H. T. FLEISHER.

UTILIZATION OF HOSIERY MILL WASTE.

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Patented Aug. 1, 1922.

1,424,458.

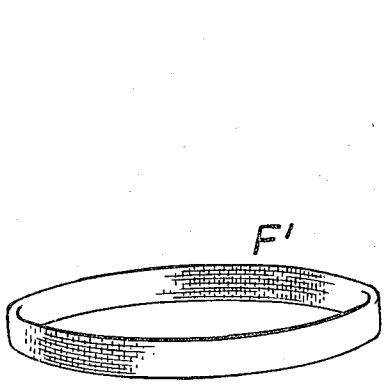

FIG. 2.

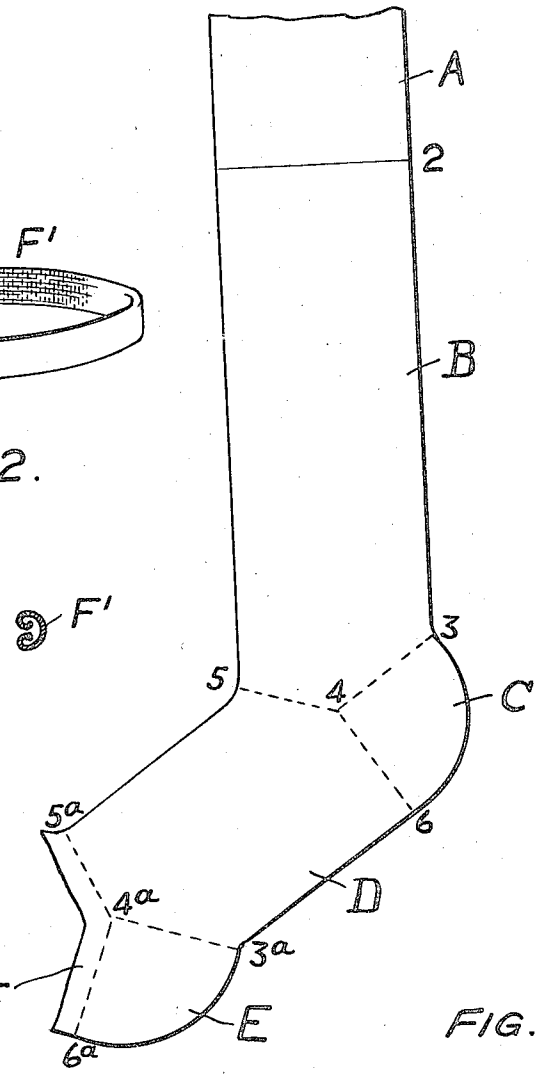

FIG. 1.

FIG. 3.

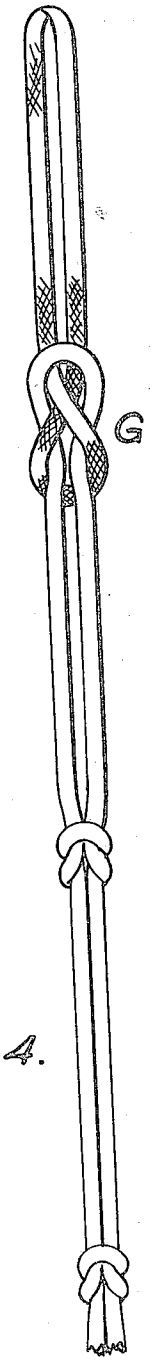

FIG. 4.

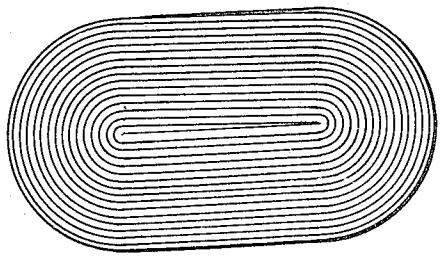

FIG. 5.

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UTILIZATION OF HOSIERY MILL WASTE.

1,424,458. Specification of Letters Patent. Patented Aug. 1, 1922.

Application filed March 15, 1921. Serial No. 452,570.

To all whom it may concern:

Be it known that I, HORACE T. FLEISHER, a citizen of the United States, residing at Elkins Park, county of Montgomery and State of Pennsylvania, have invented a new and useful Improvement in Utilization of Hosiery Mill Waste, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to a method of economically and commercially utilizing the looper rounds cut from hosiery just prior to looping up the toe.

The average size of these rounds or cut bands is about three-quarter inches wide by ten inches in circumference, or about seven and one-half square inches per stocking.

One of the mills in the city of Philadelphia manufacturers about five hundred thousand dozen pairs of stockings per year, so that the area of the looper rounds cut from stockings in one mill alone amounts to about six thousand square yards, of knitted fabric, which is today sold as waste.

I have discovered that these rounds can be utilized in the manufacture of rugs and other textile articles without further treatment of the rounds.

The nature of the invention can be best explained with the aid of the drawings hereto annexed, wherein—

Fig. 1 is a side elevation of a half hose as it comes from the knitting machine.

Fig. 2 is a perspective view of one of the rounds or bands cut from a stocking.

Fig. 3 is a sectional view of a round.

Fig. 4 is a side elevation of a portion of a strand formed from a plurality of rounds.

Fig. 5 is a plan view of one form of rug made from the strands.

As is well known to those familiar with the art, half hose are made on two machines. The cuffs or ribbed tops are made in strings on ribbers, cut to length and transferred to the needles of a plain circular machine on which the remainder of the leg, the heel, foot and toe are knit, as well as sufficient fabric to enable the looper or operator to place the loops of the opened ends on the points of a looping machine to loop or close the toe.

In Fig. 1 of these drawings, the reference character A designates the cuff or ribbed top of a half hose, B the plain portion of the leg, C the heel, D the foot, E the toe and F the looper round.

Each loop of the top A, in one round along the line 2, is placed on a point of a transfer ring; the number of points being equal to the number of loops in each round of knitting or the number of needles in the machine on which the cuff was knit. The points of the transfer ring are then placed in position on the needles on the knitting machine on which the stocking is to be completed, there being an equal number of needles and points, and the loops are transferred from the transfer ring to the needles.

The machine is set into motion and the remainder of the leg to the lines 3, 4 and 5 are knit round by round, at which time the machine is doing what is known as circular work. The machine is caused to reciprocate to knit the heel or gusset C, on some of the needles, between lines 3, 4 and 6. The machine is again caused to rotate to knit the body of the foot D between the lines 4, 5 and 6, and 3^a, 4^a and 5^a. The toe or gusset E between lines 3^a, 4^a and 6^a is knit in the same manner as the heel. The looper round F beyond lines 5^a, 4^a and 6^a is then knit in the same manner as the portions B and D, and when a sufficient length for looping has been knit the stocking is cast off the machine.

The loops along the lines from 4^a to 5^a and from 4^a to 6^a are placed together on the points of the looping machine, and the looper round F, which forms the hand-hold for the operator, is then cut from the stocking, and is in the form of a continuous band F', such as shown in Fig. 2. These bands are formed of a plurality of rounds of knitting and are about three-quarter inches wide and in which the wales extend transversely across the face of the band.

After the rounds are cut from the ends of the stockings, the edges will naturally curl under as shown in Fig. 3, so that the raw edges of the rounds or bands will be turned over and covered.

I have discovered that if these bands are looped to each other to form long strands, as shown at G in Fig. 4, the strands may be used for making rugs for floor coverings, by crocheting or braiding, as shown in Fig. 5. The strands are also adapted to be used as wefts for weaving floor coverings similar to rag carpet.

Heretofore these rounds have been sold as

waste, but by the use of my invention they can be utilized in the manufacture of rugs, etc. As these rounds are usually cut from stockings knit in the natural color of yarn, the strands may be dyed in any colors and combined into a multiplication of designs. The strength and softness of the strands make them especially adapted for the manufacture of floor coverings.

As before stated, one mill in the city of Philadelphia, Pennsylvania, has disposed in a single year of about 12,000,000 rounds as waste, prior to my invention. Twelve million bands or rounds will make a strand of about 1,666,666 yards. Assuming that there are about two hundred and one wefts to the yard in a rag carpet or rug made from this material, the rounds from this one mill would provide sufficient weft material for making 8,291 square yards of heavy and substantial floor covering.

The advantages of my invention result from the provision of a method whereby I am enabled to utilize, in the manufacture of marketable articles, material which was heretofore disposed of as waste.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. The method of utilizing looper rounds cut from hosiery comprising looping a series of these endless rounds to each other to form a strand of sufficient length for use in the manufacture of fabric.

2. The method of utilizing looper rounds cut from hosiery which comprises arranging the rounds in a series of links to form a continuous chain and attaching each link to an adjacent link by passing each through and around the other, the chain when completed forming a flexible, elastic and elongated double strand adapted for use in the manufacture of fabric.

3. A strand of relatively short two strand portions of sufficient length for use in the manufacture of textile fabric, formed of a series of endless looper rounds looped to each other.

4. A strip composed of a series of loops of waste ends of tubular knitted fabric, each loop having both its edges free, and being connected to the adjacent loop by a figure of eight knot.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, Pa., on this 11th day of March, 1921.

HORACE T. FLEISHER.