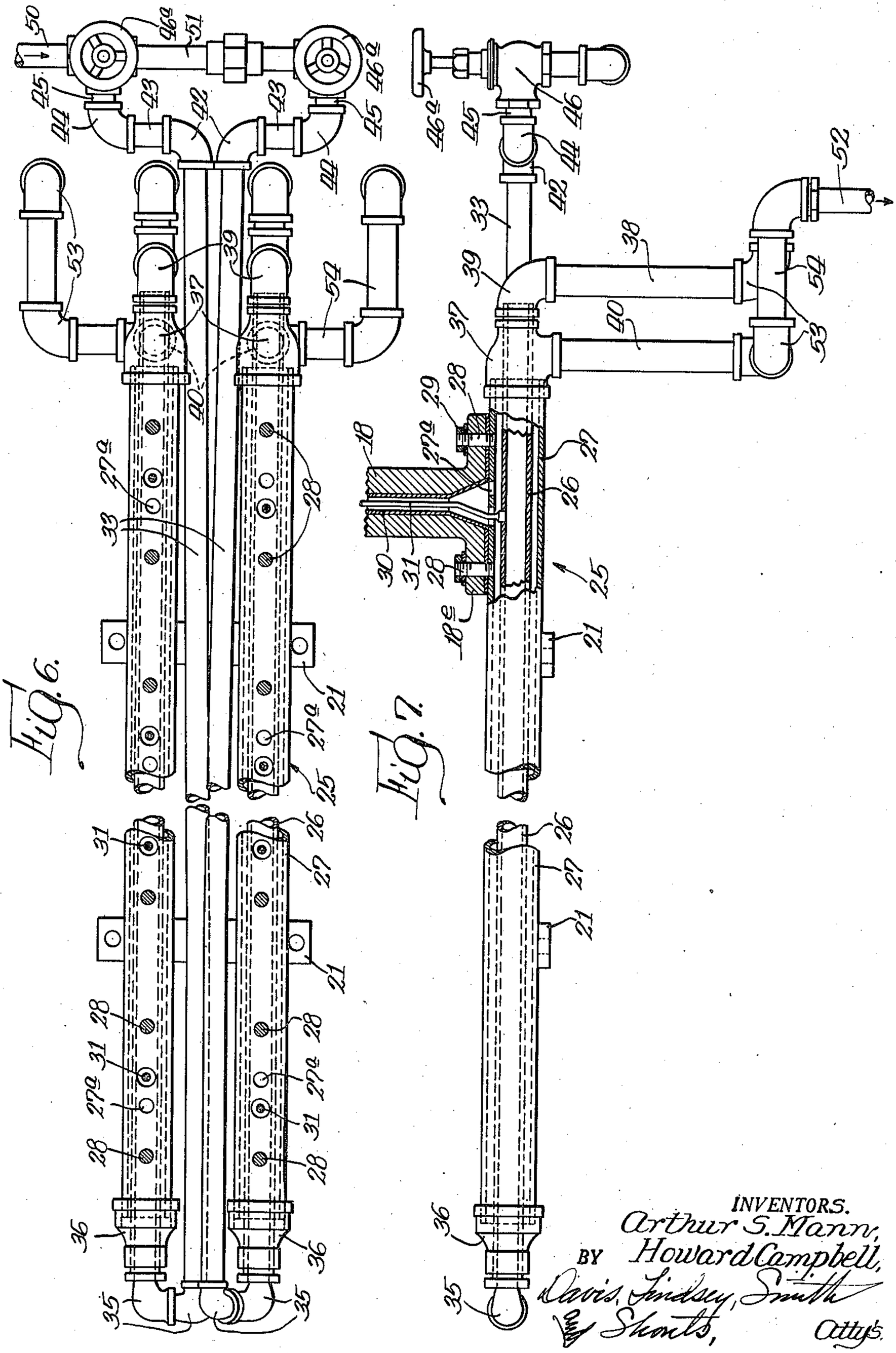

Fig. 6.

Fig. 7.

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2,444,783

UNITED STATES PATENT OFFICE

2,444,783

HOSIERY DRYING TABLE

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Application August 1, 1945, Serial No. 608,136

9 Claims. (Cl. 34—90)

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This invention relates to improvements in drying tables which are commonly equipped with a plurality of heated forms for shaping, setting and drying hosiery and other like articles, and its purpose is to provide improved apparatus comprising means for ventilating and cooling the apparatus and the surrounding atmosphere during the drying operation.

In drying tables as heretofore constructed it has been usual to provide long containers or pans extending along opposite sides of the assembly for containing the wet articles and the drying forms have been mounted in one or more longitudinal rows located between the pans and preferably at a higher level, the operators occupying positions on the outer sides of the pans whereby they were enabled to remove the wet articles from the pans and place them on the forms. The drying forms are commonly heated by steam or electricity to very high temperatures, for example, 250° Fahrenheit or more, and the heat arising from these forms and from the supply pipes leading thereto has caused high air temperatures in the region of the apparatus, with the result that the work of the operators has been very difficult and uncomfortable particularly during warm weather.

The principal object of the present invention is to overcome the above mentioned difficulties by providing an improved drying table having means for reducing the atmospheric temperature in the regions occupied by the operators. A further object is to provide a drying table in combination with means for causing a circulation of air or other medium adapted to maintain a comfortable atmospheric condition in the region of the table. Another object of the invention is to provide a drying table having a plurality of heated drying forms and comprising means for causing currents of air to be projected from one or more sides of the table toward the operators, preferably in a plurality of zones at different heights. Other objects relate to various features of construction and arrangement which will appear more fully hereinafter.

The nature of the invention will be understood from the following specification taken with the accompanying drawings in which one embodiment is illustrated. In the drawings,

Figure 1 shows a side elevation of the improved drying table with parts thereof broken away;

Fig. 2 shows an end elevation of the drying table, looking toward the right as viewed in Fig. 1;

Fig. 3 shows a vertical sectional view taken on the line 3—3 of Fig. 1;

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Fig. 4 shows an end elevation of the drying table, looking toward the left as viewed in Fig. 1;

Fig. 5 shows a top plan view of the steam traps and associated pipe connections which are illustrated in the lower part of Fig. 4;

Fig. 6 shows a top plan view of the connections for supplying live steam to the drying forms and for removing exhaust steam therefrom, parts thereof being broken away; and

Fig. 7 shows a partial side elevation of the connections illustrated in Fig. 6 with a portion thereof illustrated in vertical section.

As illustrated in the drawings, the invention comprises a pair of long pans or containers 10, of rectangular vertical cross section, which are mounted on opposite sides of the apparatus and are supported on cross frame members 11 of angle bar form secured upon the upper ends of vertical legs 12 having their lower ends secured by setscrews 13 in enlarged fittings 14 which rest upon the floor or other support 15.

The pans 10 are spaced apart, as shown particularly in Figs. 3 and 4, forming an intervening space 16 above which there is mounted a housing 17 adapted to contain the conduits for supplying steam to the drying forms 18 which are mounted in two rows extending above and longitudinally of the housing 17 and inwardly from the pans or containers 10 which are adapted to contain the wet hosiery or other articles to be dried. The housing 17 is carried by vertically extending sleeves 19 which rest at their lower ends upon the horizontal flanges of the transverse frame members 11. The sleeves 19 are secured to the frame members 11 and to the housing 17 by means of bolts 20 which extend through bars 21, located within and on the bottom wall of the housing 17, and also through the sleeves and the top flanges of the frame members 11, being engaged at their lower ends by washers 22 and nuts 23.

The means located in the housing 17 for supplying steam to the drying forms 18 and withdrawing the exhaust steam therefrom comprises two longitudinal parallel units 25 each including an inner conduit 26 located within and spaced from an outer conduit 27. The outer conduits 27 are secured upon the cross bars 21 located in the housing 17 and each outer conduit has secured thereto by a series of studs 28 and nuts 29 the base flanges 18e of the drying forms 18 so that both the outer conduits 27 and the drying forms are rigidly supported and held in stationary position with respect to the housing 17. The drying forms 18 may be of any desired form but

are illustrated as being constructed in accordance with the invention described and claimed in the application of Arthur S. Mann, Serial No. 544,181, filed July 10, 1944, now Patent No. 2,433,470. Each drying form 18 is hollow and has mounted therein a pipe 30 of substantial diameter which is enlarged at its lower end and which communicates through ports 27a with the annular chamber of the conduit 27 around the inner conduit 26 of that unit. The inner conduit 26 has connected thereto a small pipe 31 which extends through one of the apertures 27a and through the pipe 30 so that live steam may be conveyed therethrough to the interior of the drying form, while the exhaust steam will be returned through the annular space between the pipes 30 and 31 to the annular chamber of the conduit 27 around the conduit 26. Each drying form illustrated in the drawings comprises a detachable toe portion 18a, a foot portion 18b, a shank portion 18c, and a stem portion 18d, the latter portion being formed integrally with the flanges 18e previously referred to. As described in said application, the steam is adapted to be conveyed through the pipe 31 into the interior of the detachable toe portion 18a of each drying form so that this portion of the form is directly heated and the detachable toe portion may be interchanged with other toe portions to adapt the form to the drying of hosiery of different sizes, but this feature does not form a part of the present invention.

The steam for heating the drying forms 18 is supplied to the inner conduits 26 of the units 25 by steam supply pipes 33 which are located in the housing 17 between the units 25, as shown particularly in Figs. 3 and 6, the space within the housing around the units 25 and the pipes 33 being occupied by a body of heat insulating material 34. The supply pipes 33 extend through the housing 17 from the right end thereof, as viewed in Fig. 1, and their left-hand extremities are connected by elbows 35 with hollow fittings 36 which embrace and form fluid tight connections with the adjacent ends of the conduits 26 and 27, as shown in Figs. 6 and 7, each fitting having an enlarged inner end to receive the extremity of the outer conduit 27 and a reduced outer end which is fitted by the inner conduit 26. The live steam thus enters the conduits 26 at the ends thereof which are farthest removed from the source of supply and the steam then flows in these conduits 26 toward the right-hand end of the apparatus, as viewed in Fig. 1, during which some steam is supplied to each of the drying forms 18 connected to each of the conduits 26. As this operation goes on, the exhaust steam and condensate which flow downwardly through the pipes 30 of the drying forms 18 pass into the outer conduits 27 and are exhausted from the right thereof, as illustrated in Figs. 1, 6 and 7.

At the right hand of the apparatus, the portion of the live steam in the conduits 26 which has not been discharged into the drying forms and the exhaust steam and condensate which are contained within the outer conduits 27 are discharged through fittings 37 into exhaust connections including pipes 38, connected by elbows 39 to the outer ends of the fittings 37 and to the ends of the conduits 26 for conveying away the unused live steam, and pipes 40 connected directly to the fittings 37 for conveying away the exhaust steam and condensate from the discharge ends of the outer conduits 27.

The steam supply pipes 33 lead through apertures in the right-hand end wall of the housing 17 and are connected by elbows 42 with transversely extending pipes 43, shown in Fig. 6, which are in turn connected by elbows 44 and pipes 45 with the casings of valves 46 having operating handles 46a which may be operated to regulate the flow of steam through the valves from a supply pipe 50, shown in Fig. 4, which is connected to each of the valves 46 through the pipe connections 51. The valves 46 control the flow of steam through the two units 25 within the housing 17 and the pressure of the steam may be controlled by suitable regulators connected in the supply line for the purpose of regulating the temperature of the drying forms 18.

The vertically extending exhaust pipes 38 and 40 pass downwardly between the pans 10 at the right-hand end of the apparatus, as viewed in Fig. 1, and are connected to vertical pipes 52 through a series of elbows 53 and pipes 54, as shown in Figs. 4, 6 and 7. The vertical pipes 52 are thus arranged to extend parallel to each other at the right-hand end of the apparatus and their lower extremities are connected to strainers 55 having angularly disposed branch portions connected through elbows 56 with the drain cocks 57. The body portions of the strainers 55 are connected through pipes 58 and elbows 59 with the traps 60 and the upper part of each trap is connected through a pipe 61 with a horizontal pipe 63, shown in Fig. 5, through which the exhaust steam is conveyed away to suitable condensing apparatus or the like. By means of this system, the exhaust steam and water are withdrawn from the discharge ends of the conduits 26 and 27 which constitute the heating units 25 located within the housing 17.

As shown particularly in Figs. 2 and 3, the housing 17 is somewhat narrower than the space 16 between the pans or containers 10 and its lower wall is depressed slightly below the level of the upper edges of the pans 10, thus providing comparatively narrower longitudinal slots 65 through which air may be discharged from the space 16 for the purpose of cooling the atmosphere and producing a circulation of the air in the areas occupied by the operators who stand along the outer sides of the pans 10 while at the same time cooling the pans with which the operators are continually in contact. This air, which is supplied under pressure by the means hereinafter described, is deflected outwardly and upwardly from the slot 65 by inclined vanes or baffle plates 66 which are attached to the lower portions of the side walls of the housing 17.

The air under pressure which is discharged through the slots 65 is supplied to these slots through the space 16 from an air chamber 67 formed within a casing 68 of rectangular cross section which is secured to the inner sides of the legs 12. This casing has side walls 69 which terminate at their upper edges in flanges 69a arranged to seat against the bottom walls of the pans 10 and these side walls are provided at their lower edges with inturned flanges 69b which support the bottom wall 70. At points somewhat above the bottom wall 70, the side walls 69 are provided with oppositely disposed slots 71 which extend throughout the length of the housing 68 and which are bounded along their edges by the flanges 69c formed on the side walls of the casing. These slots are preferably located substantially at the elevation of the knees of the operator so that air discharged therethrough will have the desired

cooling effect in regions somewhat below the level of the pans 10. At its right-hand end, the casing 68, which is coextensive in length with the pans 10, is provided with an end wall 72 through which extend the connections 54 leading to the pipes 52.

At the left-hand end of the apparatus, as viewed in Fig. 1, the casing 68 is connected to a fan casing 75, of rectangular cross section, which communicates on its inner end with the chamber 67 of the casing 68 and which is closed on its upper and lower sides and on its lateral sides by continuous metallic walls. The outer end of the fan casing 75 has applied thereto a rectangular frame 76 carrying a metal screen 77 through which air may be drawn into the fan casing by means of a fan 78 driven by an electric motor 79 which has its frame mounted upon supporting blocks 80 carried by the bottom wall of the fan casing, as shown in Fig. 2. Electric current is supplied to the motor 79 by conductors 81 and certain of these conductors are carried through the fan casing to a controlling switch 82 operated by a push button 82a which projects through the side wall of the fan casing, as illustrated in Figs. 1 and 2.

When the drying table is in use, the fan 78 is put in operation, thus drawing air through the screen 77 and projecting it under pressure through the chamber 67 from which a part of the air passes upwardly through the space 16 and is discharged through the slots 65 toward the upper portions of the bodies of the operators who are engaged in removing the wet hosiery or other articles from the pans 10 and placing these articles upon the drying forms 18. At the same time, other portions of the air delivered under pressure to the chamber 67 are discharged through the longitudinal slots 71 in the region of the knees of the operators, thus effectively dissipating the heat arising from the drying forms and the steam supply pipes leading thereto so that a comfortable room temperature may be maintained alongside the pans or containers 10, even in warm weather.

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

We claim:

1. A drying table for textile articles comprising, a series of drying forms, means for supplying a heating medium to said drying forms, a housing extending below said forms and enclosing a portion of said supplying means, a container extending alongside said housing for receiving the wet articles to be dried, said container being spaced from said housing to form an elongated slot at the upper edge of said container, a casing carried by said table beneath said housing and forming an air chamber communicating with said slot, and means for discharging air under pressure into said chamber.

2. A drying table for textile articles comprising, a series of drying forms, means for supplying a heating medium to said drying forms, a housing extending below said forms and enclosing a portion of said supplying means, a container extending alongside said housing for receiving the wet articles to be dried, said container being spaced from said housing to form an elongated slot at the upper edge of said container, a casing carried by said table beneath said housing and forming an air chamber communicating with said slot, means for discharging air under pressure into said chamber, and means for directing the air discharged through said slot outwardly over said container.

3. A drying table for textile articles comprising, a series of drying forms, means for supplying a heating medium to said drying forms, a housing extending below said forms and enclosing a portion of said supplying means, a container extending alongside said housing for receiving the wet articles to be dried, said container being spaced from said housing to form an elongated slot at the upper edge of said container, a casing carried by said table beneath said housing and forming an air chamber communicating with said slot, said chamber having a longitudinal slot in its outer side opening beneath said container, and means for discharging air under pressure into said chamber to be delivered therefrom outwardly through said slots.

4. A drying table for textile articles comprising, a series of drying forms, means for supplying a heating medium to said drying forms, a housing extending below said forms and enclosing a portion of said supplying means, a container extending alongside said housing for receiving the wet articles to be dried, said container being spaced from said housing to form an elongated slot at the upper edge of said container, a casing carried by said table beneath said housing and forming an air chamber communicating with said slot, a fan casing carried by one end of said first named casing and having a reticulated end wall, and a motor driven fan in said fan casing for drawing air through said end wall and discharging it under pressure into said chamber to be delivered therefrom outwardly through said slot.

5. A drying table for textile articles comprising, a series of heated drying forms mounted in a row, a member extending longitudinally of said row beneath said drying forms, a container extending alongside said member for receiving the wet articles to be dried, said container being spaced from said member to form a slot, a casing forming an air chamber beneath said drying forms communicating with said slot, and means located at one end of said casing for discharging air under pressure into said chamber.

6. A drying table for textile articles comprising, a series of heated drying forms mounted in a row, a member extending longitudinally of said row beneath said drying forms, a container extending alongside said member for receiving the wet articles to be dried, said container being spaced from said member to form a slot, a casing forming an air chamber beneath said drying forms communicating with said slot, means located at one end of said casing for discharging air under pressure into said chamber, and a vane carried by said member for deflecting outwardly over said container the air discharging through said slot.

7. A drying table for textile articles, comprising a row of upwardly extending drying forms having internal heating passages, conduits for supporting said forms and supplying a heating medium to and exhausting said medium from said passages, a housing extending longitudinally of said row and enclosing said conduits, a container mounted alongside said housing and spaced therefrom to form a slot, said container being adapted to contain the wet articles to be dried, means including a casing for forming an air chamber beneath said housing communicating with said slot, means mounted at one end of said casing for supplying air under pressure to

said chamber, and means mounted at the other end of said casing for forming supply and exhaust connections to said conduits.

8. A drying table for textile articles, comprising two adjacent rows of upwardly extending drying forms having internal heating passages, conduits extending longitudinally of said rows for supporting said forms and supplying a heating medium to and exhausting said medium from said passages, a housing extending longitudinally of said rows and enclosing said conduits, containers extending alongside the opposite sides of said housing and spaced therefrom to form parallel slots, a casing mounted beneath said housing and said containers to form an air chamber communicating with said slots, and means for supplying air under pressure to said chamber to be discharged through said slots.

9. A drying table for textile articles, comprising two adjacent rows of upwardly extending drying forms having internal heating passages, conduits extending longitudinally of said rows for supporting said forms and supplying a heating medium to and exhausting said medium from said passages, a housing extending longitudinally of said rows and enclosing said conduits, containers extending alongside the opposite sides of said housing and spaced therefrom to form parallel slots, a casing mounted beneath said housing and said containers to form an air chamber communicating with said slots, said casing having longitudinal slots in the opposite sides thereof beneath said containers, and means for supplying air under pressure to said chamber to be discharged through said slots.

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