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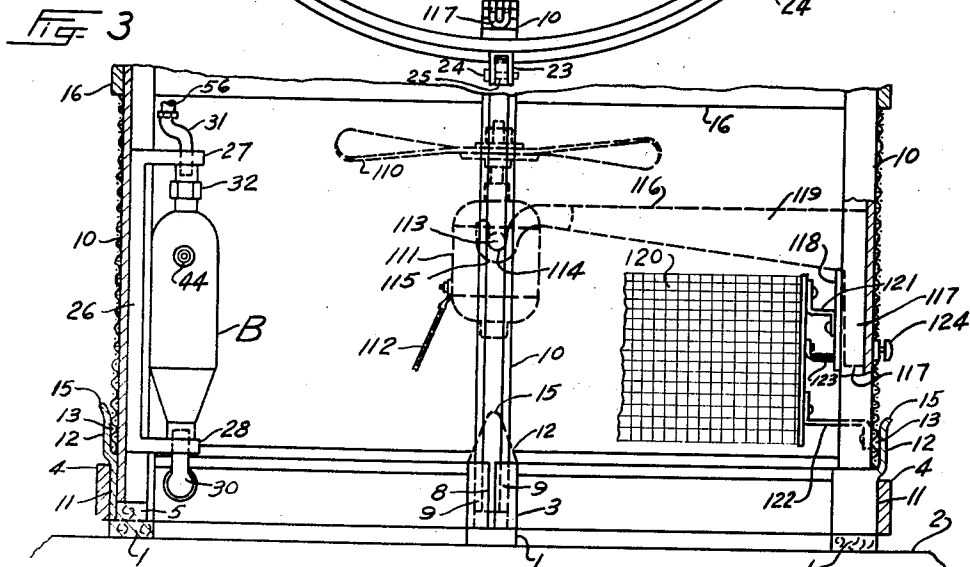
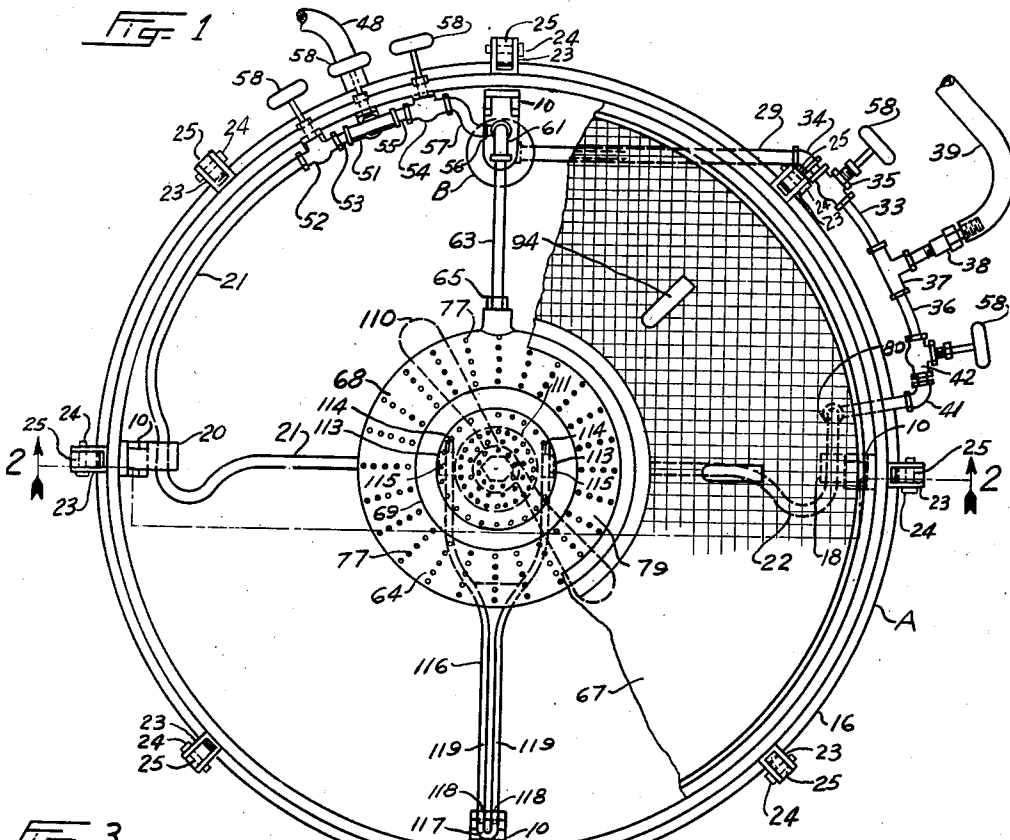
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2,213,288

STEAMER MECHANISM

Original Filed Jan. 28, 1937

3 Sheets-Sheet 1



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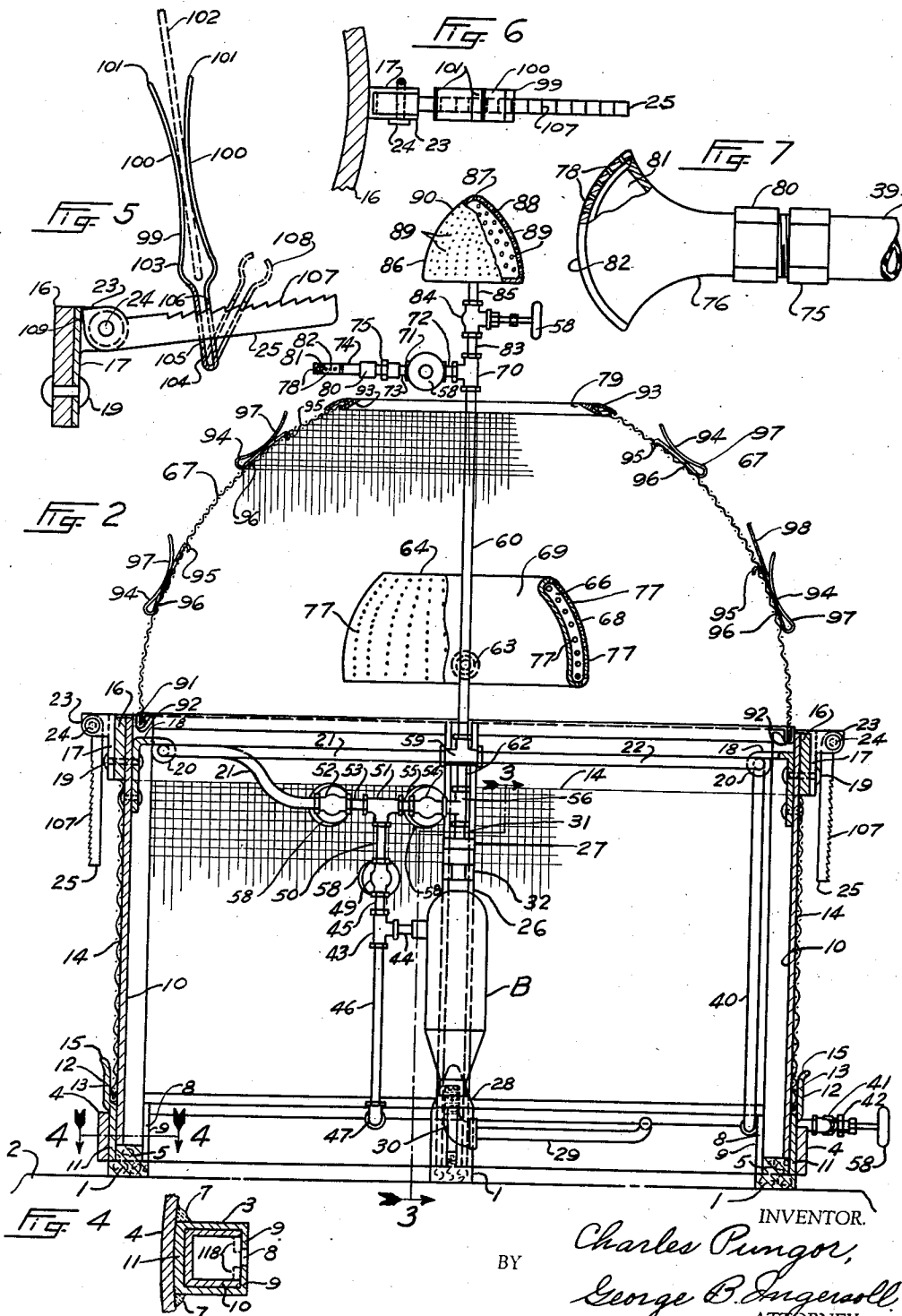
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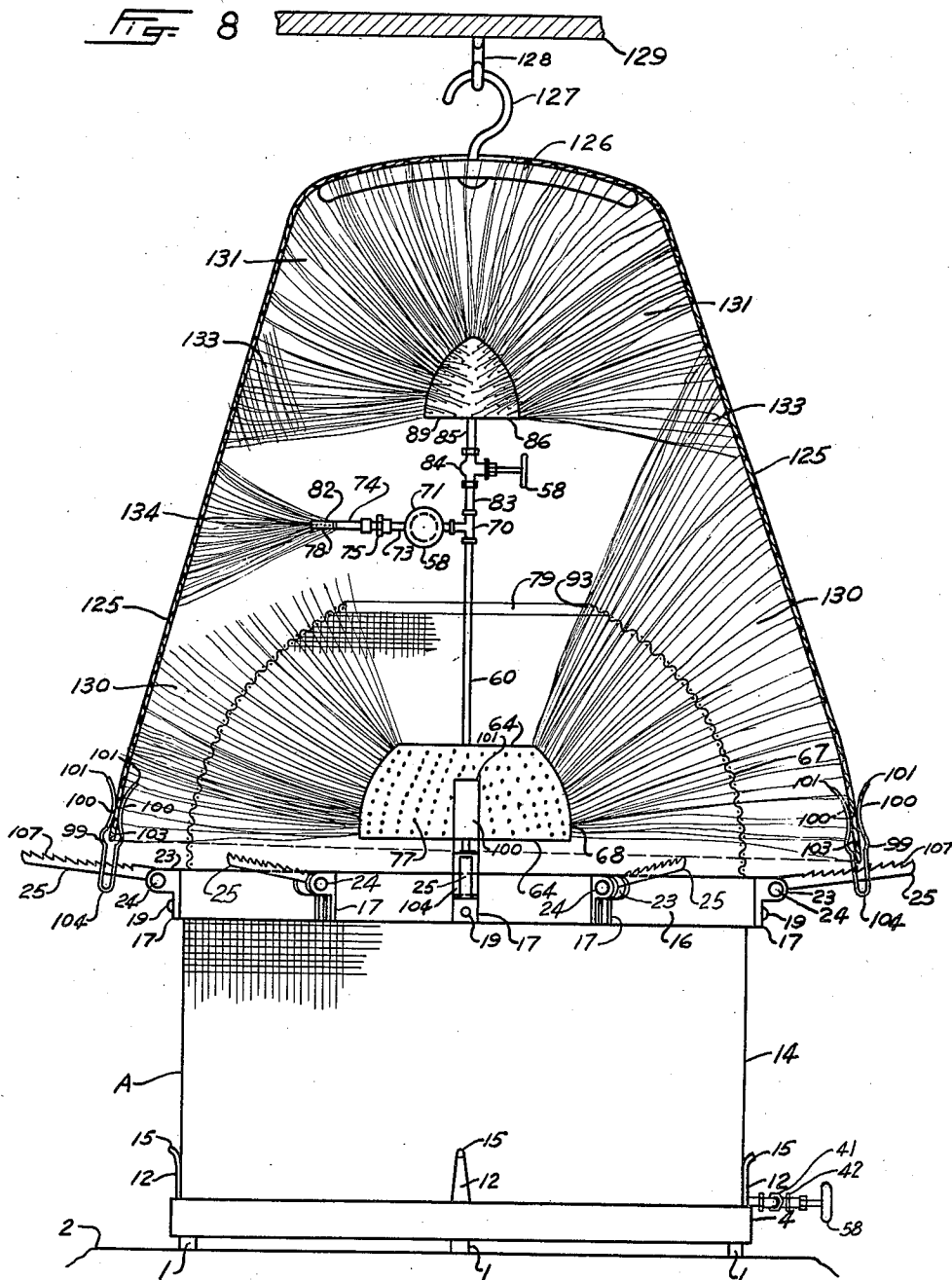
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## UNITED STATES PATENT OFFICE

2,213,288

## STEAMER MECHANISM

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Refile of abandoned application Serial No. 122,733,  
January 28, 1937. This application January 17,  
1938, Serial No. 185,378

7 Claims. (Cl. 223—51)

This application is a refile of application Serial Number 122,733, filed Jan. 28, 1937, which became abandoned for failure to answer within the six months period.

My invention relates to improvements in steamer mechanisms for use in finishing garments and similar objects in cleaning operations, and the objects of my improvements are, first, to provide a steamer mechanism for efficiently finishing clothing, garments, fabrics or similar objects in or after cleaning operations; second, to provide a steamer mechanism adapted to efficiently remove wrinkles from clothing, garments, fabrics or similar objects; third, to provide a mechanism for delivering an equal or even application of steam to substantially the total area or surface of a garment or similar object; fourth, to provide a steamer mechanism with means for delivering dry or wet steam to a garment or similar object; fifth, to provide a steamer mechanism with means for developing a flow of air through the steamer mechanism to the garment or similar object; sixth, to provide a steamer mechanism with means for holding the garment or similar object on the steamer mechanism in a stretched or taut position; seventh, to provide a steamer mechanism with a plurality of nozzles for directing steam to the garment or similar object; eighth, to provide a steamer mechanism with means for supplying heat for drying a garment or similar object which is undergoing a finishing operation therewith; ninth, to provide a steamer mechanism with a portable nozzle for applying steam to particular portions of a garment or similar object; and tenth, to provide a steamer mechanism with a power driven fan means adapted for ready removal from or placement in the steamer mechanism;

I attain these objects by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of the steamer mechanism with a part of its screen means broken away;

Figure 2, is a sectional view of the steamer mechanism taken on the line 2—2, Fig. 1,

Figure 3, a partial sectional view of the steamer mechanism taken on the line 3—3, Figure 2,

Figure 4, a partial sectional view of the steamer mechanism taken on the line 4—4, Figure 2,

Figure 5, a side view of one of the clip or hook mechanisms for securing on the steamer mechanism;

Figure 6, a plan view of the clip or hook mechanism disclosed in Figure 5,

Figure 7, a plan view incorporating a broken

away portion of a steam nozzle utilized in the steamer mechanism and attached to a hose or conduit connected with the source of steam supply, and

Figure 8 is a partial vertical section and side view of the steamer mechanism together with a garment supported therearound in the finishing operation, said garment being disclosed in section.

Similar numerals refer to similar parts throughout the several views.

The feet or support members 1 are preferably constructed of hard rubber, fiber, cork or similar composition material having insulating characteristics and are adapted to rest on the floor 2 or similar supporting surface, each of the feet members 1 being provided with boss or extension portions 5 adapted to enter and fit within one of the sockets or brackets 3 which, together with the bosses 5, are of a size such as to permit the bottom surfaces of the sockets 3 to rest on the upper surface of the feet members adjacent the base of the bosses 5.

The sockets 3 are suitably secured to the ring 4 as by welding at 7 or similar means and are spaced therearound in sufficient numbers to support the steamer mechanism as hereinafter disclosed.

The sockets 3 are constructed as hollow members from relatively thin strip or plate material and are formed with side walls terminating at the slot or space 8 extending longitudinally of the sockets 3 and are of sufficient width to allow the wall portions 9 to form partial side walls of the sockets 3 for retaining the upright or channel members 10 which enter and fit within the sockets 3 and rest upon the upper surfaces of the bosses 5 of the feet members 1.

The outer walls of the sockets 3 are each extended to form the flanges 12 offset sufficiently to provide the notches or spaces 13 between the flanges 12 and the outside wall or web of the channel members 10 for receiving the lower edge portions, which are suitably reinforced, of the screen member 14 which surrounds the plurality of channel members 10 and forms a perforated wall or mesh portion of the base assembly A of the steamer mechanism, the flanges 12 each being provided with an outwardly curved end 15 to facilitate the entrance of the edge portions of the screen member 14 therein, the screen member 14 being further suitably secured to the channel members 10 as by welding or similar means as desired.

The ring 16 is mounted at the upper ends of

and surrounds the channel members 10 in a manner similar to that of the ring 5 and the ring 16, the channel member 10 and the brackets 17 and 18 are secured together by the rivets 19.

5 The brackets 18 are mounted within the channel members 10 and are oppositely disposed one to another in the base assembly A and are each provided with eye or similar portions 20 for attaching to and supporting the pipes or tubular members 21 and 22.

Also the brackets 17 are provided in suitable quantities to mount around the outside of the ring 16 and the base assembly A, eight of the brackets 17 being disclosed, the brackets 17 each being provided with a boss portion 23 through which extends a pin or shaft 24 for pivotally supporting the levers or arms 25. At the inside of one of the channel members 10 is suitably mounted the bracket 26 which is provided with the arms 20 27 and 28 between which is mounted the condenser assembly B which rests on the arm 28 and is connected to the pipe or conduit 29 by the elbow or connection member 30 extending through the arm 28, the condenser assembly B being further connected with the pipe or conduit 31, which extends through the arm 27, by the connection member 32.

The pipe or conduit 29 extends through the side wall portion of the base assembly A and is connected to the pipe or conduit 33 by the elbow 34 and the shut off valve assembly 35, the pipe or conduit 33 being connected to the pipe or conduit 36 by the three way connection 37 to which is connected the nipple or connection member 38 for connecting with a hose or similar conduit 39. The pipe or conduit 22, after extending through the eye portion 20 of one of the brackets 18, extends downwardly, as at 40, to pass through the side wall portion of the base assembly A to connect with the elbow 41 and the shut off valve assembly 42 and also the pipe or conduit 36.

The condenser assembly B is further connected with the three way connection 43 by the pipe or conduit 44, the three way connection 43 being connected to the pipe or conduits 45 and 46, the pipe or conduit 46 connecting with the elbow 47 which in turn connects with a suitable nipple or connection member extending through the side wall of the base assembly A to connect with the hose 48 which is connected with a supply of steam under pressure.

The pipe or conduit 45 connects with the shut off valve assembly 49 which connects with the pipe or conduit 50 connected with the three way connection 51.

The three way connection 51 is connected with the shut off valve assembly 52 by the pipe or conduit 53 and with the shut off valve assembly 54 by the pipe or conduit 55, the shut off valve assembly 54 being connected with the three way connection 56, by the pipe or conduit 57, the shut off valve assembly 52 being connected with the pipe or conduit 21.

65 The shut off valve assemblies 35, 42, 49, 52 and 54 are each provided with a control handle 58, the handles 58 of the shut off valve assemblies 49, 52 and 54 being positioned on the outside of the wall portion of the base assembly A while the shut off valve portions are located on the inside of the base assembly A.

The pipes or conduits 21 and 22 are connected with the three way connection 59 which is located substantially at the center of the base assembly A and the steamer mechanism, the three way con-

nection 59 being further connected with the pipe or conduit 60.

Also the elbow 61 is connected with the pipe or conduit 62 connecting with the three way connection 56, the elbow 61 being connected with the pipe or conduit 63 on the end of which is suitably mounted the nozzle housing 64 and secured by the nut 65, the nozzle housing 64 being provided with a chamber 66 into which steam is conducted through the pipe or conduit 63 as more fully disclosed hereinafter, the outer wall 68 of the chamber 66 being formed with a convex shape to substantially conform with the conical or bee hive shape of the cover or upper screen member 67, the outer wall 68 being provided with a multiplicity of relatively small outlets, openings or apertures 77, a portion only of which are shown, through which the steam issues or flows. The chamber 66 is relatively narrow in cross section and has its inside wall conforming in shape to that of the outer wall 68 and the screen member 67. The nozzle housing 64 is thus provided with an annular construction having the opening 69 through which extends the pipe or conduit 60.

The pipe or conduit 60 extends upwardly through the opening 79 in the upper portion of the screen 67 and is connected to the three way connection 70 which is connected with the shut off valve assembly 71 by the pipe or conduit 72, the shut off valve assembly 71 being connected with the pipe or conduit 73 which supports the nozzle housing 74, the nozzle housing 74 being connected to and supported on the pipe or conduit 73 by the connection member 75 which is threadably connected to the nozzle housing 74 and the pipe or conduit 73 to permit the nozzle housing 74 to be readily installed thereon or removed therefrom.

The nozzle housing 74 is of relatively narrow width or vertical cross section when viewed, as in Fig. 2, but has a fan like shape or outline in the plan view as may be noted from Fig. 7, which discloses a second nozzle housing 76 similar to 74, the second nozzle housing 76 being utilized in connection with the hose 39 for operations in which a nozzle housing has to be moved to different positions or local applications of the steamer means on a garment or similar object as more fully disclosed hereinafter.

The second nozzle housing 76 is also provided with a connection member 75 for connecting it with the hose 39, the nozzle housings 74 and 76 being also each provided with a nut member 80 securely connected with or forming an integral portion of the nozzle housing to enable it to be readily removed by a wrench or similar tool.

The nozzle housings 74 and 76 are also each provided with a plurality of relatively small outlets, openings or apertures 78 arranged in a row extending substantially in a horizontal plane as indicated in Figs. 2 and 7.

Also the nozzle housings 74 and 76 are each provided with a chamber 81 through which the steam passes to the outlets 78, the steam issuing from the convex face or surface 82.

The three way connection 70 is connected with the pipe or conduit 83 which is connected with the shut-off valve assembly 84 which in turn is connected with the pipe or conduit 85 at the upper end of which is connected and supported the nozzle housing 86 constructed with a conical or bee-hive shape terminating at the apex or point 87, the nozzle housing 86 being provided with the chamber 88 through which the steam passes to the relatively small outlets, openings or apertures 75

89 arranged in formations extending around and over the outside conical surface 90.

The screen member 67 forms a perforated wall or mesh portion for the upper part of the steamer mechanism and is provided with a reinforcing edge member 91 at its lower side for entering the grooves or notches 92 formed in the upper ends of the channel members 10, the grooves or notches 92 being suitably curved at their edges and bottom to facilitate entry and centralizing of the screen member 67, the grooves or notches 92 thus supporting the screen member 91 in its operative position and permitting it to be readily removed by lifting it off to facilitate access to the mechanism therein and in the base assembly A.

The screen member 67 is provided with an annular reinforcing or edge member 93 extending around the opening 79. Also the screen member 67 is provided with a plurality of clip members 94 arranged around the outside of the screen member 67 in suitable numbers and locations, the clip members each being provided with a hook portion 95 adapted to be inserted through the mesh of the screen member 67 to secure the clip member 25 thereinto, the clip members 94 each being provided with a flange portion 96 lying adjacent the screen member 67 and extended and folded to form the flange portion 97 which is provided with an outwardly curved end together with resilient characteristics to cause it to normally engage the flange portion 96 and yet to enable it to be sprung away from the flange portion 96 to permit a garment or similar object to be inserted therebetween whereupon the garment or similar object will be clamped and retained therein as indicated by the fragmental representation of the garment or similar object 98, in Fig. 2.

In a similar manner, the clip members 99, Fig. 5, are provided with resilient flanges or portions 100 normally engaging one another and provided with spreading ends 101 to facilitate the entry of a garment or similar object 102 therebetween, when the flanges 100 are spread further apart whereupon the resiliency of the flanges 100 will clamp and retain the garment therein. The clip members 99 are each provided with an enlarged portion 103 to facilitate its resiliency, and having its wall portions extended to form the eye portion 104 having oppositely disposed wall portions connected at their outer end portions and provided with openings 105 and 106 therein for receiving a lever or arm 25 of one of the brackets 17 there-through, the openings 105 and 106 being misaligned to enable the upper edge portion of one of the openings, as for instance 105, to engage and abut the outer surface of one of the teeth or ratchets 107 while the lower edge portion of the opening 106 engages the bottom edge surface of the lever or arm 25, the upwardly and inwardly pull of the garment 102 tending to maintain the upper edge portion of the opening 105 against said tooth or ratchet to prevent the clip member from moving inwardly on the lever or arm 25, thus maintaining the garment 102 in a taut or tight position, and at the same time permitting the clip member 99 to be tilted to the right, as indicated by the dotted lines 108, Fig. 5, to enable the clip member 99 to be readily and quickly moved by the operator outwardly along the lever or arm 25 until it will accommodate the size or spread of the garment 102, whereupon the clip member 99 may be tilted and returned to its initial position for properly retaining the selected garment, thus providing adjustably

mounted clip means for accommodating garments of various sizes and shapes.

Also the levers or arms 25 are provided with the stop or cam portions 109 which are adapted to engage the brackets 17 when the lever or arms 25 have been pivotally moved to their proper operating positions in planes extending upwardly and outwardly from the sides of the base assembly A, as disclosed in Fig. 5, the stop or cam portions 109 preventing further upward pivotal movement even when the garment 102 is exerting a pull thereon, the shape of the stop or cam portions 109 being such, however, that they will pivotally move downwardly by the force of gravity to the positions disclosed in Fig. 2 when the clip members 99 have been removed from engagement therewith.

It is now to be noted that a garment may be readily placed and secured over the steamer mechanism and that steam may be discharged thereon at all or parts of the garment to finish it and remove all wrinkles therefrom, as herein-after more fully disclosed and then it is necessary to dry the garment which is accomplished by the fan 110 which is operatively driven by the electric motor 111 or similar power means, the electric motor 111 being connected to a source of supply of electric current by the cable 112 which may be extended out of the steam mechanism and provided with a conventional switch mechanism inside or outside of the steam mechanism for controlling its operation.

The electric motor 111 is provided with oppositely disposed studs 113 which are adapted to fit into the notches or grooves 114 in the hooked arms 115 of the bracket 116 which is provided with the arms 119 having the downwardly extending portions 117 adapted to extend within one of the channel members 10 and be retained therein behind suitable flange portions 118 formed by securement to or by extension of the side walls of the channel members 10 as indicated by dotted lines Fig. 1 and 4 and by full lines, Fig. 3.

It will be readily noted that with removal of the screen member 67, the electric motor 111 may be lifted upwardly from the notches or grooves 114 and the bracket 116 may be lifted upwardly and out of the channel member 10 which it engages, thus providing ready disassembly and yet rigid mounting for the electric motor 111.

The operation of the fan 110 will draw air into the base assembly A through the perforations of the screen member 14 and will force or blow it upwardly and outwardly through the perforations of the screen member 67 against and through the garments or similar objects being finished.

Also to facilitate the drying operation, the electric grid or heater element 120, or heating element of similar characteristics, is mounted within the base assembly A and adjacent the screen member 14 so that air will be drawn through the screen member 14 and through the heating element 120 by the fan 110 and blown upwardly thereby to the garment or similar object.

The heating element 120 comprises suitable wire construction for the conduction of an electric current therethrough and may be constructed in sections or as a sole unit extending partially or totally around the inside of the base assembly A, a section only of the heating element 120 being disclosed in Fig. 3, the heating element 120 being suitably supported by brackets 121 and

122 or similar means secured to the channel members 10 or similar portions of the steamer mechanism. A connection by cable 123 or similar means may be made to a switch means 124 on the outside of the steamer mechanism to facilitate control by the operator.

It is to be noted that in finishing garments, fabrics, or similar objects after they have been cleaned by steam cleaning, washing, or by chemicals or similar means or materials to remove dirt, stains, discolorations and similar objectionable characteristics, the garments, fabrics or similar objects must be stretched and submitted to a steaming application to remove all wrinkles therefrom and this is especially so where the material is velvet or similar material and it is impossible to accomplish this by conventional ironing operations because many garments are provided with a multiplicity of ruffles, pleats, or similar constructions and the most economical way to accomplish this is by steaming, in some instances a slight operation of touching up certain portions of the garment being resorted to in an ironing operation. However, the practical and economical method of performing such finishing operations in the main is to apply steam to said garments, fabrics or similar objects, and my steamer mechanism renders an economical application of dry or wet steam to all portions of said objects in an economical and efficient manner.

In operation, the garment, fabric or similar object is supported over and around the steamer mechanism as disclosed in Fig. 8, in which a dress or gown 125 is supported by a hanger member 126 supported by its hook 127 from a hook member 128 connected with a ceiling 129 or similar structure, the lower edge portions of the dress or gown 125 being gripped by the clip members 99 which may be adjusted along the levers or arms 25 to properly stretch and hold taut the dress or gown 125.

If a shorter dress or gown is being finished then the edge portions thereof may be clamped and secured in any of the various clip members 94.

Then with the dress or gown stretched in place over the steamer mechanism, steam is allowed to enter through the hose 48, the pipes 46, 45, 50, 55, 62 and 63 to the nozzle housing 64, from where it will issue in a spray through the outlets 77 thereof on to and through the dress or gown 125 as indicated by the diagrammatic lines 130, Fig. 8, this operation being accomplished with the shut off valve assemblies 49 and 54 being open and the shut off assembly 52 being closed.

If the shut off assembly 52 is also opened, the steam will also flow through the pipes 53, 21, 60 and 83 and 85 to the nozzle housing 86 from where it will issue in a spray through the outlets 89 thereof on to the upper portion of the dress or gown 125 as indicated by the diagrammatic lines 131, Fig. 8, this operation being accomplished with the shut off valve assembly 84 also being open and with the shut off valve assembly 71 being closed.

The nozzle housing 74 may be rotatably supported relative to the axes of the pipes 60 and 83 to permit it to be positioned as desired and if stationary it may be used for steaming portions of the dress or gown 125 by moving it around and adjacent the outlets 78 thereof after the dress or gown 125 has been removed from its position on the steamer mechanism, as disclosed in Fig. 8,

the nozzle housing 74 thus being utilized for touching up operations.

Also by closing the shut off valve assemblies 71 and 84 and by opening the shut off valve assembly 42, the steam is controlled to flow through the pipes 22 and 36 to the hose 39 and to the nozzle housing 76, Fig. 7, for use in applications requiring mobility of the appliance mechanism, this being accomplished with the shut off valve assembly 35 being closed.

The above operations have been disclosed as utilizing what is conventionally known as dry steam and when it is desired to apply what is conventionally known as wet steam, wet steam being especially beneficial with certain garments or fabrics as for instance rayon objects which have been discolored by rain drops or similar stains, wet steam being heavily saturated with water, the steam is controlled to pass through the condenser assembly B which is provided with conventional means for mixing water with the steam to saturate it and to form wet steam, this being accomplished by closing the shut off valve assembly 49 and causing the steam to pass through the condenser assembly B and out through the pipe 31 to the three way connection 56 and then as desired to the various nozzle outlets as above disclosed. It is to be noted that the steam issuing from the nozzle housings 64 and 86 will overlap, as at 133, Fig. 8, thus providing means for steaming the total dress or gown 125, the diagrammatic lines 134 being disclosed in Fig. 8 to illustrate the spray operation of the nozzle housing 74.

After the dress or gown 125 has been steamed to finish and remove wrinkles therefrom, the fan 110 is operatively started by switching on electric current to the electric motor 111, the fan 110 drawing in air through the screen member 14 and blowing it upwardly and outwardly to dry the dress or gown 125 and when it is desired to accelerate the drying operation, electric current is controlled, by the switch means 124, to flow through and heat the heating element 120 which will quickly heat the flow of air flowing in through the screen member 14.

I claim:

1. In a steamer mechanism for finishing a garment or similar object, the combination of a base assembly, a screen member mounted on said base assembly, arms pivotally mounted on said base assembly, said arms each being provided with a stop portion adapted to engage a fixed portion of said base assembly to limit the pivotal movement of said arm in one direction, each of said arms being provided with ratchet teeth, clip members mounted on said arms and adapted to clamp said garment or similar object over said screen member, each of said clip members being provided with an opening surrounding an arm together with its ratchet teeth, said opening being shaped to permit an edge of said opening to engage a ratchet tooth to prevent movement of said clip member towards said base assembly, said opening being further shaped to permit said clip member to be tilted from its normal position and to free said edge from engagement with said ratchet tooth and to enable said clip member to be adjustably moved along said arm away from said base assembly, and a spray nozzle member mounted within said screen member and connected with a supply of steam.

2. In a steamer mechanism for a garment or similar object, the combination of a base assembly provided with a screen member therearound,

a second screen member of hemispheroidal shape having the portion of its largest circle attached to said base assembly, a nozzle comprising a hemispheroidal housing mounted within the second screen with its center of curvature substantially coincident with the center of curvature of said second screen and having a multiplicity of outlet apertures directed radially with respect thereto and with respect to the second screen, and means for guiding a flow of steam to said nozzle housing.

3. In apparatus of the character described, a base assembly composed of top and bottom rings supported in vertically spaced relation by circumferentially spaced uprights, a screen between said rings and uprights, a second screen of hemispheroidal shape having the portion of its greatest circle attached to the upper ring, brackets extending inwardly from said uprights, a hemispheroidal spray housing having a multiplicity of radial apertures, and steam conveying tubing supported by said brackets and supporting said spray housing with its center of curvature substantially coincident with the center of curvature of said second screen.

4. In a steamer mechanism for a garment or similar object, the combination of a base assembly provided with a screen member therearound, a second screen member of hemispheroidal shape having the portion of its largest circle attached to said base assembly, a nozzle comprising a hemispheroidal housing mounted within the second screen with its center of curvature substantially coincident with the center of curvature of said second screen and having a multiplicity of outlet apertures directed radially with respect thereto and with respect to the second screen, means for guiding a flow of steam to said nozzle housing, and means in said base member for receiving a removable fan, said means being adapted to support the fan centrally of the base assembly and directed upwardly.

5. In apparatus of the character described, a base assembly composed of top and bottom rings supported in vertically spaced relation by circumferentially spaced uprights, a screen between said rings and uprights, a second screen of hemispheroidal shape having the portion of its

greatest circle attached to the upper ring, brackets extending inwardly from said uprights, a hemispheroidal spray housing having a multiplicity of radial apertures, steam conveying tubing supported by said brackets and supporting said spray housing with its center of curvature substantially coincident with the center of curvature of said second screen, and means in said base member for receiving a removable fan, said means being adapted to support the fan centrally of the base assembly and directed upwardly.

6. In a steamer mechanism for a garment or similar object, the combination of a base assembly provided with a screen member therearound, a second screen member of hemispheroidal shape having the portion of its largest circle attached to said base assembly, a nozzle comprising a hemispheroidal housing mounted within the second screen with its center of curvature substantially coincident with the center of curvature of said second screen and having a multiplicity of outlet apertures directed radially with respect thereto and with respect to the second screen, and means for guiding a flow of steam to said nozzle housing, said second screen and said nozzle each having a central opening therethrough, a steam pipe extending vertically through said openings, and a spray head supported above said second screen by said steam pipe.

7. In a steamer mechanism for finishing a garment or similar object, the combination of a base assembly, a screen member mounted on said base assembly, sets of clip means mounted on said screen member at varying heights for holding said garment or similar object, and a spray nozzle mounted within said screen member and connected to a supply of steam, said spray nozzle being round in horizontal cross-section and arcuate in vertical cross section and having a multiplicity of openings through the surface thereof whereby to eject a steam spray fan shaped in any vertical section, said screen having a shape substantially similar to the spray nozzle and being spaced from said nozzle substantially uniformly along all lines radial of the nozzle.

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