

June 4, 1935.

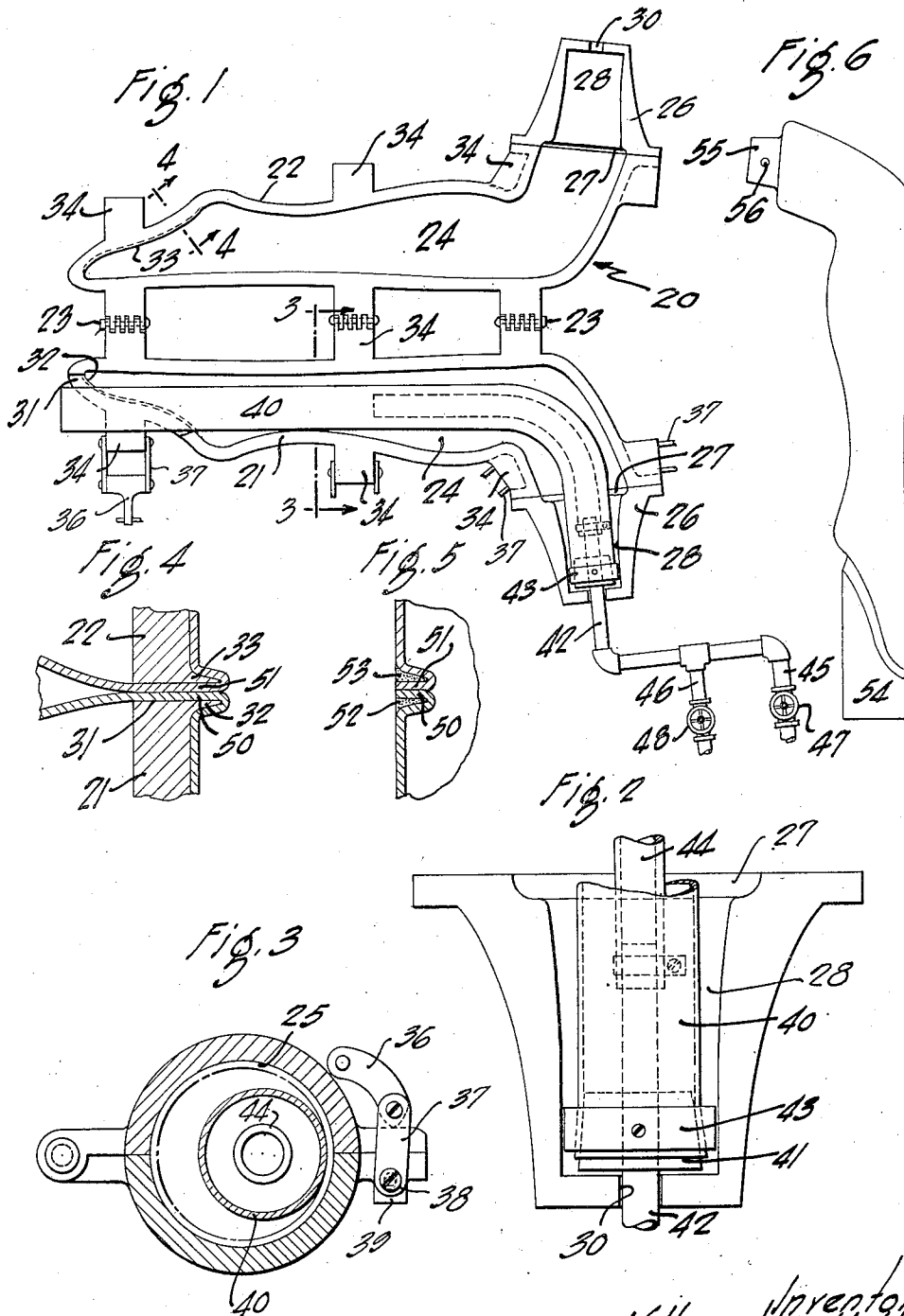
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2,003,707

HOSIERY FORM

Filed Feb. 28, 1933

3 Sheets-Sheet 1



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Fig. 8

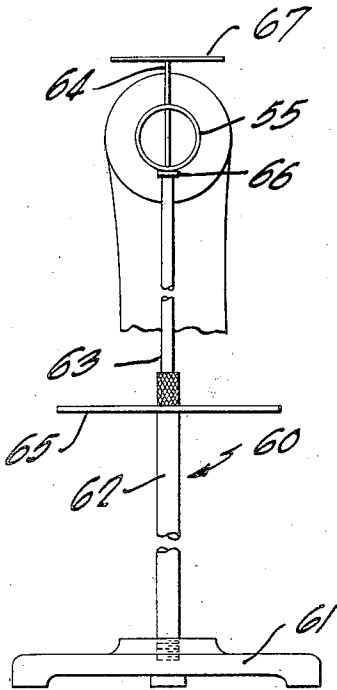


Fig. 7

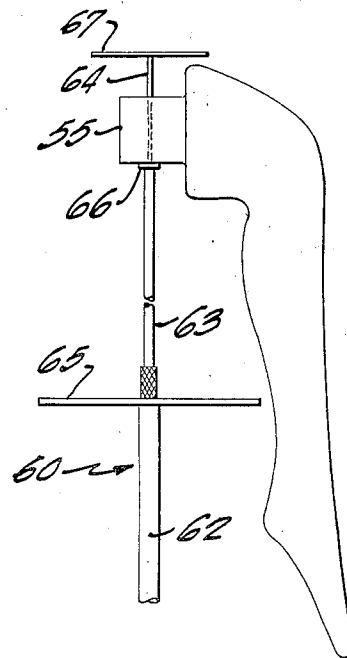


Fig. 9

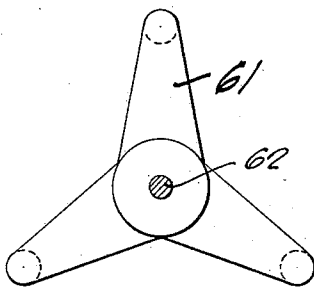
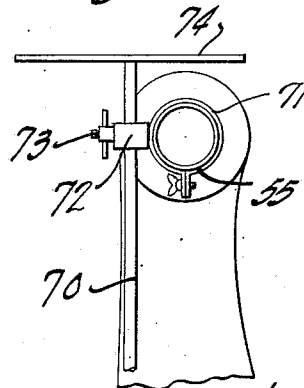


Fig. 10



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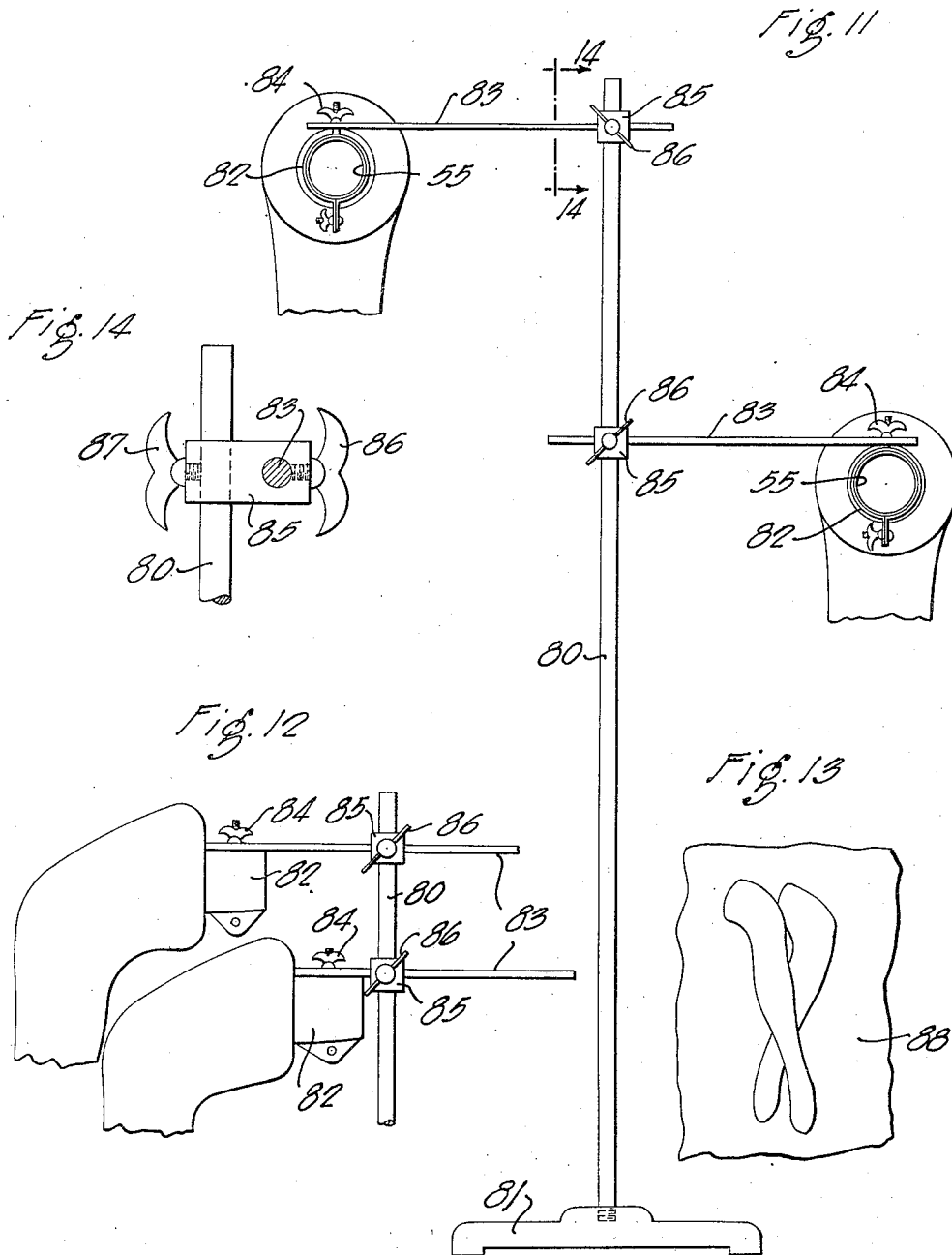
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2,003,707

HOSIERY FORM

Filed Feb. 28, 1933

3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,003,707

## HOSIERY FORM

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ration of New York

Application February 28, 1933, Serial No. 658,960

4 Claims. (Cl. 223—18.3)

This invention relates to an improvement in hosiery forms and more particularly to a hosiery form consisting of unitary leg and foot portions, said form being made from a tube of celluloid or other moldable material by expanding the tube through the introduction of steam, air or other fluid while permitting a longitudinal contraction thereof, and to means for displaying the same.

The object of this invention resides in the provision of a hosiery form constructed from such a tube and closed at one end thereof by an appreciable contact between the walls of the tube, and means for displaying the forms, and in various other details and features as will appear from a consideration of the following description taken in connection with the drawings which form a part thereof and in which

Fig. 1 is a plan view of a mold by such a form embodying this invention may be made, such mold being shown open with a tube from which the hosiery form is to be made resting therein;

Fig. 2 is an enlarged view of that end of the mold through which fluid pressure is exerted upon the tube to expand the same;

Fig. 3 is an enlarged sectional view taken across the closed mold at the area indicated by the line 3—3 on Fig. 1 and showing the tube in dotted lines after expansion and in full lines before expansion;

Fig. 4 is an enlarged sectional view of a portion of the closed mold taken substantially along the line 4—4 of Fig. 1, and illustrating the conformation of the closed or foot end of the completed form;

Fig. 5 is a view similar to Fig. 4 of the foot end of the form after trimming and finishing;

Fig. 6 is an elevation of the form after its removal from the mold and prior to the trimming and finishing;

Fig. 7 is an elevation of a finished form supported upon a suitable standard for display;

Fig. 8 is a rear elevation of such standard;

Fig. 9 is a plan view of the foot of the standard;

Fig. 10 is a view similar to Fig. 8 of another type of standard;

Fig. 11 is an elevation of a device by which two forms may be displayed;

Figs. 12 and 13 are side and front elevations of a portion of the device shown in Fig. 11; and

Fig. 14 is an enlarged view taken along the line 14—14 of Fig. 11.

The mold 20 here shown for the purpose of illustration comprises two sections 21 and 22 hingedly joined at 23. Each section includes a depression 24 having such contour that when the

mold is closed the depressions coact to form a chamber 25 having walls which define the contour of the finished form. Each depression 24 is, as shown in Fig. 1, angular and is closed at one end by a block 26 suitably secured by bolts, screws, rivets or the like to the portion of the section containing the depression. Each block 26 is provided with a depression 27 which forms a continuation of the depression 24, a recess 28 leading from the depressions 24 and 27 and a trough 30 from the recess 28 through the exterior of the block. It will be understood that the depressions 27, recesses 28 and troughs 30 are so located that, when the mold is closed, they will coact like the depressions 24 to form chambers.

At the other end of the depression 24 is formed in the section wall a recess 31 extending from the depression to the exterior of the section. A tongue 32 projects into the depression from one side of the recess 31 and a tongue 33 projects from a corresponding portion of the wall of the section 22 into its depression. The tongues 32 and 33 may be integral with the walls or may be formed from separate plates secured to the walls. Projections 34 extend from the sections 21 and 22, certain of which are joined by hinges 35 and the sections, when swung on the hinges, close the mold. Suitable means may be provided to secure the sections in the mold-closing position, such, for example, as that shown in Fig. 3 in which are shown projections 34 from the other sides of the sections held in contact by a clamping lever 36. The lever 36 is swung between plates 37 pivoted upon a pin 38 having offset portions rotatable in an integral tongue 39 on one of the projections. Obviously by rotating the pin 38 the clamping action is regulated.

The hosiery forms are made from tubes 40 of celluloid which being suitably treated are expanded in the mold as will be set forth below. One end of the tube 40 is slipped over a sleeve 41 supported upon a pipe 42 and is secured in place by a ring 43 which clamps the end of the tube in place. Attached to the end of the pipe 42 is a flexible hose 44. Connected to the pipe 42 are valve controlled pipes 45 and 46 from which steam, water and air is supplied to the pipe 42. In the illustrated mold steam is introduced through the pipe 45 controlled by the valve 47 and water, and air either separately or together are introduced through the pipe 46 controlled by the valve 48. The form, arrangement and location of the pipes 42, 45 and 46 shown in Fig. 1 are, it will be understood, empirical and may be varied as desired.

One method of making a hosiery form embody-

ing this invention is as follows. A tube 40 is previously soaked in water to render it manipulatable. The hose 44 and pipe 42 are introduced into one end of the tube and the end of the tube slipped over sleeve 41 and clamped thereon by the ring 43. The tube is then bent to conform roughly to the outline of the mold and laid in the depression 24 of the section 21 with one end extending through the recess 31 and the other end extending into the recess 28, the ring 43 and sleeve 41 resting in the recess 28 and the pipe 42 resting in the trough 30, all as shown in Fig. 1. The mold is then closed and the sections fastened together by the clamping levers 36 or other fastening means. The end of the tube 40 in the recess 31 is pressed down by the closing of the mold to close the tube. Enough steam is introduced into the tube to soften the walls thereof and then the section fastening means are tightened for the purpose of bringing the walls of the sections into closer contact and of insuring the closure of the tube at the end clamped in the recess 31. The mold is then heated preferably by plunging it into a bath of hot water and steam and the supply of steam into the tube in the mold resumed until the walls of the tube have been forced into contact with the walls of the depressions; ordinarily about three minutes. The supply of steam is cut off and air with or without water is introduced to prevent any collapse of the formed tube, to clear the steam out of the tube and cool the walls of the tube. At the same time the mold is removed from the bath and cooled, preferably by spraying water upon it.

The hose 44 conducts the steam past the angular portion of the tube and prevents it from striking directly upon that wall of the tube as it would if the hose were omitted. This is desirable because the expansion of the tube at this portion is the greatest and if the steam were to strike it directly this wall would be unduly softened. While the tube has been firmly clamped about the sleeve 41 there is nevertheless sufficient space left through which the introduced steam, air and water can escape under pressure into the recess and thence into the atmosphere. Since the tube expands laterally particularly at the angular portion which forms the knee of the form there is a tendency for the tube to contract longitudinally which is permitted in the illustrated embodiment by the recess 28 in which the pipe, ring and sleeve may travel inwardly. The closed end of the formed tube, as shown in Figs. 4 and 5 includes the flanges 50 and 51 which contact over an appreciable surface and are separated from the adjacent portions of the tube by depressions 52 and 53 formed by the tongues 32 and 33.

After the mold has been opened the formed tube is removed and separated from the pipe 42. The portion 54 of the formed tube projecting from the foot is cut off, the flanges 50 and 51 are cemented together and the depressions 52 and 53 filled with any suitable material (see Fig. 5). The upper end of the formed tube is also trimmed as desired and a thimble 55 left through which one or more holes 56 may be made to facilitate the supporting of the form upon a standard. The form is then finally cleaned and painted.

From the above it will be apparent that the hosiery form embodying this invention is constructed from a single tube closed at the foot end at the center of the sole. Such joinder is formed by two flanges secured face to face and spaced from other portions of the sole by depressions filled with wood putty or other suitable material.

This line of joinder is obviously not conspicuous and in fact is concealed when the form is in use for displaying hose slipped upon it. Hosiery forms of similar flexible material have heretofore been made from an open ended tube which constitutes the leg portion and a separately produced foot form. See for example the form disclosed in my Patent No. 1,780,744 dated November 4, 1930.

The form may be supported for display purposes upon a wire or an easel and is preferably suspended by means engaging the thimble 55 so that the hose thereon can be completely examined without the necessity of shifting the form. One such suspending means comprises an upright post 60 secured at its foot to a base 61. The post as shown in Figs. 7 and 8 comprises a bottom section 62, an intermediate section 63 and a top section 64 the diameters of such sections decreasing from the bottom to the top sections. A shelf 65 is carried by the section 62 and a washer 66 is mounted upon the top of the section 63. The section 64 which may terminate in a shelf 67 is passed through opposite holes in the thimble 55 which rests on the washer 66. The standard shown in Fig. 10 comprises a post 70 surrounded by a sleeve 71 to which is secured a projecting block 72. The block surrounds the post 70 so that sleeve 71 may be raised or lowered. Suitable fastening means, as for example, the set screw 73 are provided to secure the sleeve in any desired position. A shelf 74 may be mounted upon the top of the post as shown. The post may be held upright by a base (not shown) which may be similar to the base 61. Under some conditions it may be desired to display two forms simultaneously as shown in Figs. 11 to 14. The hosiery forms are supported upon a post 80 mounted on a base 81. The thimbles 55 of the forms are surrounded by sleeves 82 to which rods 83 are secured by set screws 84. The rods 84 pass through blocks 85 adjustably mounted upon the post 80. Set screws 86 and 87 fix the rods in the blocks and the blocks on the post. The forms may be adjusted relatively to each other on the post and moved into any position desired so that the forms will attract attention. Thus in Fig. 13 the forms are crossed in front of a wall 88 which conceals the post and the major portion of the supporting mechanism.

While certain embodiments of this invention have been shown and described it will be understood that I am not limited thereto and that other embodiments may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A flexible celluloid hosiery form closed at the foot, said form being made from a tube and having unitary leg and foot portions and a single seam, where the wall of the tube is joined, at the sole of the foot portion.

2. A flexible celluloid hosiery form closed at the foot, said form being made from a tube and having unitary leg and foot portions, a single seam, where the wall of the tube is joined, at the sole of the foot portion, and a thimble projecting from the upper end and of smaller diameter than the form proper, by means of which the form may be supported.

3. A flexible celluloid hosiery form closed at the foot, said form being made from a tube and comprising unitary leg and foot portions, the wall of the tube terminating at the foot end of the form in flanges brought into surface contact to form a seam extending along the sole of the foot

portion, and a thimble, of lesser diameter than the top of the leg portion, projecting from the upper end of the leg portion, said thimble constituting means for supporting the form.

5 4. The combination with a flexible celluloid hosiery form provided at its upper end with a

thimble of a diameter smaller than that of the upper part of the form proper, of a form supporting standard, including a clamp surrounding the thimble, said clamp being rotatable to support the form in various positions.

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