

Dec. 9, 1930.

M. H. DURAND

1,784,786

WOOVEN WIRE AND METHOD OF ITS MANUFACTURE

Filed June 20, 1928

2 Sheets-Sheet 1

Fig. 1.

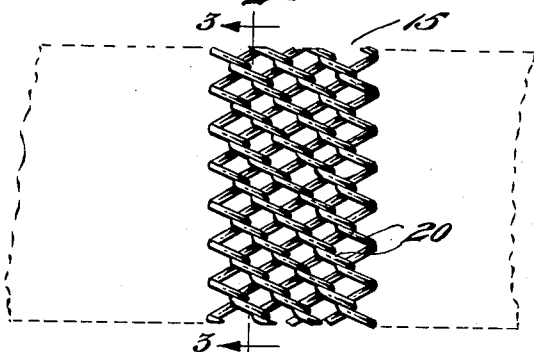


Fig. 2.



Fig. 3.



Fig. 4.

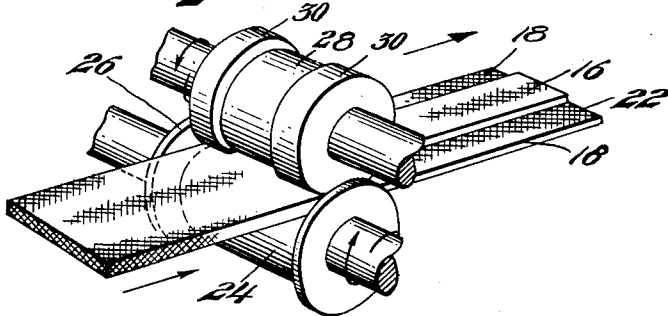


Fig. 4.^a

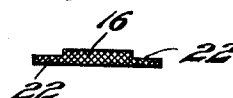


Fig. 5.

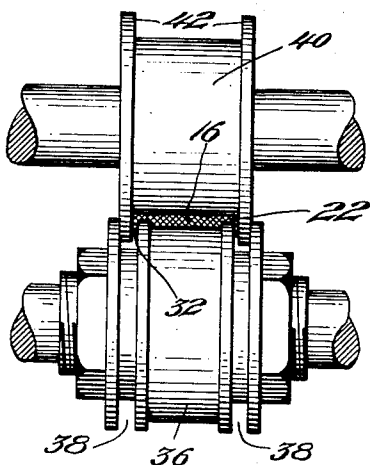
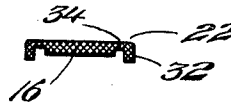


Fig. 5.^a



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Fig. 6.

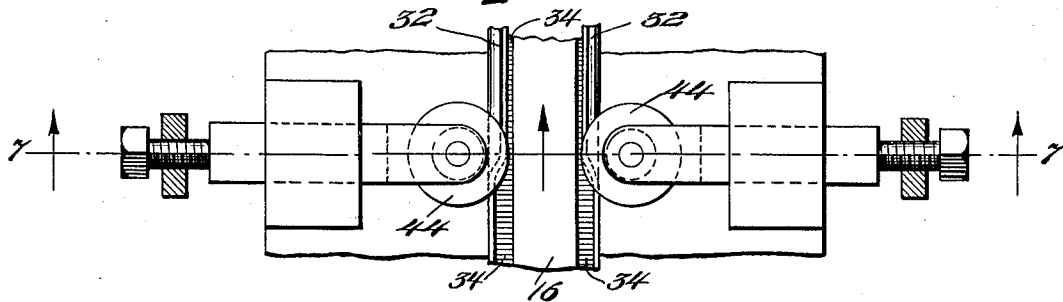


Fig. 7.

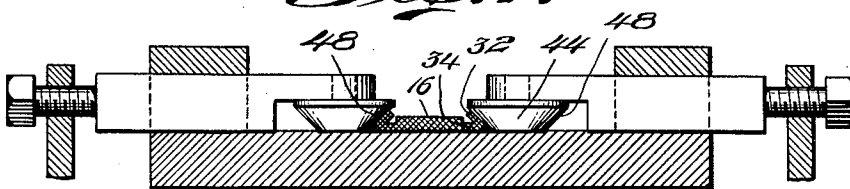


Fig. 7^a.

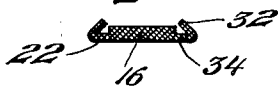


Fig. 8.

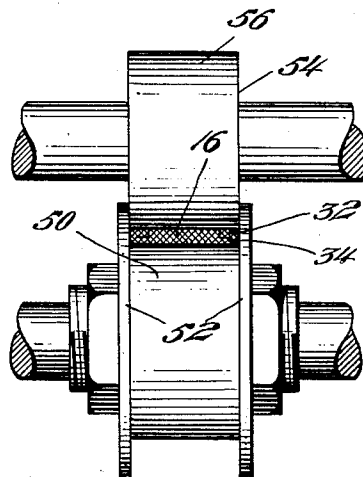
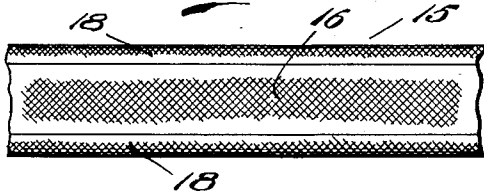


Fig. 8^a.



Fig. 9.



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UNITED STATES PATENT OFFICE

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WOVEN WIRE AND METHOD OF ITS MANUFACTURE

Application filed June 20, 1928. Serial No. 287,023.

My invention relates to a novel type of woven wire fabric and the method of its manufacture.

An object of my invention is to provide a woven wire of a novel, pleasing and ornamental type, particularly adapted for use on wrist watch straps.

A further object of my invention is to produce a woven wire fabric in which the longitudinal edges are turned over and compressed in order to strengthen said edges and to provide a more even type of edge than hitherto customary in woven wire fabrics. While my invention is particularly adapted for use on the type of woven wire comprising a plurality of helically twisted longitudinally extending strands interwoven together, it is apparent that it may be employed on any suitable type of woven wire.

Further objects relate to a novel process of producing my improved type of woven wire fabric.

These and such other objects of my invention as may hereinafter appear will be best understood from a description of the accompanying drawings.

In the drawings, Fig. 1 is a plan view of the woven wire employed as the raw material of my improved process.

Fig. 2 is an edge view thereof.

Fig. 3 is a transverse sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is a perspective view illustrating a suitable type of rolling mill which may be employed to reduce the thickness of the side edges of the woven wire fabric substantially one-half as shown therein.

Fig. 4^a is a transverse sectional view illustrating the fabric after the operation illustrated in Fig. 4 has been performed thereon.

Fig. 5 is a front elevation illustrating a suitable type of rolling mill in the act of up-turning substantially the outer halves of the rolled reduced side edges.

Fig. 5^a is a transverse sectional view illustrating the fabric after the operation illustrated in Fig. 5 has been performed thereon.

Fig. 6 is a plan view of a suitable type of drawing plate which may be employed to

draw the reduced outer halves of the side edges over the reduced inner halves.

Fig. 7 is a sectional view taken along the line 7—7 of Fig. 6.

Fig. 7^a is a transverse sectional view illustrating the fabric after the operation shown in Figs. 6 and 7 has been performed thereon.

Fig. 8 is a front elevation of a suitable type of rolling mill to compress the superimposed halves to substantially the thickness of the center body portion of the fabric.

Fig. 8^a is a transverse sectional view illustrating the complete fabric after the operation shown in Fig. 8 has been performed thereon.

Fig. 9 is a plan view of the completed fabric.

In the drawings, wherein like characters of reference indicate like parts throughout, 15 diagrammatically illustrates a woven wire fabric constructed in accordance with the principles of my invention. Said fabric comprises the body portion 16 and the outer inturned edges 18 reduced as shown in Fig. 8^a to substantially the same thickness as the center body portion 16 of the fabric. In the embodiment shown, it is obvious that the central body portion 16 is of single-ply fabric and the edges 18 of double-ply fabric which when suitably flattened produce an effect somewhat similar to a lace with the center body portion 16 being of open work suggestive of a lace net and the outer edges 18 being more compact and irregular suggestive of a lace edging.

While the outer edges 18 may be suitably inturned and compressed to substantially the thickness of the rest of the fabric in any suitable manner, I have illustrated in the drawings the method I preferably employ for manufacturing my improved fabric. I first form as shown in Fig. 1 a single-ply woven wire fabric 15 of a width wider than that desired in the finished product. As stated hitherto, while any suitable type of woven wire may be employed I preferably employ a woven wire consisting of a plurality of wire helices 20 twisted with adjacent wire helices 20 to form a flat fabric. Very often in practice, I have found that it increases the orna-

mental appearance of the fabric if the entire fabric is first flattened in a rolling mill. I then preferably roll the side edges 18 of the fabric down to substantially one-half the thickness of the center body portion 16 as illustrated at 22 in Fig. 4. While this may be done in any suitable fashion, I have shown in Fig. 4 a suitable type of rolling mill for this purpose consisting of the lower roll 24 having the flanges 26 spaced a distance apart substantially the width of the fabric and the upper roll 28 having the spaced annular extensions 30 on each side thereof adapted to roll down the outer edges 18 of the fabric 15 to the desired thickness 22. Fig. 4^a illustrates the fabric after it has been subjected to this step in the process.

The next step in the process consists of doubling over substantially one-half the width of said reduced edges 22 onto the other halves. While this may be done in any suitable manner, I preferably do this in two stages by first up-turning the outer halves 32 of said reduced portions 22 as illustrated in Figs. 4, 4^a, 5 and 5^a, and then drawing said reduced halves 32 over the reduced inner halves 34 as illustrated in Figs. 6, 7 and 7^a. In Fig. 5 I have shown a suitable type of rolling mill for this purpose, which consists of the lower roll 36 having the annular grooves 38 therein and the cooperating roll 40 having the spaced flanges 42 adapted to roll down the outer halves 32 of the reduced portions 22 as shown in Fig. 5. In Figs. 6 and 7 I have shown a suitable type of drawing plate for drawing said reduced outer halves 32 over said reduced inner halves 34. While any suitable type of drawing rolls may be provided, I preferably provide the downward beveled vertically mounted rotatable rolls 44 having the rotating conical edges 48 adapted to overlap and to abut and draw down said outer reduced halves 32 over said inner reduced halves 34.

The next step in the operation consists in compressing said inturned side edges 18 preferably formed by the superimposed outer halves 32 of said reduced portions 22 on said reduced inner halves 34 of said reduced portions 22 until said superimposed halves 32 and 34 are substantially the thickness of the center body portion. While said halves 32 and 34 may be thus compressed to the desired thickness in any suitable manner, I preferably employ for this purpose a rolling mill such as shown in Fig. 8, which comprises the lower roll 50 having the spaced flanges 52 thereon, and the upper roll 54 having the annular rolling portion 56 of a width substantially equal to the amount that the flanges of the lower roll 50 are spaced apart to abut and compress down the entire fabric to a substantially uniform thickness by reducing the inturned outer edges 18 to substantially the thickness of the center body

portion 16 by specifically as shown compressing the outer halves 32 on to the inner halves 34 until the halves 32 and 34 are substantially the thickness of the center body portion 16. As stated, while my invention is preferably made in the manner described, it is apparent that the outer edges 18 may be suitably inturned and reduced in any suitable manner if desired without first reducing the thickness of the outer edges 18 to substantially one-half the thickness of the center body portion 16.

It is apparent that I have produced a novel type of woven wire fabric particularly suitable for wrist-watch bracelet straps of a novel and pleasing appearance. This type of fabric is particularly adapted for wrist-watch straps so as to form an even bearing surface of fabric across the wrist of the wearer.

It is understood that my invention is not limited to the specific embodiment shown or method described, and that various deviations may be made therefrom without departing from the spirit and scope of the appended claims.

What I claim is:

1. A single-ply woven wire fabric having double-ply inturned edges, said edges being of substantially the same uniform thickness as the single-ply center body portion of the fabric.

2. A woven wire fabric having a single-ply body portion and an edging consisting of inturned edges forming a double-ply of substantially the same thickness as that of the single-ply body portion.

3. A woven wire fabric having side edges of substantially one-half the thickness of the center body portion, substantially one-half of the outer edges thereof being doubled over on the inner halves thereof, and said halves together being of substantially the thickness of the center body portion.

4. The method of making a woven wire fabric, which comprises forming a woven wire fabric of a width wider than that desired in the finished product, reducing the thickness of the side edges thereof substantially one-half, doubling over substantially one-half the width of said reduced edges onto the other halves, and compressing said doubled edges to substantially the thickness of the center body portion.

5. The method of making a woven wire fabric, which comprises forming a single-ply woven wire fabric of a width wider than that desired in the finished product, rolling the side edges thereof down to substantially one-half the thickness of the center body portion, upturning substantially the outer halves of said rolled edges, drawing said reduced outer halves over said reduced inner halves, and rolling down said superimposed

halves to substantially the thickness of the single-ply center body portion.

6. The method of making a woven wire fabric, which comprises forming a single-ply woven wire fabric of a width wider than that desired in the finished product, rolling the side edges thereof down to substantially one-half the thickness of the center body portion, doubling over substantially one-half the width of said reduced edges onto the other halves, and rolling down said superimposed halves to substantially the thickness of the single-ply center body portion.

7. The method of making a woven wire fabric, which comprises forming a woven wire fabric of a width wider than that desired in the finished product, inturning the side edges of said fabric, and compressing said inturned edges to substantially the thickness of the center body portion.

8. The method of making a wire mesh, which comprises the bending over of the edges of the wire mesh and then rolling the wire mesh and bent over edges between rollers to flatten both the bent over portions and the main body of the mesh to a uniform thickness and to form a substantially solid metallic selvage.

9. A woven wire fabric having an inturned edge, said edge being of substantially the same uniform thickness as the center body portion of the fabric.

In testimony whereof I affix my signature.
MOISE H. DURAND.

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