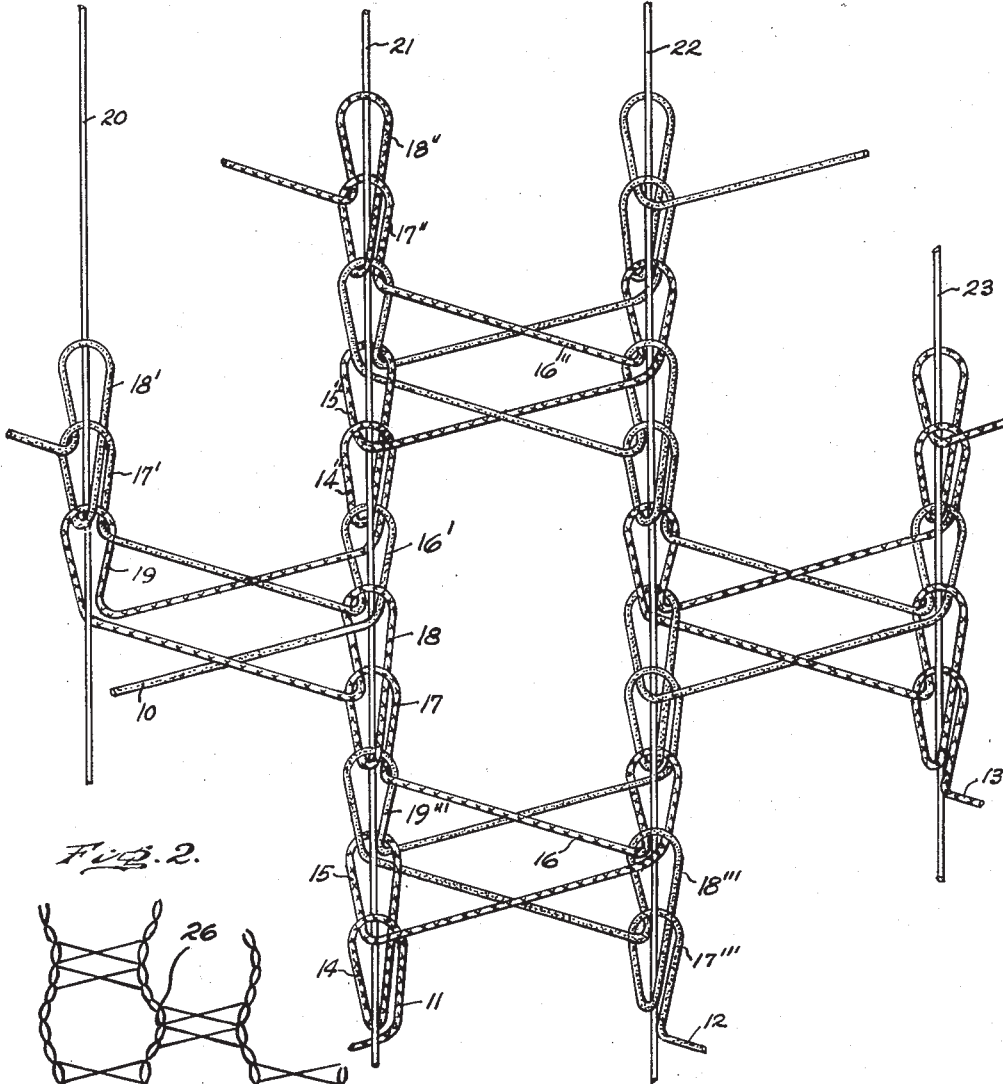


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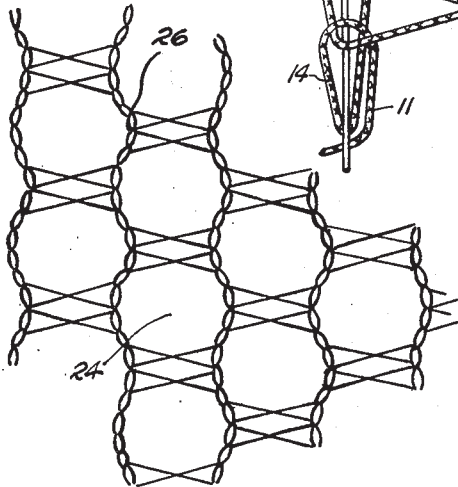
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WARP-KNITTED FABRIC  
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2,691,286

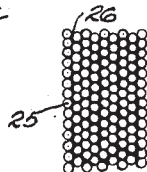
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



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## WARP-KNITTED FABRIC

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5 Claims. (Cl. 66—192)

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This invention relates generally to knitted fabrics and is more particularly concerned with that type thereof usually designated "mesh", which is largely employed for millinery and other similar purposes, as well as for shoe meshes where the fabric is formed of nylon or other synthetic yarn.

One of the principal objects of this invention is to provide a mesh fabric which may be produced on a knitting machine and which is characterized by the fact that it is of greater strength and is more self-sustaining in shape than mesh fabric heretofore produced upon knitting machines.

Other objects of the invention are to produce a mesh fabric of such construction that its ultimate desired shape is that which is obtained solely in the knitting of the fabric, thereby eliminating the necessity of subsequently stretching or sizing the fabric to its desired shape, and wherein the mesh is provided with a perfect selvege edge.

Still another object is to provide a mesh fabric which facilitates the incorporation therein of overlay work for decorative and other ornamental design of the basic mesh fabric.

Other objects and advantages of this invention will be apparent as it is better understood by reference to the following specification and the accompanying drawing, in which

Figure 1 is an enlarged diagrammatic illustration of the arrangement of the threads forming the new fabric;

Figure 2 is a plan view much enlarged of a portion of the fabric; and

Figure 3 is a plan view of the finished fabric giving an idea of the relative relation and shape of the meshes therein.

The fabric which is the subject matter of the present invention may be knitted of any suitable yarn, either synthetic or natural, such as nylon, rayon, silk or cotton, which yarn, depending upon the purpose for which the fabric is used, may be of any desired denier or size.

The fabric is characterized by generally parallel warp threads each similarly formed into a series of knitted loops by the action of the knitting machine. Each series comprises a multiplicity of pairs of principal loops and a multiplicity of single auxiliary loops alternately arranged, the auxiliary loops extending alternately from opposite sides of the principal loops and the latter being formed into a continuous chain of loops by the auxiliary loops of other knitted warp threads. Interlaced with the loops of each such

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continuous chain is an unknitted warp thread which serves to lock the loops of the continuous chain together.

Referring to Figure 1 of the drawing, the generally parallel knitted warp threads are designated respectively by the numerals 10, 11, 12 and 13, the threads 10 and 12 being stippled for the purpose of distinguishing them from threads 11 and 13, which are otherwise marked, for convenience of illustration. These knitted warp threads are similarly formed into a series of loops. For example, the thread 11 is formed according to a predetermined pattern. A pair of principal loops 14—15 are knitted together, being followed by a comparatively long auxiliary loop 16 extending to one side. Then a second pair of principal loops 17—18 are knitted together, being followed by a comparatively long auxiliary loop 19 extending to the opposite side. The thread 11 then repeats throughout its entire length.

It will be observed that when thus formed, the thread 11 presents a noncontinuous chain of knitted loops and for completing this noncontinuous chain of knitted loops, the threads 10 and 12 which, as hereinabove indicated are formed similarly to the threads 11 and 13, are longitudinally positioned relative to the latter threads so that their auxiliary loops proximate the thread 11, i. e., auxiliary loops 16'—19'' are respectively opposed to auxiliary loop 19 and 16, the loop 16' closing the break between the loop 18 and the loop 14'' of the adjacent repeat and the loop 19'' closing the break between the loops 15 and 17.

The unknitted warp threads 20, 21, 22 and 23 are each carried through and interlocked with the loops of a continuous chain of knitted loops so that when the fabric is spread as shown in Figure 1, each of the unknitted warp threads follows a straight course with its continuous chain of knitted loops as the latter are interlocked by the auxiliary loops extending therefrom to the adjacent chains of knitted loops on opposite sides thereof and their unknitted warp threads.

As indicated in Figure 2, the threads and loops form, when the fabric is spread, meshes 24 of polygonal form, and since these polygons have twelve sides the meshes appear as circles 25 in the finished product, as indicated in Figure 3. It will be understood that the loops which are shown in Figure 1 as loosely formed are in fact, tightly drawn as indicated in Figure 2, where the several threads cannot be distinguished, but in which the several meshes constitute a continuous fabric 26.

There are in the finished fabric no knots of distinguishable size, and the product is uniform with respect to the size and shape of the meshes. In addition, the fabric possesses more body and strength than in any other mesh heretofore produced on a knitting machine with the idea of closely simulating the product of lace machines or looms, and the fabric retains the desired shape without any necessity for it to be stretched to such shape and/or sized, as has been customary heretofore. Furthermore, the fabric is capable of affording a perfect selvage and greatly facilitates overlay work because no change in the basic fabric is required.

It will be understood, of course, that the present invention is susceptible of various changes and modifications which may be made from time to time without departing from the general principles or real spirit of the invention, and it is accordingly intended to claim the same broadly, as well as specifically, as indicated by the appended claims.

What is claimed as new and useful is:

1. A knitted fabric characterized by a uniform pattern of circular meshes and comprising a plurality of warp threads respectively formed into spaced generally parallel unbroken chains of knitted loops, each of said chains being interlocked with the next adjoining chains on either side thereof by auxiliary loops extending laterally between adjoining pairs of chains at uniformly spaced intervals, each chain of loops being formed of at least two threads, and an unknitted warp thread for each of said chains carried through and interlocked with the loops of said chain.

2. A knitted fabric characterized by a uniform pattern of circular meshes and comprising warp threads formed into spaced generally parallel unbroken chains of knitted loops, each of said chains being interlocked with the next adjoining chains on either side thereof by auxiliary loops extending laterally between adjoining pairs of chains at uniformly spaced intervals, said auxiliary loops on opposite sides of each chain being disposed in alternating relation relative to one another, each chain of loops being formed of at least two threads, and an unknitted warp thread for each of said chains successively carried through and interlocked with each of the loops of said chain.

3. A knitted fabric characterized by a uniform pattern of circular meshes and comprising warp threads each formed into a series of loops including paired principal loops and single auxiliary loops alternately arranged, the loops of the several threads being formed into spaced generally parallel unbroken chains of knitted loops, and said chains being interlocked with one an-

other at spaced intervals, and unknitted warp threads carried through and interlocked with the loops of said chains.

4. A knitted fabric characterized by a uniform pattern of circular meshes and comprising warp threads each formed into a series of paired principal loops and single auxiliary loops alternately arranged, said paired loops being knitted together, said auxiliary loops extending alternately from opposite sides of said principal loops, and the latter being formed into an unbroken chain of knitted loops through the medium of auxiliary loops of other knitted warp threads extending thereto at uniformly spaced intervals, the said warp threads thus presenting generally parallel unbroken chains of knitted loops each interlocked with the proximate ones of the other chains by auxiliary loops extending laterally therebetween at uniformly spaced intervals, and an unknitted warp thread for each of said chains carried through and interlocked with the loops of said chain.

5. A knitted fabric characterized by a uniform pattern of circular meshes and comprising warp threads each formed into a series of paired principal loops and single auxiliary loops alternately arranged, said paired loops being knitted together, said auxiliary loops extending alternately from opposite sides of said principal loops, and the latter being formed into an unbroken chain of knitted loops through the medium of auxiliary loops of other knitted warp threads extending thereto at uniformly spaced intervals, the said warp threads thus presenting generally parallel unbroken chains of knitted loops each interlocked with the proximate ones of the other chains by paired auxiliary loops extending laterally therebetween at uniformly spaced intervals, said paired auxiliary loops on opposite sides of said chain being disposed to alternate relative to one another, and an unknitted warp thread for each of said chains successively carried through and interlocked with each of the loops of said chain.

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