July 26, 1955 J. V. SACCONE 2,713,766

EXPANSIBLE BRACELET WITH ALIGNING PROJECTIONS

Filed June 11, 1951

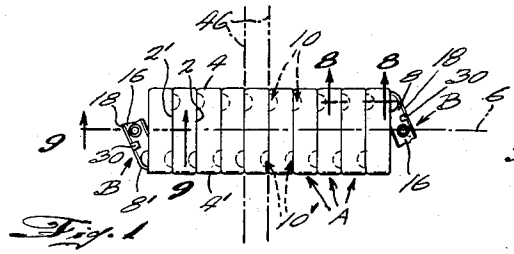


Fig. 1.

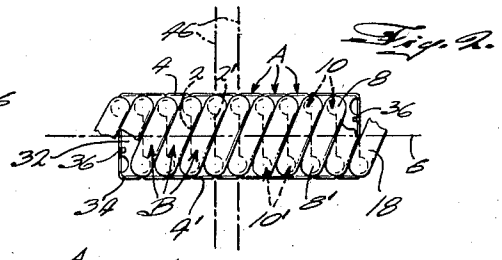


Fig. 2.

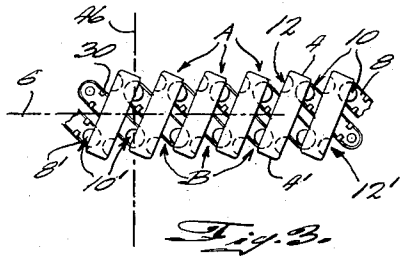


Fig. 3.

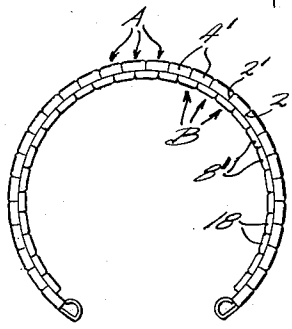


Fig. 4.

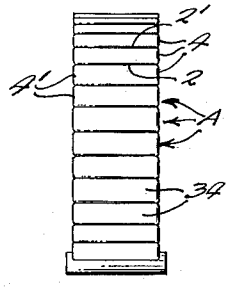


Fig. 5.

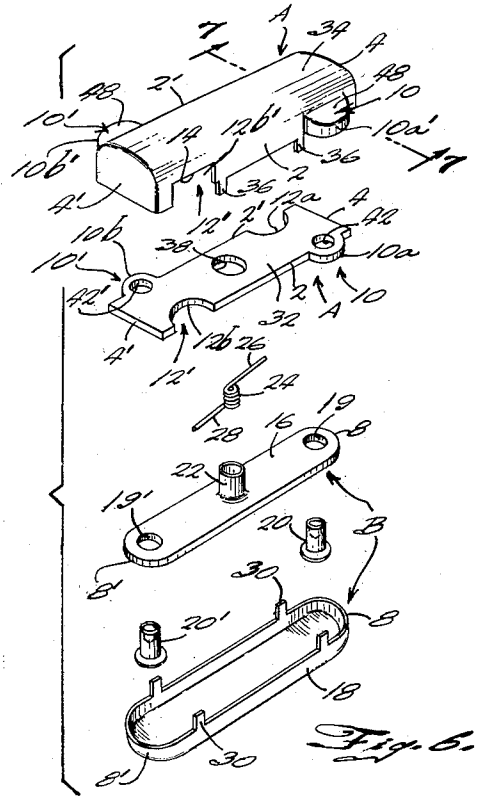


Fig. 6.

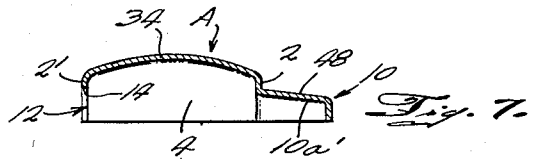


Fig. 7.

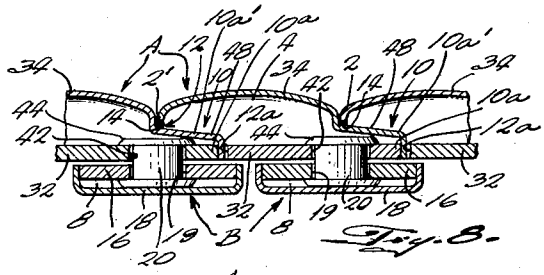


Fig. 8.

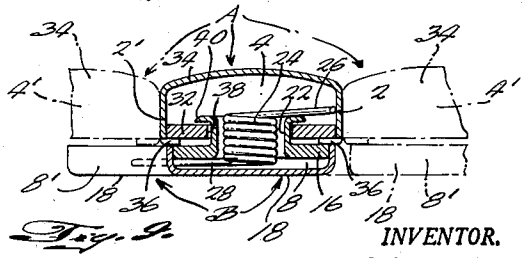


Fig. 9.

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United States Patent Office 2,713,766 Patented July 26, 1955

2,713,766

EXPANSIBLE BRACELET WITH ALIGNING PROJECTIONS

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Application June 11, 1951, Serial No. 230,970

6 Claims. (Cl. 59—79)

The present invention relates to improvements in the construction of expansible bracelets, and more particularly expansible bracelets composed of sets of top and bottom links pivotally connected at their ends.

Bracelets of this general type, usually fitted with springs which resiliently tend to draw the bracelet into contracted condition, are in very wide-spread use. They fall into two general categories, the so-called Z-type, in which each bottom link is connected at its ends to opposite ends of adjacent top links, and the so-called X-type, in which each bottom link is connected at its center to the center of a top link and is connected at its ends to opposite ends of top links on either side of the first mentioned top link. The Z-type bracelet is particularly adapted for use when narrow widths are desired, such as is the case with ladies' bracelets. The X-type bracelet is usually preferred where wide widths are desired, as is the case with men's bracelets.

One drawback of the Z-type bracelet is its tendency to twist or curl along its own length, this tendency apparently arising because of the necessary play at the ends of the links, coupled with the action of the springs which cause the bracelets to be resiliently expandible.

Because of the more rigid nature of the X-type bracelet, arising from the fact that each bottom link is connected to three top links and from the fact that the contractile spring is usually positioned at the center of the links, it is not so prone to twist about its own length as is the Z-type bracelet, but it does have the troublesome characteristic that when bent into wrist-encircling position it often tends to assume a spiral rather than an arcuate configuration. This effect is particularly marked when the top links of the bracelet have substantially straight sides and are oriented substantially perpendicular to the length of the bracelet, although the effect above described occurs with other top link configurations as well. Bracelets which exhibit this tendency toward helical bending will either assume a canted position on the wrist of the wearer or else will constantly be in a state of strain while being worn, this materially shortening the effective life of the bracelet. It has been observed that this tendency toward helical bending occurs when a line drawn through the pivotal axes at opposite ends of adjacent top links is not perpendicular to the longitudinal axis of the bracelet itself. The more such a line between axes departs from perpendicularity with respect to the longitudinal axis of the bracelet, the greater is the tendency of the bracelet to assume a helical configuration when bent to arm-encircling position.

I have devised a novel bracelet structure which will ameliorate each of the above disadvantages, depending upon the type of bracelet into which it is incorporated. This novel construction is characterized by providing interfitting protrusions and recesses on the top links of the bracelet, said protrusions and recesses preferably having a height less than that of the top links so as to be invisible when the bracelet is in contracted condition. The

interfitting of these protrusions and recesses will, particularly when employed in a Z-type bracelet, result in a rigidifying of the bracelet and a minimizing of the tendency of the bracelet to twist about the longitudinal axis of the bracelet.

When this construction is utilized in an X-type bracelet the protrusions are preferably disposed on opposite sides of the top link adjacent opposite ends thereof, and the means, usually a rivet, eyelet, or the like, used for pivotally connecting the ends of the top links with the ends of the bottom links are housed in said protrusions in such a manner that when the protrusions are fitted within the mating recesses on adjacent top links, as will be the case when the bracelet is in contracted condition, a line drawn through the pivotal axes of the rivets, eyelets or the like positioned at opposite ends of adjacent top links will be perpendicular to the longitudinal axis of the bracelet. In this way the tendency of the bracelet to bend in a helical rather than in an arcuate manner can be completely eliminated without placing any restriction on the shape or configuration of the top links. This permits unlimited choice of design characteristics without undesirably effecting the operational characteristics of the bracelet.

By means of my novel construction, the above objectives can be achieved without departing from those basic structural characteristics of bracelets of this type which have made them so dependable, so easy to manufacture, and so popular.

To the accomplishment of the above, and such other objects that may hereinafter appear, the present invention relates to the construction of an expansible bracelet as defined in the appended claims and as described in this specification, taken together with the accompanying drawings in which:

Fig. 1 is a top view of an X-type bracelet in contracted condition, said bracelet being constructed in accordance with the present invention;

Fig. 2 is a bottom view thereof;

Fig. 3 is a view similar to Fig. 1 but showing the bracelet in partially expanded condition;

Fig. 4 is an end elevational view showing the bracelet bent in wrist-encircling position;

Fig. 5 is a side elevational view of the bracelet of Fig. 4;

Fig. 6 is an exploded view of the top and bottom links of the bracelet of Fig. 1 together with the means for pivotally connecting the links and for providing the resilient contractile force;

Fig. 7 is a cross-sectional view of the shell portion of the top link taken along the line 7—7 of Fig. 6;

Fig. 8 is a cross-sectional view taken along the line 8—8 of Fig. 1 and showing the manner in which the projections and recesses interfit; and

Fig. 9 is a cross-sectional view taken along the line 9—9 of Fig. 1.

The invention is here specifically disclosed as embodied in an X-type bracelet the top links of which are substantially rectangular in shape when viewed in plan. However, the invention in its more generalized aspects is pertinent to X-type bracelets the top links of which depart from the illustrated configuration, as well as to Z-type bracelets having top links of widely varying configurations. The specific embodiment here illustrated takes the form of a bracelet the ends of which are adapted to be secured to a watch or other ornament, but this too is not essential to the invention. Moreover, the term "bracelet" is intended to comprehend various types of encirling bands, such as necklaces, rings, belts, garters or the like.

As here specifically illustrated the bracelet is formed of a series of top links generally designated A pivotally interconnected with a series of bottom links generally

designated B. As may best be seen from Figs. 1, 3 and 5, the basic outline of the top links A, when viewed in plan, is rectangular, each link being defined by parallel sides 2, 2' and parallel ends 4, 4', the top links A being arranged substantially perpendicular to the longitudinal axis 6 of the bracelet when the bracelet is in contracted condition, the sides 2 and 2' of each of the top links A then respectively abutting the sides 2' and 2 of the adjacent top links A. The bottom links B, as is common in bracelets of the X-type, are angularly positioned with respect to the top links A so that each bottom link B may pivotally engage with three adjacent top links A, one end 8 of the top link B being pivotally secured to top link A adjacent the end 4 thereof, the center of the bottom link B being pivotally secured to the center of the next adjacent top link A, and the end 8' of the bottom link B being pivotally secured to the next following top link A adjacent the end 4' thereof.

In accordance with the present invention, each top link A is provided with a pair of lateral protrusions 10, 10', the protrusion 10 extending outwardly from the side 2 adjacent the end 4, and the protrusion 10' extending out from the side 2' adjacent the end 4'. Each top link A is correspondingly provided with a pair of lateral recesses 12, 12', the recess 12 being in the side 2' adjacent the end 4 and opposite the protrusion 10, and the recess 12 being in the side 2 adjacent the end 4' and opposite the protrusion 10'. It is preferred, for both functional and decorative reasons, that the height of the protrusions 10 and 10' be less than the height of the top link A. The recesses 12 and 12' are matingly sized with respect to the protrusions 10 and 10' so that the protrusion 10 on one top link A can fit inside the recess 12 on an adjacent top link A. Hence, when the protrusions 10 and 10' have a height less than the height of the top link A, the recesses 12 and 12' are open-sided but have a top closed by the edge 14.

The internesting of the protrusions 10, 10' in the recesses 12, 12' when the bracelet is in contracted condition, particularly when the recesses 12, 12' have closed tops, will tend to stiffen the bracelet and help to minimize any tendency which the bracelet might have to twist about its longitudinal axis 6, the individual top links 2 thus being more or less positively restrained to assume parallel positions. This effect is noteworthy and significant in the case of X-type bracelets such as are here specifically disclosed, but is most important in the case of Z-type bracelets, which are much more susceptible to such twisting action.

The bottom links B may be formed in conventional manner from a base plate 16 and a shell 18, the base plate having apertures 19, 19' near opposite ends 8, 8' thereof through which pivotal securing means such as the rivets or eyelets 20, 20' may be passed, the central portion of the base plate 16 being provided with an upstanding hollow stud 22 within which coil spring 24 may be positioned, that spring having extending arms 26, 28 at opposite ends thereof. The shell 18 is provided with tabs 30 (see Fig. 6) adapted to be bent around the base plate 16 (see Figs. 1 and 3) so as to secure the shell 18 thereto, the lower arm 28 of the spring 24 extending between the base plate 16 and the shell 18 so as to engage one side surface of the shell 18.

The top link A is similarly formed from a base plate 32 and a shell 34, the shell being provided with tabs 36 (see Fig. 6) so that the two may be secured together (see Fig. 9). A central aperture 38 is provided in the base plate 32 through which the hollow stud 22 on the base plate 16 of the bottom link B may pass, the upper end of that stud then being spun over as at 40 (see Fig. 9) to centrally pivotally secure top and bottom links A and B together. The base plate 32 of the top link A is provided with lateral extensions 10*a* and 10*b* on sides 2 and 2' thereof respectively and adjacent ends 4 and 4' thereof respectively, each of these extensions 10*a* and 10*b* being

provided with apertures 42, 42' through which the rivets 20 or 20' respectively secured to appropriate bottom links B are passable, the ends of those rivets or eyelets being spun over as at 44 (see Fig. 8) so as to pivotally secure the ends 4 and 4' of each top link A to the ends 8 and 8' respectively of appropriate bottom links B.

The extensions 10*a* and 10*b* are so shaped, and the apertures 42 and 42' therein are so positioned that, when the bracelet is in contracted condition, the central axes of the rivets or eyelets 20 and 20' which pass through the apertures 42 and 42' of adjacent top links A will assume an orientation such that a line through said pivotal axes at opposite ends 2 and 2' of adjacent top links A (see the dot-dash lines 46 of Figs. 1 and 2) is perpendicular to the longitudinal axis 6 of the bracelet. To this end, lateral depressions 12*a* and 12*b* are formed in the sides 2' and 2 respectively of the base plate 32, adjacent the ends 4 and 4' respectively thereof and opposite the extensions 10*a* and 10*b* respectively into which the extensions 10*a* and 10*b* respectively of adjacent top links A will fit when the bracelet contracts. In the form here specifically disclosed, in which the top link A has a generally rectangular configuration when viewed in plan, the center of the aperture 42 is in line with the side 2 and the center of the aperture 42' is in line with the side 2', the extensions 10*a* and 10*b* being semi-circular and the depressions 12*a* and 12*b* also being semi-circular but having a slightly larger radius than the extensions 10*a* and 10*b* in order that said projections may be accommodated therein.

The shell 34 of the top link A may be ornamented in any desired manner. For purpose of simplicity of illustration, it is here shown as plain, and indeed might be preferred in this form from a decorative point of view. The body of the shell 34 is adapted to fit over the body of the base plate 32 and to be secured thereto by means of the tabs 36, the upper arm 26 of the spring 24 being received between the base plate 32 and the shell 34 and engaging an inner surface of the shell 34 (see Fig. 9). Laterally extending portions 10*a*' and 10*b*' are provided which are adapted to fit over the lateral extensions 10*a* and 10*b* respectively on the base plate 32, the extending portions 10*a*' and 10*b*' having a height less than the maximum height of the shell 34 and preferably even less than the height of the sides 2 and 2' thereof, the top wall 48 of these extensions preferably being downwardly tapered so as to facilitate the entrance of the lateral protrusions 10 and 10' into the corresponding recesses 12 and 12' of adjacent top links A, that portion of the recesses 12 and 12' which is a part of the shell 34 is defined by appropriately shaped apertures 12*a*' and 12*b*' formed in the side walls 2 and 2' respectively thereof and communicating with the hollow interior of the shell 34.

By reason of the construction above described the relationship between the longitudinal axis of the bracelet and the axes about which the opposite ends 4 and 4' of adjacent top links A pivot with respect to the bottom links to which they are there connected is such that the line 46 drawn through the said pivotal axes is perpendicular to the longitudinal axis 6, not only while the bracelet is in contracted condition, as shown in Figs. 1 and 2, but also when the bracelet is expanded, as shown in Fig. 3. Hence the described construction not only rigidifies the bracelet and prevents twisting about the longitudinal axis 6 of the bracelet, but also, in an X-type bracelet, permits proper orientation of the pivotal axes at the ends of adjacent top links A, in order that the bracelet, when bent to wrist-encircling position, as shown in Figs. 4 and 5, will assume an arcuate configuration in a single plane, and will not tend to bend helically. When said tendency is not corrected the bracelet either encircles the wrist in an uncomfortable or unattractive manner or else is unduly strained while in use.

Both of the above advantageous functional character-

istics are obtained without departing from the customary mode of interconnection of the top and bottom links A and B by means of rivets, eyelets, hollow studs or the like, without requiring any change in the customary mode of applying resilient force to the bracelet so as to tend to urge it to contracted condition, and without detracting from the structural strength of the bracelet. All of the parts are susceptible of inexpensive manufacture in quantity production, and assembly of the bracelet follows a conventional and tried pattern.

While but a single embodiment of the invention is here specifically described, it will be apparent that many detailed variations may be made therein without departing from the spirit of the invention as defined in the following claims.

I claim:

1. In an expansible bracelet comprising sets of top and bottom links pivotally interconnected at their ends; the improvement which comprises lateral protrusions on said top links on opposite sides thereof and at opposite ends thereof, the height of said lateral protrusions being less than the height of said top links, and means housed within said lateral protrusions for pivotally connecting said top link ends to appropriate bottom links, said top links having lateral recesses with an open side and a closed top opposite and of mating size with respect to said protrusions, the lateral protrusions of adjacent top links fitting inside said lateral recesses via the open sides thereof when said bracelet is in contracted condition with said top links adjacent one another and said protrusions being hidden from view by the closed tops of said recesses.

2. In an expansible bracelet comprising sets of top and bottom links pivotally interconnected at their ends; the improvement which comprises lateral protrusions on said top links on opposite sides thereof and at opposite ends thereof, the height of said lateral protrusions being less than the height of said top links, and means housed within said lateral protrusions for pivotally connecting said ends to appropriate bottom links, said top links having lateral recesses with an open side and a closed top opposite and of mating size with respect to said protrusions, the lateral protrusions of adjacent top links fitting inside said lateral recesses via the open sides thereof when said bracelet is in contracted condition with said top links adjacent one another and being hidden from view by the closed tops of said recesses, said means being positioned in said protrusion so that a line drawn between pivotal axes at opposite ends of adjacent top links is perpendicular to the longitudinal axis of said bracelet.

3. An expansible bracelet comprising top links of generally rectangular outline when viewed in plan arranged so as to abut one another along their sides and to be oriented perpendicular to the length of said bracelet when said bracelet is in contracted condition, a hollow lateral protrusion on each side of each of said top links and at opposite ends thereof, the height of said lateral protrusions being less than the height of said top links, each of said top links having lateral recesses with an open side and a closed top opposite and of mating size with respect to said protrusions, bottom links beneath said top links, and means for pivotally securing the ends of said bottom links to ends of appropriate top links, said pivotal means, where secured to said top links, being housed within said lateral protrusions, the lateral protrusions of said top links fitting within the lateral recesses of adjacent top links via the open sides thereof when said bracelet is in contracted condition and being hidden from view by the closed tops of said recesses.

4. An expansible bracelet comprising top links of generally rectangular outline when viewed in plan arranged so as to abut one another along their sides and to be oriented perpendicular to the length of said bracelet when said bracelet is in contracted condition, a hollow lateral protrusion on each side of each of said top links and at opposite ends thereof, the height of said lateral protrusions being less than the height of said top links, each of said top links having lateral recesses with an open side and a closed top opposite and of mating size with respect to said protrusions, bottom links beneath said top links, and means for pivotally securing the ends of said bottom links to ends of appropriate top links, said pivotal means, where secured to said top links, being housed within said lateral protrusions so that their pivotal axes are in the planes of sides of said top links, the lateral protrusions of said top links fitting within the lateral recesses of adjacent top links via the open sides thereof when said bracelet is in contracted condition and being hidden from view by the closed tops of said recesses.

5. An expansible bracelet comprising top links of generally rectangular outline when viewed in plan arranged so as to abut one another along their sides and to be oriented perpendicular to the length of said bracelet when said bracelet is in contracted condition, a hollow lateral protrusion on each side of each of said top links and at opposite ends thereof, the height of said lateral protrusions being less than the height of said top links, each of said top links having lateral recesses with an open side and a closed top opposite and of mating size with respect to said protrusions, bottom links oriented at an angle with respect to said top links, means for pivotally securing each of said top links at its center to the center of an appropriate bottom link, and means for pivotally securing the ends of said bottom links to ends of appropriate top links, said last mentioned pivotal means, where secured to said top links, being housed within said lateral protrusions, the lateral protrusion of said top links fitting within the lateral recesses of adjacent top links via the open side thereof when said bracelet is is in contracted condition.

6. An expansible bracelet comprising top links of generally rectangular outline when viewed in plan arranged so as to abut one another along their sides and to be oriented perpendicular to the length of said bracelet when said bracelet is in contracted condition, a hollow lateral protrusion on each side of each of said top links and at opposite ends thereof, the height of said lateral protrusions being less than the height of said top links, each of said top links having lateral recesses with an open side and a closed top opposite and of mating size with respect to said top links, means for pivotally securing each of said top links at its center to the center of an appropriate bottom link, and means for pivotally securing the ends of said bottom links to ends of appropriate top links, said last mentioned pivotal means, where secured to said top links, being housed within said lateral protrusions so that their pivotal axes are in the planes of sides of said top links, the lateral protrusions of said top links fitting within the lateral recesses of adjacent top links via the open side thereof when said bracelet is in contracted condition.

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