March 24, 1931. H. MILLER 1,797,583

FABRICATED METALLIC STRUCTURE FOR JEWELRY AND THE LIKE

Filed May 27, 1927

Fig. 1

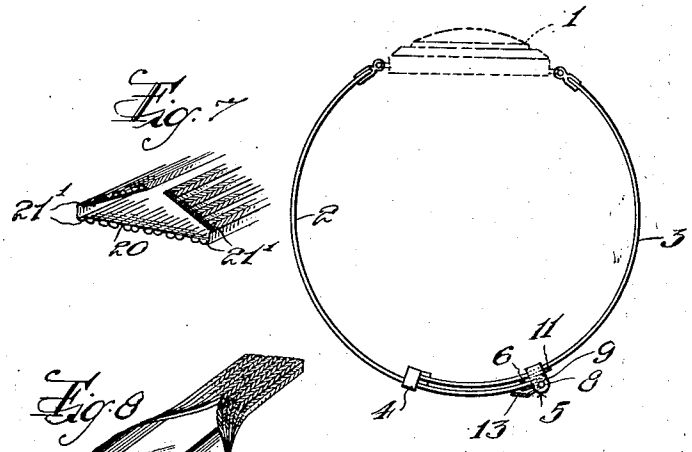


Fig. 6

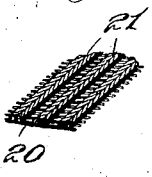


Fig. 7

Fig. 8

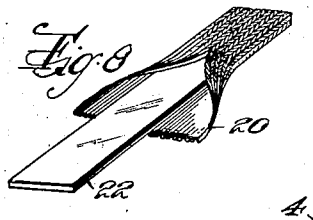


Fig. 2

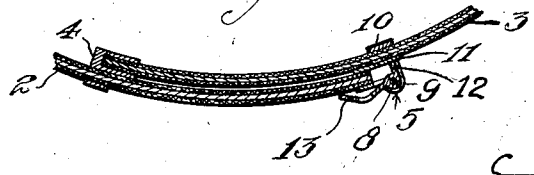


Fig. 3

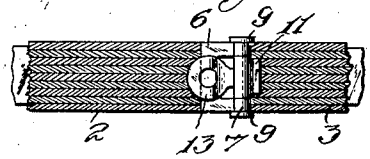


Fig. 4

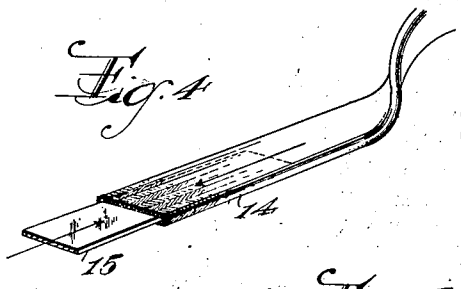
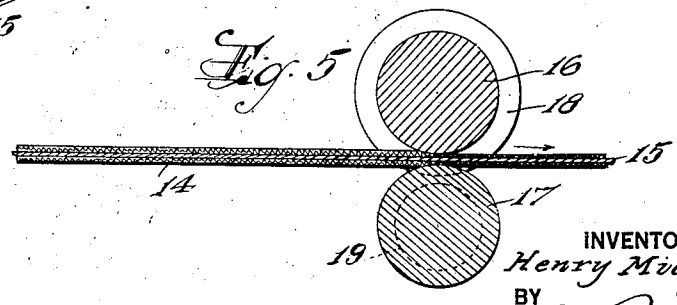


Fig. 5



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UNITED STATES PATENT OFFICE

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FABRICATED METALLIC STRUCTURE FOR JEWELRY AND THE LIKE

Application filed May 27, 1927. Serial No. 194,696.

The present invention relates to an article of manufacture made of woven or knitted metal wire mesh or fabric and to methods and steps in the manufacture of the same. The invention, more particularly, relates to an article of manufacture made by wrapping a wire mesh fabric about a longitudinal core or stock and drawing the mesh down about said core or stock, and to methods and steps in the manufacture. The invention is particularly applied in the manufacture of jewelry bracelets and is applicable in the arts generally.

An object of the invention is to provide a mesh fabric bracelet which is adjustable in size and which is somewhat stiff and not too flexible whereby it may easily be drawn together and adjusted in size by one hand after being drawn over the other hand onto the wrist.

Another object of the invention is to provide an article of jewelry, particularly a bracelet, made from woven or knitted wire mesh, which has a somewhat smooth appearance and simulates a smooth metal surface which has been engine engraved or cut in low relief to have the conventional appearance of a knitted or woven fabric.

Various other objects and advantages of the invention will appear from the specification and drawings describing and showing various embodiments of the article of the invention and method and apparatus for making the same, and the invention also consists in the new methods and steps and in new and useful structures and combinations of parts set forth in the claims forming a part of this application.

In the accompanying drawing there is shown for purposes of illustration forms of articles of manufacture embodying the invention and illustrating steps in the manufacture thereof, and also forms of apparatus used in the manufacture, in which:

Figure 1 shows somewhat diagrammatically a wrist watch having attached thereto a bracelet made according to the present invention; Figure 2 is a sectional view taken longitudinally along a part of the bracelet of Figure 1 at the adjustable coupling of the parts thereof; Figure 3 is a face view cut away in parts showing the elementary structure of the bracelet band; Figure 4 is a perspective view showing a step in the assembly and manufacture of the composite material or article of manufacture of the invention; Figure 5 is a longitudinal sectional view of the material and structure during a step in its formation, and of apparatus used to form it; Figure 6 is a plan view of ribbed wire mesh fabric used for making a form of structure embodying the invention; Figure 7 is a perspective view of a step in the formation of the fabric before the insertion therein or assembly therewith of a stock or core of strip or ribbon of metal; and Figure 8 is a perspective view of the fabric and stock assembled and with various parts thereof in different stages of formation.

In the drawing Figures 1, 2 and 3 show details of a bracelet for a wrist watch 1 comprising the cooperating band members 2 and 3 each of which has an end attached to said watch 1. Said member 3 at its opposite end carries a guard or keeper member 4 which passes around said band 2 and is of such size as to permit said band 2 to freely slide therethrough. Said band 2 at its outer end carries a clasp 5 for releasably clamping to said band member 3. Said clasp 5 as shown comprises a strap 6 of metal bent into a loop and fastened, as by soldering, over the end of said band 2 with opposite ends of the loop attached to opposite sides of the band. In the turn of said strap or loop 6 an offset loop or bend 7 has been formed which fits over a pintle 8 which extends between the end members 9, 9, the latter projecting at right angles from the ends of the bar 10 which extends across the face of band 3. The bar 10, end members 9, 9, and pintle 8 form a loop encircling the band 3, and attached to the end of the band 2 through said looped strap 6 which passes around pintle 8 and has its ends fastened to opposite faces of band 2. In said strap 6 is formed a tongue 11 by cutting through the strap material along three sides of a rectangle, one cut being made transversely in that part of the strap which fastens to the outer surface of band 2 and the

other two cuts extending longitudinally therefrom into the opposite element of the strap where they terminate before the end of the strap. The inner rectangle of metal defined by these cuts is not bent when the loop is formed but is left flat to form the tongue 11 which in the assembly lies against the face of band 3 and below said pintle 8. The tongue is trimmed or cut off to a point at a short distance outwardly from said pintle 8. On said pintle 8, in the intermediate space left by the cut in strap 6, a tongue 12 is pivoted for engagement with said tongue 11 for pressing the latter down against the surface of band 3 to bind the end of band 2 to band 3, and thus hold the bracelet closed at a fixed size. A finger-piece 13 serves to move tongue 12 into and out of clamping position, and to move tongue 12 to the clamping position in a direction toward the outer end of tongue 11. Tongue 11 serves as a plate to protect band 3 from being marked by the end of tongue 12.

For the easy adjustment of the bracelet to open or close it with one hand it is desirable that bands 2 and 3 be of a material which has a fair degree of stiffness or springiness. Bracelets for use with or without watches are made of a fabric woven or knitted from metal wire, but such material is too flexible for easy adjustment of a bracelet thereof of the form described. The present invention provides for the making of bracelets having the stiffness required and also having the characteristic appearance of a woven or knitted fabric. But, as herein more fully set forth, the invention is not limited to articles or materials which have the above set forth combination of characteristics.

By the method and process of the invention a wire mesh fabric is drawn and rolled down over a stock or core to make the fabric self retaining in shape either about the core, or on itself after removal of the core subsequent to the drawing or rolling. During and by the drawing and rolling the thickness of the fabric is decreased and the longitudinal dimension increased, and the strands of the fabric are pressed together to form a more compact mesh. One method of the invention comprises drawing a woven or knitted sleeve 14 over a flat core or stock 15, see Figure 4, the inside circumference being substantially equal to the circumference of the stock or core, the latter preferably being provided of a length greater than that of the sleeve so that after elongation of the sleeve during drawing or rolling they will be near the same length. The assembled stock and sleeve are then passed or drawn through a die plate or block having a longitudinal opening therethrough, or between spaced apart rollers 16 and 17 as illustrated in Figure 5. In the arrangement illustrated in Figure 5 said roller 16 carries at each end of the rolling space an annular flange 18 which fits over an annular shoulder 19 formed in said roller 17. Means not shown are provided for adjustably moving said roller 16 and 17 relatively toward and from each other to vary the size of the rolling opening.

The stock and sleeve being assembled with one end of each aligned with or near each other and the stock projecting beyond the sleeve at the opposite end, the assembly is passed between the rolls, commencing with the aligned end. The rolls can be driven and the assembly drawn through by the moving rolls or the assembly can be started through and then grasped by hand or by other actuating means and drawn through the space between the rolls. Successive passes are made and the rolls are moved closer together in successive steps between passes. The rolling of the assembled parts forms thereof a unitary structure in which the woven or knitted fabric is compacted against the stock with the filaments of the fabric drawn toward each other laterally and extended longitudinally whereby it is decreased in circumference and firmly tightened into position and shape about the stock.

One feature of the invention is the producing of the particular appearance of the structure above defined. This particular appearance is the simulation of a surface which has been engine cut or engraved to have the appearance of a woven or knitted fabric, and the appearance is produced by the flattening of the strands of the fabric through the pressure of the die or rolls thereon. The simulation is not so apparent after the preliminary passage through the die or rolls but increases as the pressure on the fabric increases during repeated passage through the die or rolls until the surface becomes somewhat smoothened. When the corners of the draw passage are square the corners of the formed structure are square and have continuous smooth rectangular edges which formation increases the similarity of the structure to that of a flat rectangular strip which has been engine cut on all its sides.

According to the invention a structure of the kind described and having the finish and the characteristic appearance described is also made from a flat strip of woven or knitted wire mesh fabric with an inner stock or core, the fabric being first wrapped around the stock and then drawn or rolled to compact it. A preferable method of making the structure from flat strip fabric and a flat rectangular core is to crease the fabric longitudinally at distances apart equal or nearly equal to the distances between the corners of the rectangular stock. The creased fabric is then assembled or wrapped about the core and then drawn or rolled down to form a compact and somewhat unitary structure in a manner and by steps similar to those above

described for making the structure from a sleeve of fabric and a flat ribbon core or stock.

In making the structure from a strip of fabric 20 having longitudinal parallel ribs 21 as shown in Figures 6, 7 and 8, the strip is creased as shown at Figure 7 to bring the ribs 21′, 21′ adjacent to the corners and with the lateral elements of the ribs and filaments connecting the ribs extending between the formed edges. This can be done by drawing the fabric over the corners at one edge of a thin plate or by drawing the fabric between two rolls one of which is in the form of a disc whose thickness is about the same as that of the stock or core which is to be inserted into the folded fabric and the other of the rolls has an annular groove into which the disc roller enters, the width of the groove being somewhat greater than the combined thickness of the disc and double thickness of the fabric. This relation of the size of the creasing rolls provides that creasing does not result in any substantial nonuniformity in the shape of the ribs or the fabric itself along any given face. The creasing is done preferably along lines at symmetrical distances from the center line of the strip of fabric so that the seam of the fabric 20 when assembled about a ribbon stock or cone 22 is equally distant from the side edges of the assembled structure. In a particular example of the invention as thus made the ribbon stock or core is of hard silver to give springy character or a degree of rigidity to the formed structure, and the mash is of silver, gold or other metallic wire and is annealed after weaving or knitting and before the beginning of its formation and assembly onto the stock or core.

After the fabric has been creased and has been folded in place about the stock or core it is passed and repassed through a die or between rollers, in the manner above set forth, to draw the fabric down and lay it close to the stock. After this drawing or rolling has been completed the material of the fabric has been hardened by the working thereof and will hold itself in its wrapped relation about the core, and the two edges meet and lie so closely together that the fabric has the appearance of being continuous throughout. The finish and appearance of the structure made from the flat fabric is similar to that described for the structure made from the flat core and the sleeve covering.

For some uses the core or stock is used only for the shaping and forming the outer fabric to give it the characteristic appearance and finish obtained by the method herein disclosed and the core is removed after the formation steps.

As numerous changes could be made in connection with my invention and various apparently widely different methods, steps and embodiments of the form and structure thereof could be made without departing from the scope thereof, it is intended that all matters contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:—

1. As an article of manufacture a jewelry structure having a core of flat metal ribbon and a knitted ribbed wire fabric folded about said core with the ribs thereof extending longitudinally and outside the core, said fabric having the filaments thereof at said ribs compressed together and compacted against said core to form a self retaining substantially smooth envelope about said core and closely fitting the same on all sides.

2. As an article of manufacture a jewelry structure having a flat core of metal ribbon and a knitted ribbed wire fabric folded about said core with the ribs thereof extending longitudinally and outside the core, said fabric being cut longitudinally between adjacent ribs whereby the meeting edges of said folded fabric produce a groove simulating the grooves of the fabric, which groove effectively hides the juncture of said edges, said fabric having the filaments thereof at said ribs compressed together and compacted upon said core and having the appearance of a smooth surface which has been engine cut or engraved in the continuous design of a knitted fabric.

3. A jewelry bracelet material having the appearance of a fabric and also having the stiffness or rigidity of leaf spring material as is required in a bracelet which is easily adjustable to open or close in place by one hand, comprising, a flat core of metal ribbon having a degree of springiness and a fabric of metal wire forming a covering folded closely about and compacted upon said core, the meeting edges of said folded fabric forming a longitudinally extending hidden seam.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 19th day of May, 1927.

HENRY MILLER.