

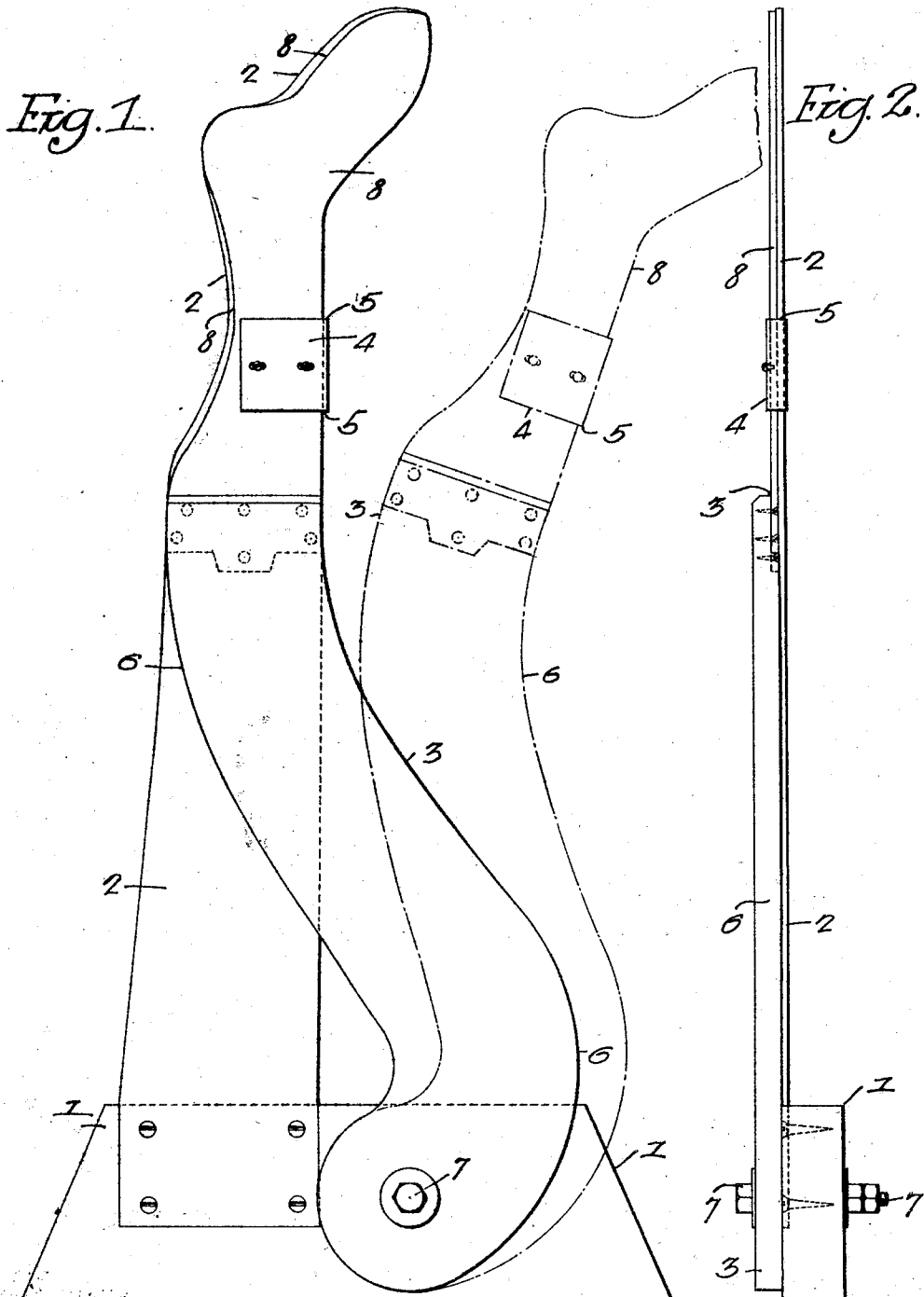
Oct. 7, 1930.

W. D. BUTZ

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METHOD FOR MAKING FASHIONED HOSIERY

Original Filed Nov. 14, 1923 3 Sheets-Sheet 1



Inventor.- Walter D. Butz  
by his Attorneys.-  
Howe & Howe

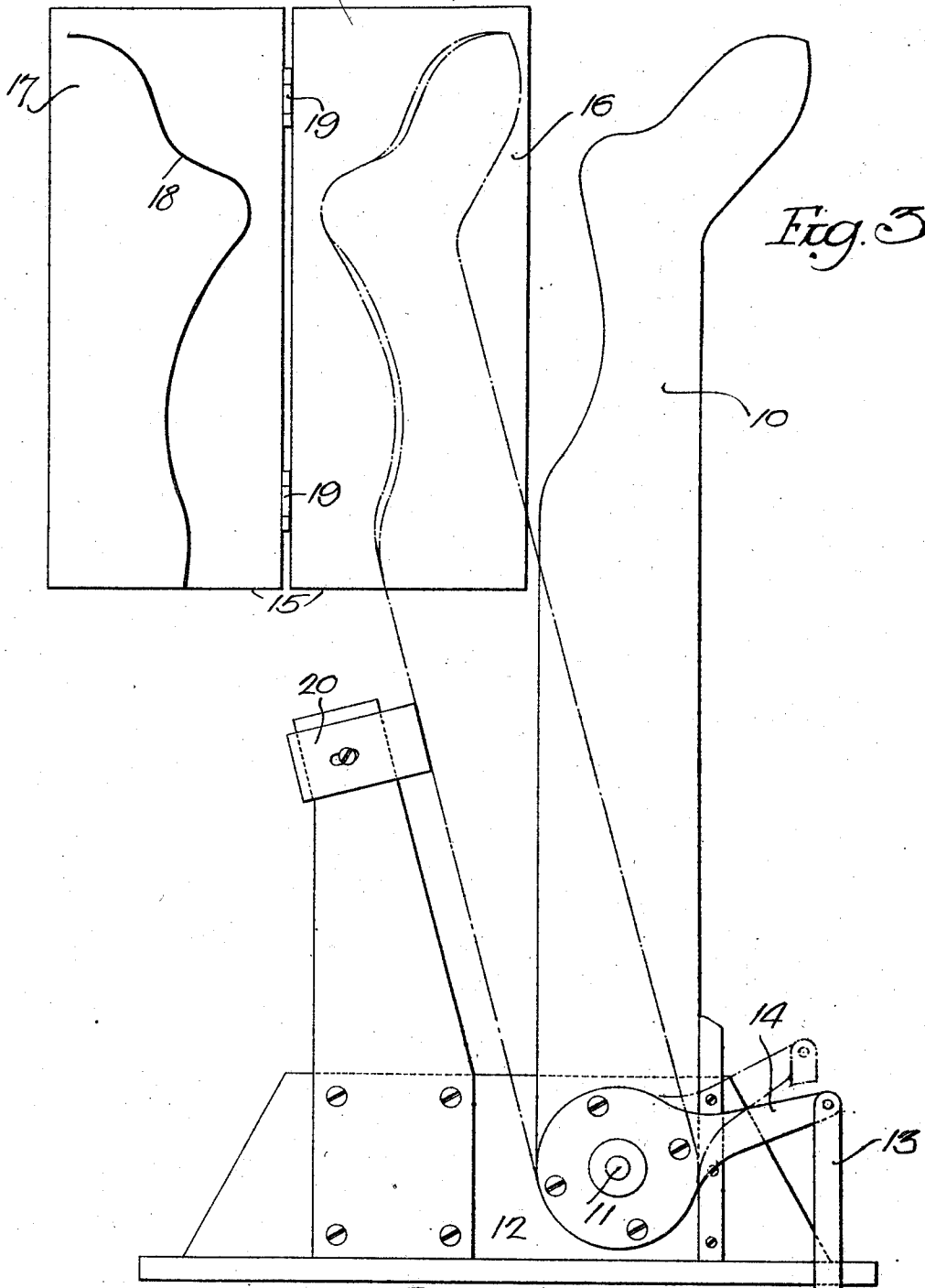
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METHOD FOR MAKING FASHIONED HOSIERY

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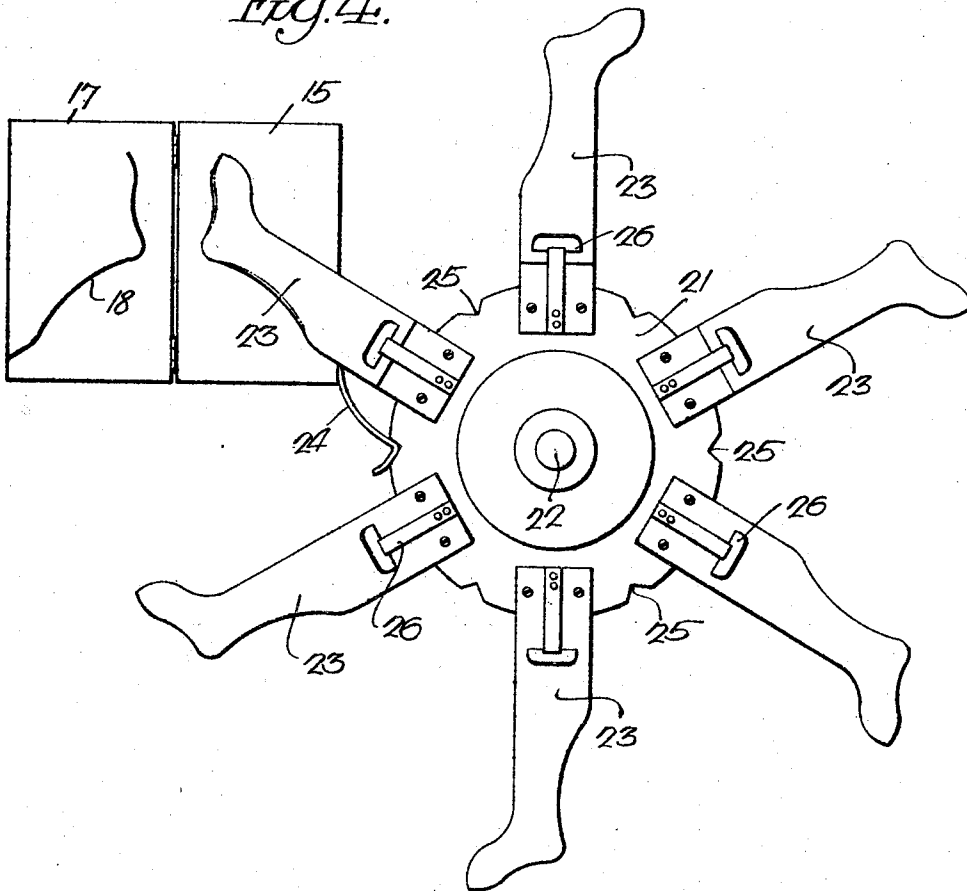
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METHOD FOR MAKING FASHIONED HOSIERY

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*Fig. 4.*



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## UNITED STATES PATENT OFFICE

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## METHOD FOR MAKING FASHIONED HOSIERY

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The object of this invention is to provide an improvement in that class of stockings formed on circular stocking machines and fashioned by cutting away portions of the tubular fabric.

A further object of the invention is to provide a method by means of which stockings of this class may be made to conform more closely to the shape of the human leg.

10 A still further object of the invention is to provide a practical method for manufacturing stockings which may be termed tailor-made in that they may be fashioned according to different specifications with absolute exactitude.

The invention further resides in the provision of a method of manufacturing stockings which have the close fitting characteristics of the so-called full fashioned stocking but which can be manufactured at a much smaller cost than the latter and with greater rapidity.

The invention also contemplates the provision of novel mechanism by means of which this method of manufacturing hosiery may be practiced to good advantage.

The invention will be readily understood from the attached drawings in which:

Figure 1, is a side elevation of apparatus designed for working my method of manufacture;

Fig. 2, is a front elevation of the apparatus;

Fig. 3, is a more or less diagrammatic view illustrating modified mechanism for practicing the invention, and

Fig. 4, is a still further modification within the scope of the invention.

With reference to the drawings, the device in its present form comprises a base 1, to which is secured in suitable fashion a stocking board 2, adapted for the reception of seamless stockings knit as a tubular fabric on a circular stocking-knitting machine. For the board 2, I may utilize a standard seamless stocking board which will vary within limits in accordance with the sizes of the stockings. Or the board 2 may be of any size or shape adapted to retain the seamless stocking with the desired degree of tautness throughout.

In addition to the board 2, I pivotally secure to the base 1 a second board 3, the upper end of which may correspond in general shape and dimensions with a board such as used for full fashioned stockings or stockings knit and fashioned upon the flat machine. As will be apparent from Fig. 1, this latter board 3 while adapted for the same size stocking is of generally smaller dimensions at the fashioned parts than the seamless board, and the board 3 is arranged to lie close alongside the board 2 with the front edges of the legs and the upper edges of the foot portions of the two boards corresponding. To insure the proper positioning of the board 3 with respect to the board 2 I may secure to the former a laterally adjustable plate 4 which has a flange 5 extending across the front and adapted to engage the forward edge of the board 2, as shown in Fig. 2, this flange 5 constituting a stop which brings the board 3 into the desired position. In the present instance, I have shown the member 3 as comprising a heavy base portion 6 which is pivoted at 7 to the base 1, and which has secured at its upper end in suitable fashion, preferably detachably, a narrow board 8 which may, as previously described, correspond in shape to the corresponding portion of a standard full-fashion board. This detachable construction provides means for replacing the part 8 with similar parts of different shapes to afford dimensions and proportions of the fashioned parts of the finished stocking to suit the needs.

In practicing the invention, I first form a seamless stocking in usual manner upon a circular machine, which stocking is then placed upon the board 2. In order to insure the proper positioning of the stocking upon the board, I may form a line of drop stitches extending down the back center line of the stocking and under the foot to the toe, this line being brought by the operator directly over the rear edge of the form board. I then swing the member 3 from the position shown in broken lines in Fig. 1 to the position shown in full lines, after which this board may be used as a templet to mark upon the stocking the outline of the part 8. The templet is then

swung to the outward position, the stocking removed from the board 2, and cut along the line marked as aforescribed upon the stocking, the stocking being laid flat so that a symmetrical cut is formed around the rear center line defined by the line of drop stitches. In cutting the stocking along the marked line, it is preferred to use that type of machine which both cuts and seams, so that the cutting and the stitching may be done in a single operation.

Where in forming the seamless stocking machines are used of the type which automatically forms the welt in the normal knitting operation, it is necessary to turn the stocking inside out before applying it to the board 2. Also in forming the stocking, the fabric of the seamless stocking may be made relatively tight at the ankle, as is customary in forming seamless stockings, or the fabric may be uniformly tight throughout. In the latter case, it will be advisable, in order to insure a uniform tautness of the fabric, to modify the shape of the board 2, making the breadth at the fashioned parts greater than normally they would be.

It will be apparent that templets of different shapes may be used, and that they may differ in construction from that hereindescribed, it being only necessary to provide suitable means for marking the desired outline upon the boarded stocking. I show for example in Fig. 3 an alternative device for marking the desired outline upon the stocking, which consists of printing means in the form of a press in which the boarded stocking is inserted. In this modification, the board is indicated by the reference numeral 10, and this board is pivotally secured at 11 upon a suitable base 12. Suitable means such as a lever 13 secured to an arm 14 upon the hub of the board 10 may be provided for swinging the form into a position within the printing apparatus 15. This latter apparatus may be of any suitable form, and I have shown it in the present instance as comprising a fixed platen 16 and a plate 17 having thereon a suitable ridge or elevation 18 of the configuration which it is desired to mark upon the stocking. This ridge 18 may be coated with suitably colored ink and the plate 17 swung upon its hinges 19, 19, over against the platen 16, the stocking being held by an adjustable stop 20 in a proper position between the platen and the plate 17, as indicated in the drawings in broken lines.

This type of mechanism is also capable of modification, as illustrated in Fig. 4, in the use of a turret 21 rotatably mounted upon a suitable axle 22, and having radial form boards 23, 23, secured thereto upon which the stocking may be placed. As the turret 21 rotates, the boards are passed between the platen 15 and the plate 17 of the aforescribed printing device, and the plate 17 may be

swung in against the stocking to mark thereon the desired configuration. In order to insure the boarded stocking assuming the proper position with respect to the marking element, a suitable spring stop 24 may be provided, which by engagement of suitable notches 25 in the turret insures the proper positioning. Suitable clamps 26 may also be provided on the boards to hold the stockings tight upon the boards. This device has a particular advantage in the fact that it is adapted for the automatic removal of the stockings from the boards after they have been printed, by revolving the turret 21 at a high velocity which will cause the stockings to leave the boards by centrifugal force. The stockings, however, if desired, may be withdrawn by hand or by separate mechanism adapted for that purpose.

It will be apparent that by means of my invention I am able to provide a seamless-knit stocking so fashioned as to conform accurately to the proportions of a full-fashioned stocking, and further am able to so fashion a stocking as to accurately meet any specifications. It will also be noted by reference to the drawings that ordinarily in fashioning the stockings, it will be unnecessary to cut the heel of the seamless blank, so that the finished article need have no seam under the heel, where a seam is apt to give discomfort.

In manufacturing the stocking, it also will be preferable to employ in the circular machine a needle head of a diameter great enough to give the top of the seamless blank sufficient size to accommodate the upper leg of the wearer without requiring that the fabric be loose knit. This may be done, since in my stocking there is no necessity for forming the fabric of the seamless blank tighter at the ankle for the sake of fitting that part of the leg closely, the fashioning at that part being accomplished by cutting away the fabric in the manner set forth. This will also have the additional advantage of permitting the formation of a stocking the leg fabric of which is uniform throughout and just as closely knit at the top as at the ankle, thus conforming more nearly to the full fashioned stocking as formed on the flat machines.

In utilizing the invention for making stockings according to given specifications, it is merely necessary to form a templet or marker proportioned accordingly and of such dimensions as to afford a proper degree of tautness in the fabric when applied to the person, these dimensions being not necessarily the exact size of the leg, but of corresponding relative proportions.

I claim:

1. The method of forming fashioned hosiery, which consists in taking a seamless stocking, boarding the stocking, laying a

second board of predetermined configuration against the first with front edges of the boards corresponding, cutting the fabric of the stocking to the outline of the rear edge of the said second board, and joining the fabric at the severed edges to complete the stocking.

2. The method of manufacturing hosiery, which consists in forming a stocking as a seamless tubular web having means for properly positioning the stocking on a form board, placing the seamless stocking upon a board adapted to maintain the fabric free from wrinkles, outlining upon the fabric a predetermined configuration, cutting the fabric to said outline, and joining the fabric at the severed edges to complete the stocking.

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