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MULTI-CHANNEL GOOSENECK CONSTRUCTION WITH SUBSTANTIALLY UNINTERRUPTED AND EVEN INNER AND OUTER SURFACES

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FIG. 1

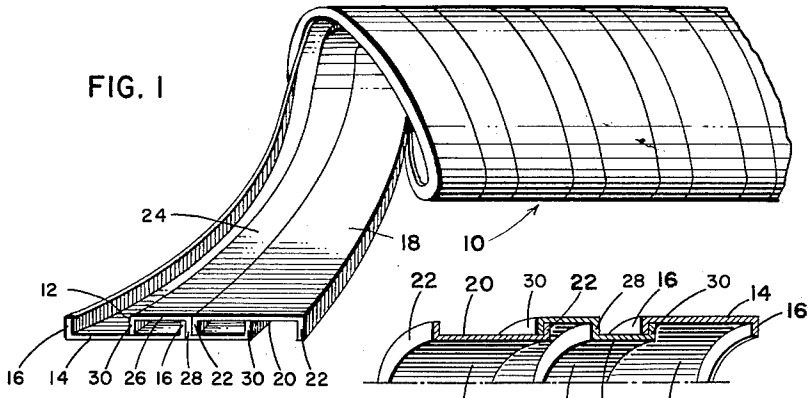


FIG. 2

FIG. 3

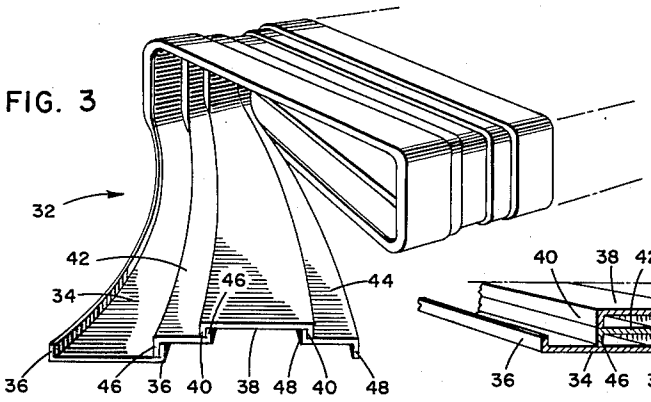
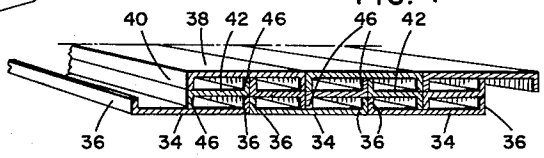


FIG. 4



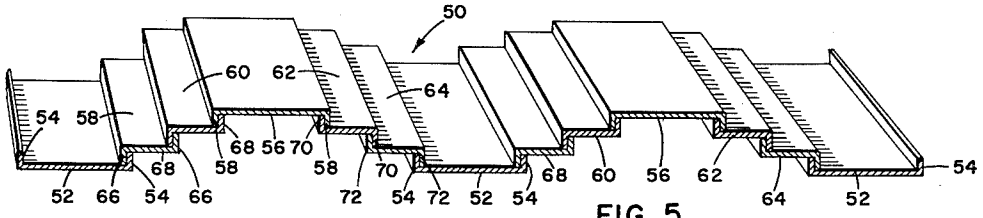


FIG. 5

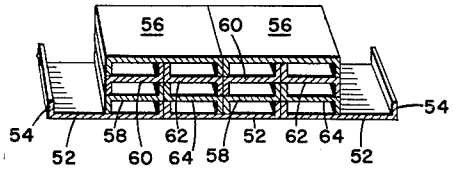


FIG. 6

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MULTI-CHANNEL GOOSENECK CONSTRUCTION WITH SUBSTANTIALLY UNINTERRUPTED AND EVEN INNER AND OUTER SURFACES

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3 Claims. (Cl. 63—5)

The present invention relates to an expansible strap, band or bracelet. More particularly, the present invention relates to a multi-channel gooseneck construction that incorporates a plurality of channel shaped strips, the channel shaped strips being slidably and expansibly interconnected by interconnecting strips that are formed with oppositely extending flanges thereon.

The so-called gooseneck type fo flexible banding or tubing has been in use for many years, one form of this type of construction being illustrated in United States Letters Patent to Keller No. 1,661,835. In these prior known flexible constructions, the expansible channel members were limited in movement by the lateral dimension of the channel members, the flexibility of the entire banding or tubing thereby being permitted only limited expansible movement.

These prior flexible bands which were known in the trade as "two wire" constructions were not only limited in expansible movement, but because of the limited number of elements comprising the unit, appeared to be incomplete in construction and were therefore not as attractive as solid link bands. Moreover, due to the limited number of strips employed in the unit, the band was subject to failure after relatively short periods of use.

Accordingly, it is an object of the present invention to provide a multi-channel expansible band that is extremely flexible and durable in use and that is attractive in appearance.

Another object of the present invention is to provide an expansible band that includes a plurality of helically wound strips that are formed with oppositely extending marginal flanges.

Still another object of the present invention is to provide a flexible and expansible bracelet, band or necklace that is formed in a gooseneck construction and that includes a plurality of multi-channel strips that are interconnected by separating strips that are formed with oppositely extending flanges.

Still another object is to provide a unique form of interconnecting strip for multi-channel expansible bands or bracelets that is formed with a body portion having oppositely extending marginal flanges integrally joined to the extreme ends thereof for engaging marginal flanges of adjacent channel members and thereby defining limit or stop means for the expansible or sliding movement of the channel members.

Other objects and the nature and advantages of the instant invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a portion of one form of the invention showing a helically wound expansible band or necklace defining a three-wire construction, the elements of the band being disposed in the normal or closed position;

FIG. 2 is a perspective view of the three-wire construction illustrated in FIG. 1 with parts shown in section and the elements disposed in the expanded position thereof;

FIG. 3 is a perspective view of a portion of a modified form of the invention showing a four-wire helically wound expansible band, the elements being disposed in the expanded or open position;

FIG. 4 is a perspective sectional view of the four-wire construction illustrated in FIG. 3. with the elements shown in the normal or closed position;

FIG. 5 is a perspective view with parts shown in section of a portion of a further modified form of the invention showing a six-wire helically wound expansible band, the elements being disposed in the expanded or open position; and

FIG. 6 is a perspective sectional view of the six-wire construction illustrated in FIG. 5 with the elements shown in the normal or closed position.

The present invention is normally employed as a bracelet or other ornamental band and as such defines a plurality of continuously wound elements or strips that are shaped on a convenient mandrel to assume a helical configuration. It is understood that the helically wound band or "gooseneck" construction embodied in the present invention may be utilized in any structure where expansion of the unit is desired. In the description appearing hereinafter, the elements or channel members and interconnecting members that define the gooseneck construction or expansible band are sometimes referred to as "wires," for example, "three-wire" construction, but it is understood that the individual elements or strips that define the bracelet or band are actually channel shaped members or interconnecting members that are formed with flanges thereon. The channel members and interconnecting strips to be described are generally formed of a spring metal material that provides for easy expansion and contraction of the bands.

Referring now to the drawings and particularly to FIGS. 1 and 2, one form of the invention is illustrated therein and comprises a tubular member generally indicated at **10**, the tubular member **10** defining an expansible gooseneck construction. The tubular member **10** includes a first channel member **12** that is defined by a body portion **14** and upstanding flanges **16** that are formed by turning up the ends of the body portion **14**. Positioned adjacent the first channel member **12** is a second channel member **18** that is formed similarly to the first channel member **12** and includes a body portion **20** and flanges **22**. As shown in FIGS. 1 and 2 the channel member **18** is positioned opposite to the channel member **12** such that the flanges **22** extend in the opposite direction to flanges **16**. Interposed between the channel members **12** and **18** is an interconnecting member or strip **24** that, in the form of the invention illustrated in FIGS. 1 and 2, is shaped in an inverted **S** configuration. The interconnecting member **24** thus includes a two-plane body portion **26** having a central partition **28** and oppositely extending end flanges **30**. The flanges **30** are formed by bending the ends of the body portion **26** at right angles thereto, since it is particularly desirable to provide an uninterrupted or flush surface on the sides of the body portion opposite the flanges **30**. Thus, it is seen that the contraction of the channel members **12** and **18** will be unimpeded. Furthermore, the ornamental appearance of the overall construction is improved and possible wearing areas are eliminated when the channel members **12** and **18** are expanded and contracted.

As shown in FIG. 1, which defines the normal or closed position of the band **10**, the inner flanges **16** and **22** of the channel members **12** and **18** abut the central partition **28** while the outer edge of the end flanges **30** of the interconnecting member **24** engage the inner surfaces of the body portions **14** and **20**, respectively, and are adapted to be slidably moved with respect thereto.

Referring now to FIG. 2, the tubular member **10** is shown in the expanded position thereof, whereby the channel members **12** and **18** have been moved with respect to the interconnecting member **24** so that the inner flange **16** engages the adjacent flange **30** and the other

flange 30 engages the inner flange 22. It is seen that the space between the central partition 28 and the end flanges 30 defines the limit of expansion of the channel members, and the end flanges 30 further define stops for retaining the channel members in the expanded position thereof. The tubular member 10 as illustrated in FIGS. 1 and 2 forms a three-wire construction and defines the simplest form of the invention which incorporates a flanged interconnecting member. By positioning the interconnecting member 24 between the channel members 12 and 18, greater expansion of the unit is achieved and a more durable and greatly improved ornamental band is produced over those that have been known heretofore. Specifically, in the three-wire form of my invention, the expansion ratio of band 10 is approximately 3 to 2. Moreover, since the flanges 30 are formed on only one side of the ends of body portion 26, the outer surfaces of the two-plane body portion 26 present an uninterrupted and wear-free area. It is further seen that the ornamental appearance of the band is greatly improved.

Referring now to FIGS. 3 and 4, a modified form of the invention is illustrated and comprises a relatively flat four-wire helically wound gooseneck construction or unit generally indicated at 32. The elements that define the four-wire construction 32 are a first wire or channel member 34 having marginal end flanges 36 formed thereon, a second wire or channel member 38 also formed with marginal end flanges 40 thereon, and interconnecting wires or members 42 and 44. As shown in FIG. 4, the helically wound channel member 34 is connected to the interconnecting member 44 and defines the first wire of the repeating four-wire helically wound construction. The interconnecting member 42 is formed with a body portion on which are formed oppositely extending marginal flanges 46 that are adapted to engage the inner flange 36 and outer flange 40 of the channel members 34 and 38, respectively, when the unit is in the expanded position. See FIG. 3. The interconnecting wire or member 44 is formed with similar oppositely extending flanges 48, one of which engages the flange 40 and the other of which engages the flange 36 when the unit is disposed in the expanded position. In FIG. 4, the four-wire unit 32 is shown in the contracted or closed position and in this position the adjacent flanges 36 of the helically wound channel member 34 abut each other, and similarly the adjacent flanges 40 of the helically wound channel member 38 abut each other. It is seen that in the contracted position, the helical channel member 34 defines a continuous lower surface while the helical channel member 38 forms a continuous upper surface. In the open or expanded position, as seen in FIG. 3, the interconnecting wires or strips 42, 44 permit additional expansion of the channel members 34, 38, resulting in an expansion ratio for unit 32 of approximately 5 to 3. It is evident from a comparison of the forms of the invention described thus far, that the more interconnecting wires used, the larger the expansion that can be achieved.

Referring now to FIGS. 5 and 6, a further modified form of the invention is illustrated and comprises a relatively flat six-wire helically wound gooseneck construction or unit, generally indicated at 50. The six-wire unit 50 is similar to the four-wire unit 32 with the exception that instead of two interconnecting wires or strips connecting the helical channel members, four interconnecting strips are utilized. As shown in FIG. 5, wherein the band is disposed in the expanded position, the six-wire unit 50 includes a first channel member or strip 52 having upwardly extending marginal flanges 54 formed thereon. A second channel member or strip 56 is oppositely positioned with respect to the channel member 52 and is formed with downwardly extending marginal flanges 58. Interconnecting the channel members 52 and 56 on one side thereof are a first pair of interconnecting wires or strips 58 and 60 while a second pair of interconnecting wires or strips 62 and 64 interconnect the channel members on the other side. Each of the interconnecting strips is formed with a body portion and as illustrated in FIG. 5, the body portion of the interconnecting strip 58 is formed with oppositely extending marginal flanges 66. The interconnecting strip 60 is similarly constructed, having oppositely extending marginal flanges 68 formed thereon. The body portions of the other set of interconnecting strips 62, 64 are also formed with oppositely extending marginal flanges which are indicated as 70, 72, respectively. When the six-wire unit 50 is moved to the expanded position as illustrated in FIG. 5, the adjacent marginal flanges engage, thereby presenting what appears to be a stepped construction. In the contracted position, the marginal flanges of the helically wound channel members engage the adjacent marginal flanges and present a continuously appearing arrangement. By providing two pairs of interconnecting strips which cooperate with the oppositely positioned channel strip to define the six-wire unit, an expansible band is produced that is adapted to expand substantially twice its contracted size. Thus, it is seen that relatively large expansion is achieved from the unit 50 without sacrificing undue space. It is understood, of course, that the thickness of the band 50 is increased by use of the several interconnecting strips but by decreasing the thickness of each individual strip, a compact band is produced that is both efficient in operation and attractive in appearance.

In all forms of the invention described herein, the interconnecting strips that connect the oppositely positioned channel strips comprise a body portion that is formed with oppositely extending marginal flanges. Although the marginal flanges of both the interconnecting strips and channel strips are shown formed at right angles with respect to the body portions thereof, it is understood that these marginal flanges can be toed or curved in. The interconnecting strips themselves may also be formed in various configurations, but it is critical that each of the marginal flanges of the interconnecting strips extend in only one direction with respect to the body portion thereof. Thus, by producing an uninterrupted or flush surface directly opposite the marginal flanges, a wear-free area is produced that not only enables complete contraction but that also is attractive in appearance in that a smooth, flush outer surface is provided.

It will be obvious to those skilled in the art that various changes may be made without departing from the spirit of the invention and therefore the invention is not limited to what is shown in the drawings and described in the specification, but only as indicated in the appended claims.

What is claimed is:

1. In an expansible band, a plurality of helically wound spring metal strips comprising a first channel-shaped strip including parallel marginal flanges extending equal distances and in the same direction from said first strip, a second channel-shaped strip including parallel marginal flanges that extend equal distances from said second strip in a direction opposite to that of the marginal flanges of said first strip, and means interconnecting said first and second strips including at least one interconnecting strip located between said first and second strips and cooperating therewith to provide for relative expansible movement between said strips axially of their windings, said interconnecting strip including a body portion that is formed with a marginal flange on one edge thereof and an oppositely extending marginal flange on the other edge thereof, oppositely disposed surfaces being defined between the marginal flanges and on said body portion, said surfaces being substantially relatively symmetrical, each said surface being even, and each said surface extending from the outer side edge of a flange on said interconnecting strip to a line, the projection of each line on to the respective other surface being inwardly displaced on said respective other surface with respect to the outer side edge of the opposite flange of said interconnecting strip, where-

in the width of each surface is less than the full width of said interconnecting strip, each said strip overlapping an adjacent strip, each of said first and second strips having at least one of said flanges of said interconnecting means interposed between its said marginal flanges, said surfaces defining with said first and second strips a smooth and substantially even inner and outer surface for said band when said band is disposed in the contracted position thereof.

2. In an expansible band as set forth in claim 1, said interconnecting means further including at least one additional interconnecting strip disposed between the second channel-shaped strip and the first channel-shaped strip.

3. In an expansible band as set forth in claim 1, said interconnecting means further including two pairs of said

helically wound strips, one pair of said strips being disposed between said first and second channel-shaped members, and the second pair of said strips being disposed between said second channel-shaped member and the next successive winding of said first channel-shaped member that is defined by the helical formation of said spring metal strips.

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