

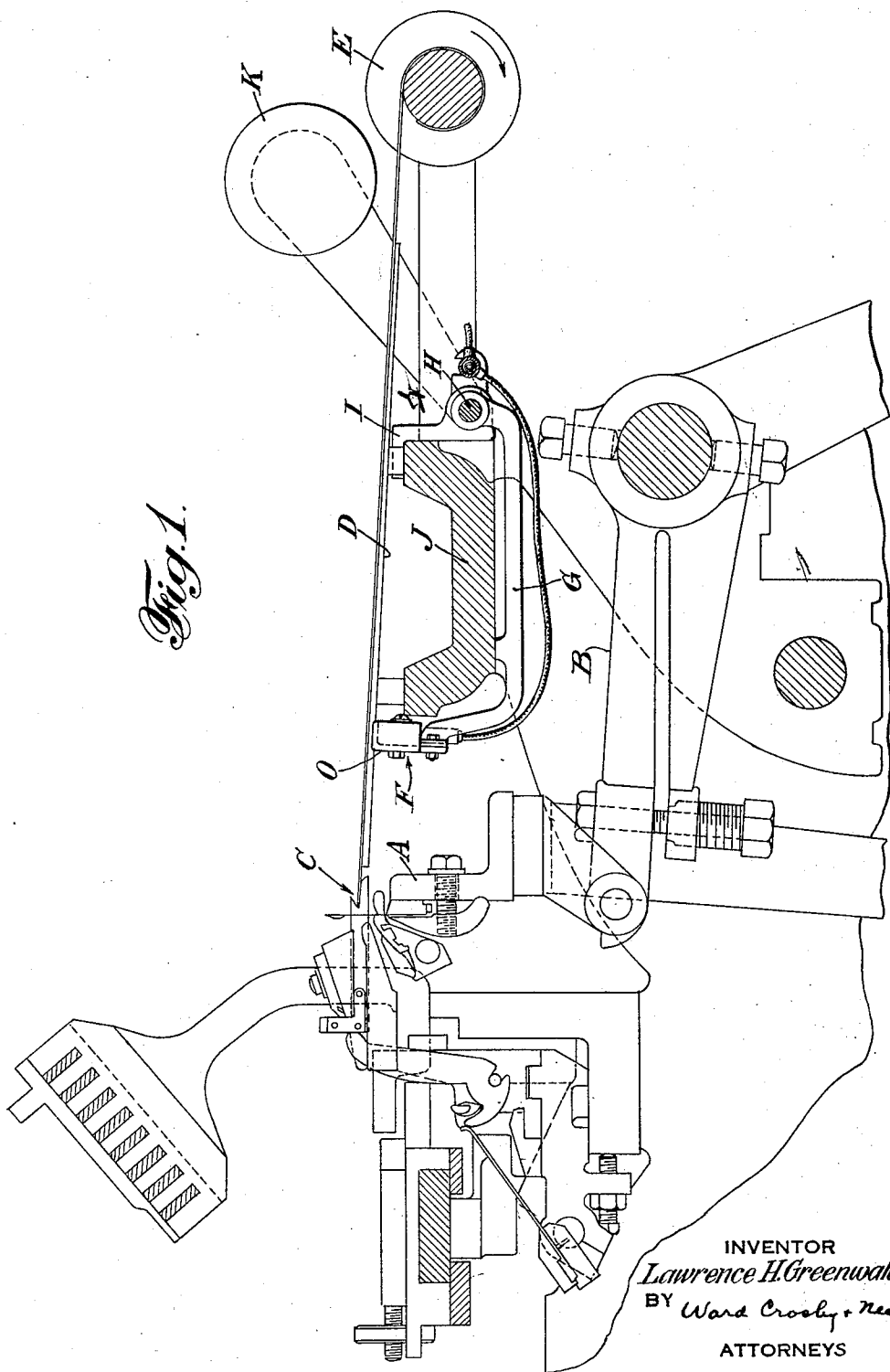
Dec. 22, 1931.

L. H. GREENWALD
MANUFACTURE OF STOCKINGS

1,837,616

Filed Aug. 23, 1930

2 Sheets-Sheet 1



Dec. 22, 1931.

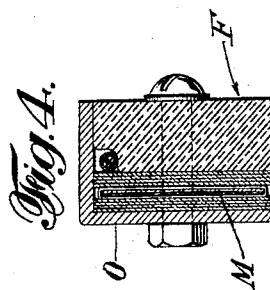
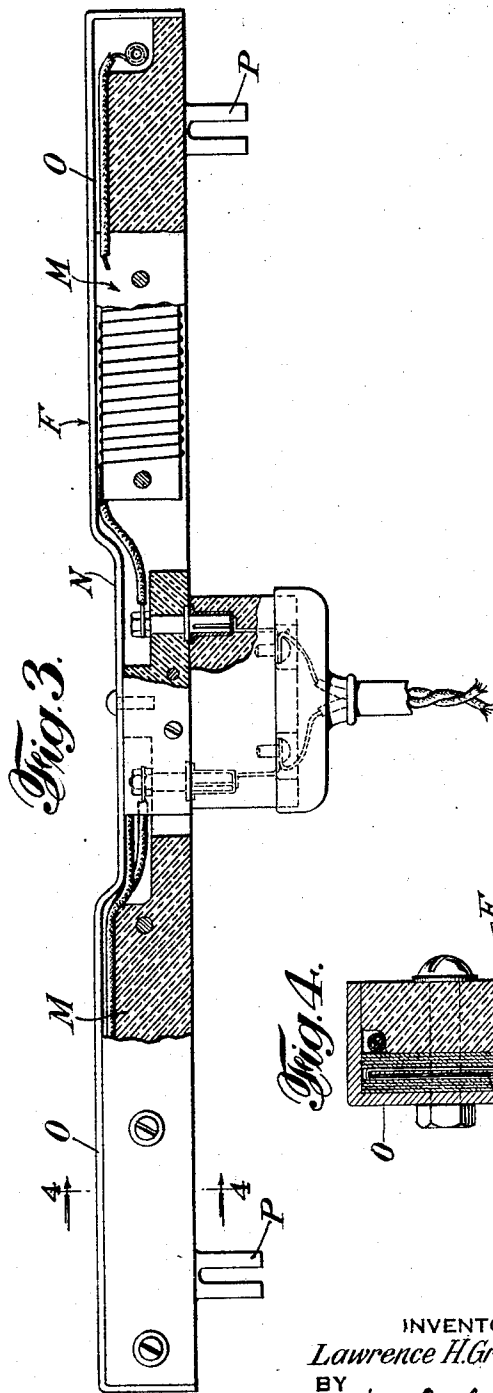
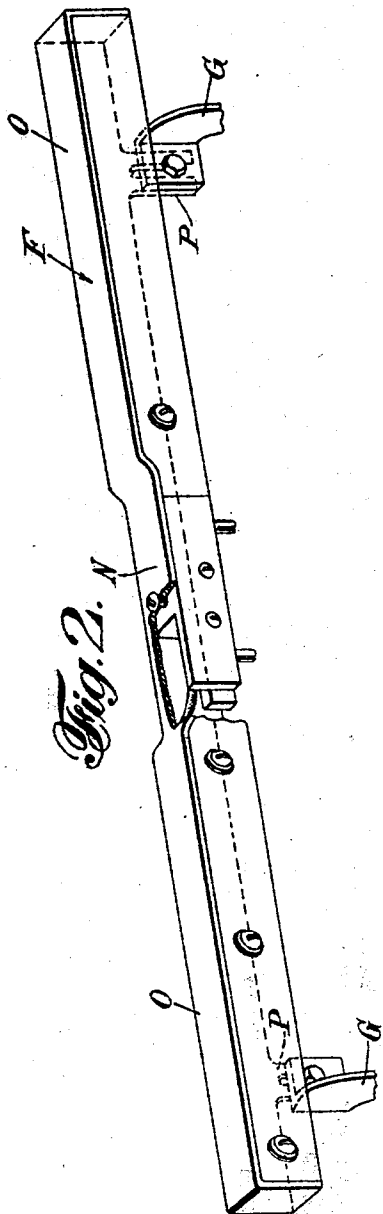
L. H. GREENWALD

1,837,616

MANUFACTURE OF STOCKINGS

Filed Aug. 23, 1930

2 Sheets-Sheet 2



INVENTOR
Lawrence H. Greenwald
BY *Ward Crosby & Neal*
ATTORNEYS

UNITED STATES PATENT OFFICE

LAWRENCE H. GREENWALD, OF NEW YORK, N. Y.

MANUFACTURE OF STOCKINGS

Application filed August 23, 1930. Serial No. 477,271.

This invention relates to a process and a means for carrying out a process of drying stockings during the knitting operation.

As is well understood, when knitting silk it is essential to have the yarn wet in order to make it pliable to make a good stitch thereby preventing what is usually referred to as "sleaziness". However, if the silk is too wet it will be stretched when the material is drawn off thereby greatly distorting the stitches which will maintain this distorted condition when dried, and will cause sleaziness in the stocking when the fabric is stretched on the form and pressed.

The usual practice is to have the silk just wet enough to form a good stitch and dry enough to reel without any marked distortion. The first condition that the silk be wet enough can be taken care of by using an artificial moistening means. In the present practice, if the silk is freshly humidified to the required extent to produce a good stitch the resultant fabric is uniform only when the weather is fairly warm and the air dry. When there is a great deal of moisture in the air the silk runs too wet and the woven fabric stretches. When the air is very dry the yarn may not be sufficiently moist and the stockings will be knitted irregularly due to the lack of moisture in the silk. In either case the merchandise produced is unsatisfactory.

The ideal condition is to have the silk wet at the point of knitting and dry thereafter. If this is accomplished the fabric so made when removed from the machine is practically the same shape as it will be when it is dyed, shaped and finished. There will be no distortion of the fabric during subsequent operations.

By the ordinary method it is customary, after the knitting has been completed, to dry the legs before the feet are put on them but if the fabric is treated according to my invention this extra drying operation will not be necessary, neither will it be necessary to dry the feet by an extra drying operation before looping if the footers are also equipped with my device.

Legs made by the ordinary process have

heavily curled selvages. These are particularly difficult to seam, the heavily curled selvage causing a heavy and uneven seam.

Among the objects of my invention is the process of drying a stocking fabric as it is being knitted so that all the objectionable features above set forth will be prevented.

Another object is the provision of means for carrying out this process.

In the accompanying drawings I have shown one form of mechanism by which my process may be carried out. Other objects of my invention will appear from consideration of the following description taken in connection with the drawings, in which

Fig. 1 is a cross section of a portion of a standard knitting machine;

Fig. 2 is a perspective view of a suitable heating bar;

Fig. 3 is a part sectional side view of the heating bar; and

Fig. 4 is a cross section on the line 4-4 of Fig. 3.

In Fig. 1 I have shown a cross section of a small portion of a knitting machine known in the trade as the "Reading" machine in which there are disclosed only those features necessary to explain this invention. The needle bar is shown at A, Fig. 1, and is operated by the needle bar lever B in the usual manner. The fabric is knitted at the point indicated at C known as the knitting field, after which it is drawn across draw-off bridges D by take-off reel E which places the fabric under suitable tension which may, in certain machines, be automatically varied as different sections of the fabric are knitted.

The usual practice is to moisten the yarn to produce a uniform fabric and to depend upon atmospheric conditions to dry the knitted fabric at least to a certain degree as it is being drawn off by the take-off reel E, and later to permit it to dry in the atmosphere for subsequent operations. The result of this process is usually a fabric which has been considerably elongated and narrowed by the constant tension on it produced by the take-off reel E. The edges of this fabric are curled inwardly into several convolutions and the loops of the fabric are elongated and nar-

rowed as shown in Fig. 9. When the fabric produced this way is put on the former and shaped the stitches will be pulled uneven, this unevenness being caused by the fact that the loops have to be considerably widened and as a result will be distorted as the width of the fabric is increased by stretching. This produces sleaziness, which is an objectionable feature as is well understood.

10 In order to avoid this condition I have provided a heating bar F, Figs. 1, 2, 3 and 4, which I preferably provide with two arms G, Figs. 1 and 2, which are pivoted upon a rod H suitably supported in brackets I which
15 in turn are suitably secured to the front bed or table J, Fig. 1. The pivotal connection is provided so that the heating bar F may be lowered when desired for purposes of facilitating repairs on the machine. The heating
20 bar F is preferably held in position close to the fabric by means of the weight K secured to the shaft H.

The heating bar F may consist of electrical heating units M, and the current supply for these units may be obtained from the
25 house supply through wire connections as indicated. The two heating units M of each drying bar F are preferably spaced and the upper surface of the bar F is depressed, as
30 shown at N, Figs. 2 and 3, to clear the draw-off bridges D between the corresponding adjacent sections of the machine. Each drying bar F covers two sections of the machine and adjacent drying bars F are preferably
35 spaced so as to clear the draw-off bridges between pairs of sections of the machine. The drying bar may comprise a bar O of aluminum which may be provided with depending slotted lugs P so that the bar may be adjust-
40 ably secured on the arms G to regulate the position of the bar with respect to the fabric.

It is obvious of course that in carrying out this process other heating units or drying bars could be employed, such for instance
45 as steam drying units or the like. In all cases it is essential to locate the bar as close to the knitting field at the point C as is possible. This is for the purpose of drying the fabric shortly after it is knitted so that the
50 loops of the fabric may become set by the drying process as soon as possible.

A fabric produced on a knitting machine on which my heating bar has been applied will be considerably shorter and considerably
55 wider than the fabric produced according to the usual process. The loops of this fabric will be considerably shorter and wider and the curls produced on the edges will have fewer convolutions, thus facilitating uncurl-
60 ing during the seaming process. When the fabric produced according to my process is stretched upon the former and pressed the loops will uniformly shorten and widen resulting in a fabric in which no sleaziness ap-
65 pears.

While I have described my new process and one means by which the process may be carried out it is to be understood that this process may be carried out by other means, and that I intend to cover all equivalent processes and mechanisms falling within the scope of the claims. 70

What is claimed is:

1. The combination with a sectional knitting machine for simultaneously knitting a
75 plurality of fabrics from moist silk yarn and provided with the usual means for drawing the fabric from the knitting field over draw-off bridges between the sections of the machine, of a drying element cooperating with
80 a plurality of sections mounted for movement toward and away from the lower face of the fabric, said drying element being depressed centrally opposite said draw-off bridges to permit of movement into close proximity to
85 said fabric.

2. The combination with a sectional knitting machine for simultaneously knitting a plurality of fabrics from moist yarn and provided with the usual means for drawing
90 the fabric from the knitting field over draw-off bridges between the sections of the machine, of a drying element comprising a bar extending over a plurality of sections, and heating units carried by said bar and located
95 on opposite sides of the draw-off bridges in the path of said bar.

3. The combination with a sectional knitting machine for simultaneously knitting a plurality of fabrics from moist silk yarn and
100 provided with the usual means for drawing the fabric from the knitting field over draw-off bridges between the sections of the machine, of a drying element comprising a bar extending over a plurality of sections, and
105 heating units carried by said bar and located on opposite sides of the draw-off bridges in the path of said bar, the bar between said heating units being recessed to permit of locating the bar in close proximity to the fabrics
110 produced by adjacent sections.

In testimony whereof I have signed my name to this specification.

LAWRENCE H. GREENWALD.

115

120

125

130

CERTIFICATE OF CORRECTION.

Patent No. 1,837,616.

Granted December 22, 1931, to

LAWRENCE H. GREENWALD.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 1, line 84, after "by" insert the article a; page 2, line 89, claim 2, after "moist" insert the word silk; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 16th day of February, A. D. 1932.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.