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KNITTED HAIR NET CONSTRUCTION

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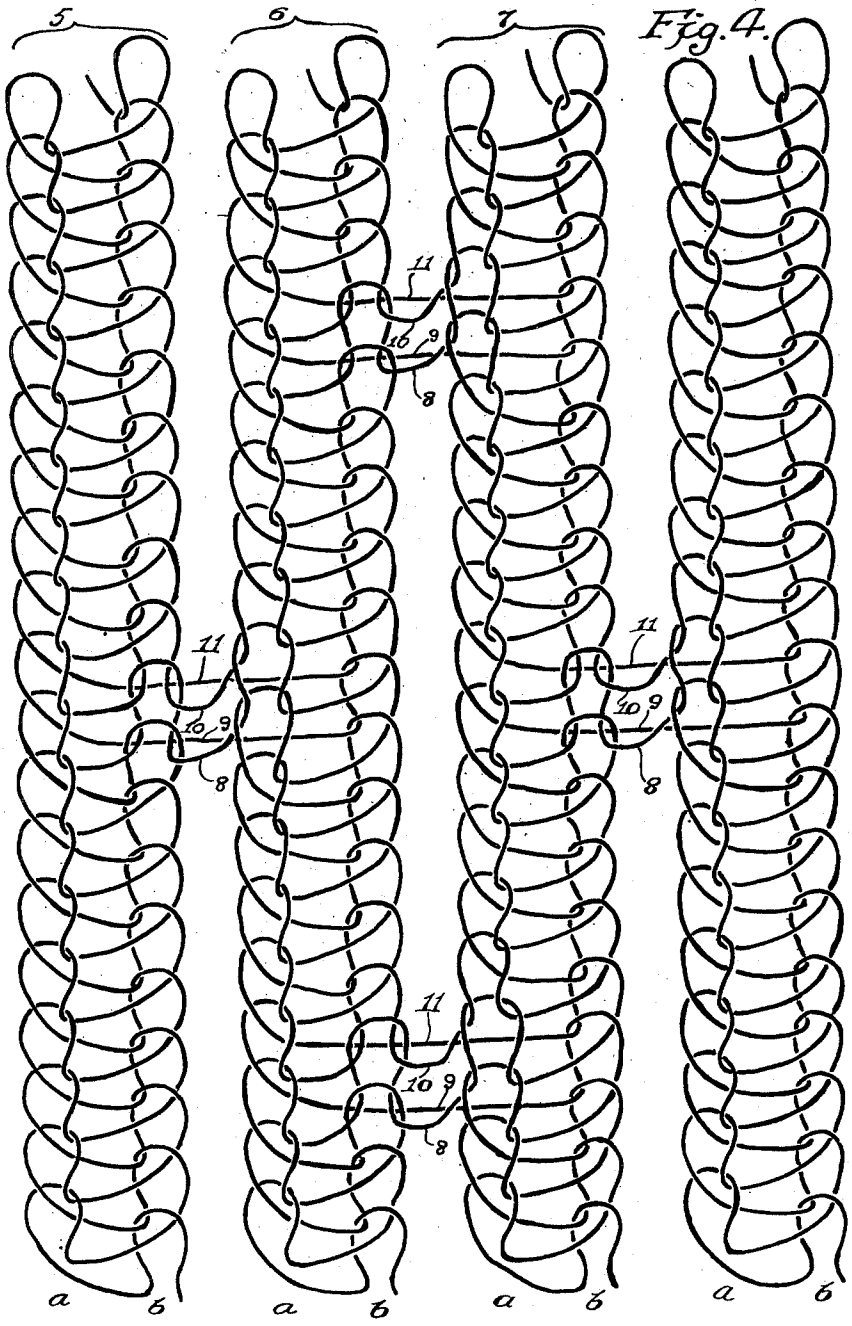
Fig. 4.



INVENTOR
Henry F. Goldsmith
BY
Edward L. Kalish
ATTORNEY

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KNITTED HAIR NET CONSTRUCTION

Henry F. Goldsmith, Longport, N. J.

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20 Claims. (Cl. 66—171)

The present invention relates to a certain new and useful knitted hair net of an open-mesh construction and it relates more particularly to a certain warp-knitted hair net of an elastic mesh construction and the method of making the same whereby a more durable and yet inexpensive hair net may be produced possessing certain desirable qualities not possessed by knitted hair nets made heretofore.

It has been the practice to make knitted hair nets on warp type knitting machines using both a single bar as well as two bars ("double bar" machine) wherein each needle or each pair of needles (opposed needles on the two bars) is supplied with a separate thread and in which the thread guide bar carried as many individual thread guides as there were needles in the needle bar. It has been the practice to knit open-mesh hair nets on machines of this type by knitting more or less loose chains on the needles, that is, a separate chain on each needle on a single bar machine or on a double bar machine, or to knit double chains by feeding the one thread over the pair of opposed needles onto two bars. To form a connected piece of fabric of an open-mesh connection out of these separate individual and otherwise unrelated and unattached parallel chains or double chains, the practice has been to provide certain additional "floating" threads intermediate adjacent chains which are floated through the chain for a given number of stitches or loops of the chain or for a given length of the chain and then shifted across into the adjacent chain and there again floated through the chain for the same number of stitches or loops for the same length of the chain and then shifted back into the other chain again so that each pair of adjacent chains would be so interconnected at intervals by a floating thread which would not be knitted into the loop formation but would merely float through the chain without being interknitted therewith. The shifting of the floating thread between chains on opposite sides of each chain were staggered so that the points of connection between chains would be staggered, so that when the mesh is stretched laterally it would stretch out into a generally diamond shaped mesh pattern.

In the hair net constructions of this type, any one or two of the floating threads could be pulled out of the mesh or out of the fabric structure by a straight line pull and when so pulled out, the entire mesh separated along the line of the floating thread which has been so removed. The reason for this is that the floating thread was not in fact interknitted but merely drawn or floated through the loops of adjacent chains.

Other hair net constructions have been produced on knitting machines which, however, could be unravelled by pulling on any single chain of loops and so the entire net separated.

In knitted hair nets of this character, it has also been the practice to take predetermined lengths of the hair net fabric, as it comes off the knitting machine, and then gather the cut ends and then tie the so gathered ends into a knot by wrapping or otherwise tying the cut and gathered ends so as to form a pocket-like structure which would properly surround the head. As the normal strain on a hair net when in use tends to pull the floating threads, and indeed, all threads, out of the two terminal knots on the side, and as the floating thread would more readily pull out, it was common to have a complete separation of the hair net started at the knot which would gradually work across the entire hair net, splitting the hair net in two.

It is an object of the present invention to prevent the undesirable splitting of the hair net or the tendency of the hair net to part in two by merely unravelling of one of its chains or by the pulling out of one or more of its "floating" threads.

With this and other objects in view which will appear more fully from the following detailed description, the present invention consists of a warp knitted elastic and deformable open mesh hair net in which the successive or adjacent chains are formed on successive needles of a warp type knitting machine, and are so interconnected that it is impossible either to unravel a chain or to "pull" a thread in such a way as to split the net in two or to part the net, and in which there will be no tendency for the threads to leave the terminal knots on the sides of the net.

The present invention further consists of a novel method of making such knitted hair net and also certain other novel features of construction which will appear more fully from the following detailed description and accompanying drawings.

For the purpose of illustrating the invention, there is shown in the accompanying drawings one form thereof which is at present preferred, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is

the opposite and aligned needles of the two different needle banks. In the actual formation, these double chains are not flat as shown, but are generally superimposed upon each other so that it has the general appearance of a unitary chain but it is shown in flat condition in Figure 4 for purposes of illustration.

The first crossing over of the threads is indicated at 8 and 9, while the second crossing over is indicated at 10 and 11.

In Figure 2 a generally diagrammatic view of a piece of the fabric is shown without the details of the stitch. Along an edge zone 12 of the fabric, a head-band is formed which is adapted to extend across the forehead when the fabric is completed. This band portion may be about an inch (more or less) in width and is formed of parallel double chains as the body of the mesh is, but instead of the interconnections between the chains being staggered, each chain is connected with each of the two adjacent chains on either side thereof at each point of interconnection, so that the band portion 12 will not stretch out laterally into a diamond shape formation but will be more closely confined and hence of a generally denser texture than the main body portion of the hair net, as indicated in Figure 2. This may be accomplished by having all thread guide fingers of one of the thread guide bars filled with thread, while in the other thread guide bar only alternate thread guide fingers are filled with thread. The shifting or cross-over of the threads is double, once in one direction and once in the other direction, so that both chains on either side of each chain are interconnected with it. In one or both selvage edges 13 and 14, a thin elastic rubber band is inserted without being interknitted but merely being embraced by the thread which forms the terminal chains or selvage chains. This rubber band is preferably a rubber strand which is first covered by a textile thread wrapped around it and of the same color as that of which the net is knitted. This may be the latex type of covered thread, one form of which is known in the trade as "Lastex".

A suitable length of the fabric indicated in Figure 2 is cut off and the ends gathered as at 15 and 16, and suitable braided or other tapes or tie strings 17 and 18 are inserted in the gathered portion and then the gathered portion is sewed over as at 19 and 20 with a sewing machine, or otherwise sewn. This creates a pocket formation. The knots or gathered portions 15 and 16 are then turned inside out so that the bands 17 and 18 will be directed outwardly instead of inwardly as shown in Figure 3. This completes one embodiment of the hair net.

The knitted hair net of the present invention will not either unravel nor is it capable of having a thread "pulled out" and the net thus separated. Moreover, as there are no "pull out" threads, the knots 15 and 16 are rendered more secure and can be safely formed by sewing across at 19 and 20 with a sewing machine.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described the invention, what is hereby claimed as new and desired to be secured by Letters Patent, is:

1. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, with each chain interconnected at intervals (spaced longitudinally) alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof formed of generally parallel longitudinal chains of knitted stitches with each chain interconnected at intervals (spaced longitudinally) with each of the chains adjacent to it on either side thereof by the thread which forms the knitted loops of the chains, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body, head-band and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation, and a tie member extending from each of said knot-like formations.

2. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, with each chain interconnected at intervals (spaced longitudinally) alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a headband along one marginal zone thereof formed of generally parallel longitudinal chains of knitted stitches with each chain interconnected at intervals (spaced longitudinally) with each of the chains adjacent to it on either side thereof by the thread which forms the knitted loops of the chains, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body, head-band and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

3. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp knitted stitches with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof formed of generally parallel longitudinal chains of knitted stitches with each chain interconnected at intervals (spaced longitudinally) with each of the chains adjacent to it on either side thereof by the thread which forms the knitted loops of the chains;—said body and head-band being gathered at opposite ends into opposite knot-like formations and being secured in such gathered knot-like formation, and a tie member extending from each of said knot-like formations.

4. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp knitted stitches, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof formed of generally parallel longitudinal chains of knitted stitches with each chain interconnected at inter-

vals (spaced longitudinally) with each of the chains adjacent to it on either side thereof by the thread which forms the knitted loops of the chains;—said body and head-band being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

5. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of knitted stitches, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body, head-band and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in each gathered knot-like formation, and a tie member extending from each of said knot-like formations.

6. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of knitted stitches, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body, head-band and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

7. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of knitted stitches, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band of generally denser texture along one marginal zone thereof and connected with said open-mesh deformable body by knitted stitches;—said body and head-band being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

8. A hair net having a deformable open-mesh body formed of generally parallel longitudinal and separate chains of knitted stitches, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

9. A hair net having a deformable open-mesh body formed of generally parallel longitudinal and separate chains of knitted stitches, said chains being formed of pairs of inter-knitted loops, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band of generally denser texture along one marginal zone thereof and connected with said open-mesh deformable body by knitted stitches;—said body and head-band being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

10. A hair net having a deformable open-mesh body formed of generally parallel longitudinal and separate chains of knitted stitches, said chains being formed of pairs of inter-knitted loops, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body, head-band, and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

11. A hair net having a deformable open-mesh body formed of generally parallel longitudinal and separate chains of knitted stitches, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and having a head-band along one marginal zone thereof, and an elastic strand extending through each of the longitudinal selvage edges and embraced by the threads which form the selvage chain of loops;—said body, head-band and elastic strands being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

12. A hair net having a deformable open-mesh body formed of generally parallel longitudinal and separate chains of knitted stitches, said chains being formed of pairs of inter-knitted loops, with each chain interconnected at intervals (spaced longitudinally), alternately with the chain on one side thereof and then with the chain on the other side thereof by the thread which forms the knitted loops of the chains, and an elastic strand extending through a longitudinal selvage edge and embraced by the threads which form the selvage chain of loops;—said body and elastic strand being gathered at opposite ends into opposite knot-like formations, and being secured in such gathered knot-like formation.

13. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, with each chain interconnected at intervals (spaced longitudinally) with the chain on each side thereof by the thread which forms the knitted loops of the chain;—said open-mesh deformable body being gathered at opposite ends into opposite knot-like formations and being secured in such knot-like formations.

14. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches with each chain interconnected at intervals (spaced longitudinally) alternately with the chain on one side thereof and then with the chain on the other side thereof, by the thread which forms the knitted loops of the chains;—said open-mesh deformable body being gathered at opposite ends into opposite knot-like formations and being secured in such knot-like formations.

15. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, said chains being formed of pairs of interknitted loops, with each chain interconnected at intervals (spaced longitudinally) with the chain on each side thereof by the thread which forms the knitted loops of the chains;—said open-mesh deformable body being gathered at opposite ends into opposite knot-like formations and being secured in such knot-like formations.

16. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, said chains being formed of pairs of interknitted loops, with each chain interconnected at intervals (spaced longitudinally) alternately with the chain on one side thereof and then with the chain on the other side thereof, by the thread which forms the knitted loops of the chains;—said open-mesh deformable body being gathered at opposite ends into opposite knot-like formations and being secured in such knot-like formations.

17. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, with each chain interconnected at intervals (spaced longitudinally) with the chain on each side thereof by the thread which forms the knitted loops of the chain, and having a head-band of denser texture along one marginal zone thereof and connected with said body by knitted stitches;—said body and said head-band being gathered at opposite ends into opposite knot-like formations and being secured in such gathered and knot-like formations.

18. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, said chains being formed of pairs of inter-knitted loops with each chain interconnected at intervals (spaced longitudinally) with the chain on each side thereof by the thread which forms the knitted loops of the chains, and having a head-band of denser texture along one marginal zone thereof and connected with said body by knitted stitches;—said body and said head-band being gathered at opposite ends into opposite knot-like formations and being secured in such gathered and knot-like formations.

19. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, with each chain interconnected at intervals (spaced longitudinally) with the chain on each side thereof by the thread which forms the knitted loops of the chain, and an elastic strand extending through a longitudinal selvage edge of said hair net and embraced by the threads which form the selvage chain loops;—said open-mesh deformable body being gathered at opposite ends into opposite knot-like formations and being secured in such knot-like formations.

20. A hair net having an open-mesh deformable body formed of generally parallel longitudinal and separate chains of warp-knitted stitches, said chains being formed of pairs of interknitted loops, with each chain interconnected at intervals (spaced longitudinally) with the chain on each side thereof by the thread which forms the knitted loops of the chains, and an elastic strand extending through a longitudinal selvage edge of said hair net and embraced by the threads which form the selvage chain loops; said open-mesh deformable body being gathered at opposite ends into opposite knot-like formations and being secured in such knot-like formations.

HENRY F. GOLDSMITH.

Jan. 4, 1938. W. HÄCKER 2,104,539

MOTOR CAR

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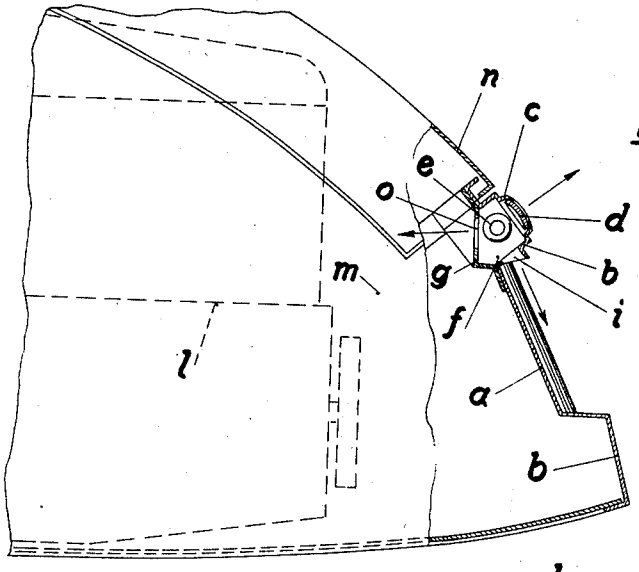

Fig. 1.

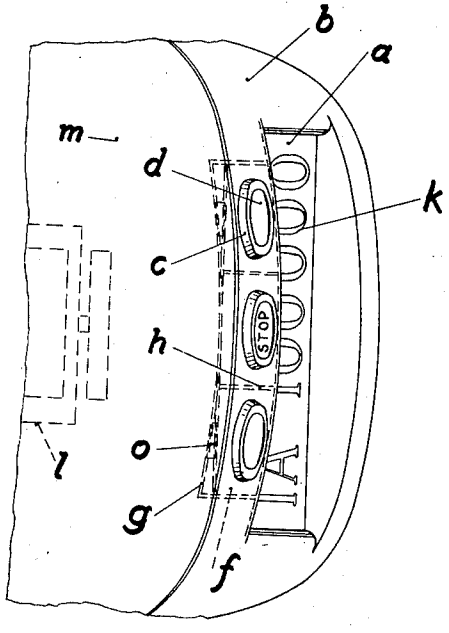

Fig. 2.

Inventor

Walter Häcker

A. A. Hlicke

ATTORNEY