This invention relates to improvements in watch bracelets and the like, and relates in particular to links which may be added to or removed from bracelets in order to vary the length thereof.

The invention has particular application to an expansion bracelet of the type having links criss-crossed and connected to provide substantially a "lazy tong" type of action, said links having spring means which normally maintain the bracelet in contracted condition. An important object of this invention is to provide links which may be readily added by the retail seller to the expansion bracelet proper, making it possible to vary the overall size of the bracelet as a whole, according to the needs of the individual wearer, while manufacturing the expansion bracelet proper in only a single stock size.

Another important object of this invention is to provide links which may be added to existing expansion bracelets with substantially no modification thereof.

Another important object of the invention is to provide links which may be added to the expansion bracket quickly, easily and with a minimum of tools.

In accordance with a preferred embodiment of the invention, each of the links to be added is formed from a unitary bendable metal blank and has a laterally elongated center portion. This center portion has a laterally elongated notch extending to its front edge, a plurality of laterally spaced and aligned holes located rearwardly of said notch, a cut-out located rearwardly of said holes and laterally elongated and parallel to and registering longitudinally with said notch, and prongs extending upwardly from the rear edge of said center portion in respective longitudinal alignment with respective holes. Each link also has wings extending from the side edges of the center portion and disposed longitudinally between the rear edge of the notch and the cut-out. In the form in which the link is shipped to the retail seller, the wings extend downwardly from the center portion of the link. Tabs extend inwardly from the lower portions of the front edges of the respective wings.

To assemble a first link and a second link, the retail seller or other assembler first places the center portion of the first link below and in abutment with the center portion of the second link. The prongs of the first link are thereby extended through the holes of the second link, and the cut-out of the first link and the notch of the second link thereby register. The assembler then bends the wings of the second link inwardly until they underly the center portion of the first link and are substantially parallel thereto. The tabs of the second link are thereby extended upwardly through the cut-out of the first link and the notch of the second link.

In the completed assembly of the two links, the first link has a limited amount of vertical play between the center portion and the wings of the second link, but this play is insufficient to withdraw the prongs from the holes and the tabs from the notches. Additional links can be added in like manner and it will be apparent that the complete chain cannot be readily dis-assembled in normal use, and nevertheless has sufficient flexibility for comfort upon the wrist. Links can be added and removed readily by means of pliers or other simple tools.

As an important feature of the invention, the link in accordance with this invention conforms closely in peripheral shape of the main center portion thereof with the shape of existing end links of expansion bracelets of the type mentioned above. As will become apparent from the following detailed description, the new links may be added to the existing end links without substantial modification thereof, and the overall appearance of the bracelet is not substantially changed.

Other objects and advantages of the invention will become apparent from the following description, in conjunction with the drawings, in which a preferred embodiment is disclosed.

In the drawings,

Fig. 1 is a perspective view of a watch bracelet in accordance with this invention, assembled with a watch and placed over the wrist.

Fig. 2 is a bottom plan view of a portion of the bracelet of Fig. 1.

Fig. 3 is a plan view of a blank for a connecting link in accordance with this invention.

Fig. 4 is a perspective view of the blank of Fig. 3, in an intermediate set-up condition thereof prior to its assembly with other links.

Fig. 5 is a perspective view, showing two blanks in a condition similar to that of Fig. 4, in an intermediate stage of assembly.

Fig. 6 is a view similar to Fig. 5, showing one of the links in final assembled condition.

Fig. 7 is a section on line 7-7 of Fig. 5.

Fig. 8 is a section on line 8-8 of Fig. 6.

The drawings are substantially to scale of a working model of the invention, and reference is made to the drawings to complete the disclosure herein.

Upon reference to the drawing in detail, it will be apparent that it shows in Fig. 1 a watch band or bracelet 10 secured to a watch 11, with the whole assembly being placed over the wrist 12. As shown in Fig. 2, the band 10 comprises a plurality of conventional links 13, as in conventional expansion bracelets, together with a plurality of inexorable links 14 in accordance with this invention. As will become apparent from the detailed description below, links 14 may be readily added to or subtracted from the band to vary its overall length. The various links 13 and 14 are preferably covered on their upper faces with ornamental shells 9.

Fig. 3 shows a blank 14a from which an individual link 14 in accordance with this invention may be formed. Said blank 14a is in the form of a generally rectangular and laterally elongated plate 15 with connecting bendable prongs 17a and 17b and connecting bendable wings 23 and 23b. Bendable tabs 19 in turn connect with the wings 23 and 23b.

Referring first to the plate portion 15 of blank 14a, it will be noted that it has a lateral edge 15a, which will hereinafter be referred to as the rear edge of blank 14a.

The front lateral edge of blank 15 is designated by the reference numeral 15b. The side longitudinal edges of plate 15 are respectively designated by the reference numeral 15c. Said rear edge 15c is linear, and as viewed in Fig. 3 the prongs 17a and 17b extend rearwardly from said edge 15a. Prong 17b is located at the center of edge 15a and is optionally slightly wider than the side prongs 17a. Each prong 17a is located slightly inwardly of a respective side edge 15c.

Edge 15b is optionally somewhat irregular in shape, having a notch 18 for ultimate reception of tabs 19, and
having further shallower notches 20a and 20b for reception of prongs 27 of ornamental shell 9. Said notch 20a is located adjacent one side edge 15c of plate 15, and notch 20b is located between notches 20a and 20b and is approximately twice the width of each tab 19. Notch 18 is deeper than notches 20a and 20b. Notch 20b is somewhat spaced from the other side edge 15c of plate 15.

Plate 15 has an elongated, laterally extending slot 21, the front edge of which is located slightly rearwardly of the longitudinal center of plate 15. Said slot 21 optionally extends nearer to one of the side edges 15c than to the other side edge 15c. Said slot 21 communicates at its rear edge with a notch 22 formed in plate 15. This notch 22 is of substantially the same width as notch 18 and is preferably longitudinally aligned therewith. Said notches 18 and 22 are slightly offset relative to the longitudinal center line of plate 15. Said slot 21 also connects at its front edge with further notches 20a and 20d formed in plate 15. These notches 20a and 20d are similar to notches 20a and 20d and are intended for a similar purpose.

The precise location and spacing of notches 20a, 20b, 20c, and 20d, and of notches 18 and 22, is a matter of convenience and was chosen in the working model to conform to the dimensions of the existing ornamental shell 9 and to the location of prongs 27 thereon. Intermediate slot 21 and the front edge 15b of plate 15, plate 15 is provided with three spaced rectangular holes 24 and 24. The holes 24 are located adjacent the side edges 15c and are of approximately the same width as tabs 17a. Hole 25 is located centrally between holes 24 and is of approximately the same width as tab 17b. The longitudinal distance between the rear edge of notch 22 and the rear edge 15c of center portion 15 is substantially equal to the longitudinal distance between the rear edge of notch 18 and the center of hole 25.

Wings 23a and 23b are notched at 26 adjacent their respective connections with plate edges 15c. Said wings 23a and 23b have a common lateral axis which is substantially the common axis of holes 24 and 24. Wings 23a and 23b are located longitudinally between the rear edge of notch 18 and cut-out 21. In the blank form 14a of Fig. 3, the tabs 19 extend forwardly from wings 23a and 23b adjacent the respective outer side edges thereof.

Fig. 4 shows the manner in which blank 14a is bent to form an individual link 14, prior to the assembly of a plurality of said links. Taking Fig. 2 as a bottom view of a portion of the bracelet, it will be apparent from a comparison of Figs. 3 and 4 that wings 23a and 23b are bent downwardly from their position of Fig. 3 to a condition of parallelism with each other, in which condition they are perpendicular to the plane of plate 15. In addition, tabs 19 are bent until they extend inwardly at right angles to the respective wings 23a and 23b, said tabs 19 being then laterally aligned. Prongs 17a and 17b are bent upwardly until they are perpendicular to plate 15. In addition, as an important part of the erection of link 14 from blank 14a, the portion 15d of plate 15 which is located rearwardly of the front edge of slot 21 is offset slightly upwardly relative to the main portion of plate 15, so that the plane of the offset portion 15d is located slightly above the plane of the main portion 15e of plate 15.

Preferably, the ornamental shell 9 is mounted upon the upper face of the main portion 15e of plate 15 of the individual links. However, for convenience of illustration, the assembled shell 9 is omitted in certain of the views, particularly Figs. 4, 5 and 6, although such shell 9 is shown in Figs. 7 and 8. Said shell 9 is conventional and will not be described in detail. It is merely pointed out that said shell 9 is hollow and has an upper wall and a peripheral side wall, without a bottom wall. In assembly, the lower edge of the peripheral wall or shell 9 rests against the upper face of main plate portion 15c, said peripheral wall having prongs 27 which extend through between notches 20a, 20b, 20c, and 20d and which are bent over, as shown in Fig. 2, to engage frictionally against the lower face of main plate portion 15c.

It will be apparent that these prongs 27 do not interfere with the notches 18 and 22. It will also be apparent that the shape and spacing of notches 20a, 20b, 20c, and 20d and the exact location of the longitudinally registering notches 18 and 22 may be varied slightly, depending upon the exact position of the prongs 27 upon the ornamental shell 9. As previously pointed out, the drawings are somewhat to scale of a working model of the invention and the exact dimensions of link 14 were worked out to accommodate the peripheral wall and prongs 27 of an existing ornamental shell 9.

Links 14, as shown in Fig. 4, but with the addition of the shells 9, may be optionally shipped as separate cuticles of commerce to dealers, such as jewelers, and the dealer may assemble the links by means of simple tools.

Steps in the assembly of the two links 14 are shown in Figs. 5–8, inclusive. For convenience, the two links shown in these views will be designated by the reference characters A and B. The lower face of the main plate portion 15c of link B is placed upon the upper face of the plate portion 15d of link A. The locating prongs 17a and 17b of link A respectively register with and extend upwardly through the respective holes 24 and 25 of link B, the upper ends of said prongs or tabs 17a and 17b being concealed by the covering ornamental shell 9 of link B (Fig. 7).

In the condition of Fig. 7, the upper faces of the plate portions 15e of the respective links A and B are substantially coplanar as the result of the offset nature of plate portion 15f. The notch 22 of link A is located below and in a substantial complete registration with notch 18 of link B.

The completion of the assembly of the two links A and B is shown in Figs. 6 and 8. The wings 23a and 23b of link 13 are merely bent upwardly into substantial parallelism with plate 15, whereby the two tabs or prongs 19 extend through both the registering notches 22 and 18. As a result, the plate portion 15d of link A is clamped between the plate portion 15e and wings 23a and 23b of link B. The upper ends of tabs 19 are concealed by shell 9.

Preferably, the plate portion 15d of link A be completely clamped frictionally between wings 23a and 23b and plate portion 15 of link B; that is, there can be a limited freedom of vertical movement of said plate portion 15d between said plate portion 15e and wings 23a and 23b. Such freedom of vertical is, of course, less than the height of the prongs and tabs 17a, 17b, and 19. This permits a series of said links 14 to assume an overall arcuate shape, such as in Fig. 1, to conform to the shape of wrist 12. However, the tabs 17a and 17b and 19 prevent longitudinal separation of links A and B.

While the prongs 17a, 17b, and 19 are optional, they are highly preferred since they minimize longitudinal play of the links relative to each other.

It will be apparent that any desired number of links 14 may be assembled. Fig. 2 shows the manner in which one link of a chain of links 14 may be secured to the casing of watch 11, and in which the other end link of the chain of links 14 may be secured to the end link of the expansion chain of links 13.

As shown in Figs. 1 and 2, catch 30 is pivoted between ears 31 of the casing of watch 11, the pivot pin being conventional and not shown. Said catch 30 has a portion 32 which extends over the upper face of the plate portion 15e of end link 14, through slot 21 and under plate portion 15d, plate portion 15d being clamped frictionally by said catch portion 32.
The majority of links 13 are provided with rectangular bottom plates 33, which serve as respective bottom closures for shells 9. Respective diagonal arms 34 are pivotally connected at one end to one side of a plate 33, at the center to a succeeding plate 33 and at the other end to a further succeeding plate 33. This is well known and is indicated in Fig. 2, although the details of the connections are omitted. Springs (not shown) which couple arms 34 and plates 33 normally hold the bracket contracts.

End link 13 has a modified bottom plate 33a. Plate 33a has a forward extension 36 at one side thereof which is pivotally connected at 37 to the preceding plate 33, to replace the last arm 34 which is omitted. At its other side, plate 33a has a lateral slot 38 in which the pivot (not shown) of arm 34 may ride. Plate 33a has a rearward extension 39 (shown in broken lines in Fig. 2), which is not shown in detail because it is optionally the same as plate portion 15d, with prongs like prongs 17a and 17b and with a cut-out and grooves like cut-out 21 and grooves 22, 26c and 26d. Hence plate extension 39 may be assembled with an end link 14 in the manner previously described.

In summary, links 14 may be connected to each other as described above in detail. One end link 14 may be connected to catch 30 with ease, because of the close similarity of the central plate portion of link 14 with end links previously used for this purpose. The other end link 14 may be readily connected to the modified bottom plate 33a of the end link 13. Such modified bottom plate 33a requires very little modification from the previously used end bottom plate, the chief modification being the provision of prongs corresponding to prongs 17a and 17b and of a notch corresponding to notch 22 in the previously existing cut-out.

While we have disclosed a preferred embodiment of our invention and have indicated various changes, omissions and additions which may be made therein, it will be apparent that other changes, omissions and additions may be made in the invention without departing from the scope and spirit thereof.

We claim:

1. A unitary blank for a bracelet link, said blank being in the form of a bendable metal plate having a laterally elongated center portion, said center portion having a laterally elongated notch extending to its front edge, a plurality of laterally spaced and aligned holes located rearwardly of said notch, a cut-out located rearwardly of said holes and laterally elongated and parallel to and registering longitudinally with said notch, and prongs extending rearwardly from a rear edge of said center portion in respective longitudinal alignment with respective holes, said blank also having wings extending laterally outwardly from said center portion and disposed longitudinally between the rear edge of said notch and said cut-out, and tabs extending outwardly from the respective wings adjacent the sides thereof, said wings being of appropriate lengths and said tabs being appropriately positioned to enter said notch upon bending said wings toward each other and into parallelism with said center portion and upon bending said tabs toward said center portion into perpendicularity with said wings, the longitudinal distance between the rear edge of said cut-out and the rear edge of said center portion being substantially equal to the longitudinal distance between the rear edge of said notch and the longitudinal center of a hole.

2. A link for assembly into a watchband, said link being formed from a unitary metal blank and having a laterally elongated center portion, said center portion having a laterally elongated notch extending to its front edge, a plurality of laterally spaced and aligned holes located rearwardly of said notch, a cut-out located rearwardly of said holes and laterally elongated and parallel to and registering longitudinally with said notch, and prongs extending upwardly from the rear edge of said center portion in respective longitudinal alignment with respective holes, said link also having wings extending downwardly from the respective side edges and disposed longitudinally between the rear edge of said notch and said cut-out, and tabs extending inwardly from the lower ends of the respective front edges of said wings, said tabs being positioned and adapted to enter said notch upon bending said wings inwardly into parallelism with said center portion, the longitudinal distance between the rear edge of said cut-out and the rear edge of said center portion being substantially equal to the longitudinal distance between the rear edge of said notch and the longitudinal center of a hole.

3. In a watchband, a plurality of links, each link being formed from a unitary bendable metal blank and having a laterally elongated center portion, said center portion having a laterally elongated notch extending to its front edge, a plurality of laterally spaced and aligned holes located rearwardly of said notch, a cut-out located rearwardly of said holes and laterally elongated and parallel to and registering longitudinally with said notch, and prongs extending upwardly from the rear edge of said center portion in respective longitudinal alignment with respective holes, successive links being positioned with the center portion of a first link below and abutting the center portion of the second link and with the prongs of the first link extending through the holes of the second link, the cut-out of the first link and the notch of the second link registering, each said link also having wings extending laterally from the side edges of said center portion and under said, said wings being disposed longitudinally between the rear edge of said notch and said cut-out, the center portion of the first link extending between the center portion and the wings of the second link, said wings respectively having tabs extending upwardly from the front edges thereof, the tabs of the second link extending through the cut-out of the first link and the notch of the second link, said first link having a limited amount of vertical play between the center portion and the wings of the second link, said play being insufficient to withdraw the prongs from the holes and the tabs from the notches.

4. Links according to claim 3, the rear of said center portion including said cut-out being downwardly offset relative to the front of said center portion including said holes, whereby the upper faces of the center portions of the respective links are located respectively in a common plane and whereby the lower faces of the center portions of the respective links are located approximately in a further common plane.

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