June 9, 1931. C. H. KESTENMAN 1,809,277

FLEXIBLE STRAP, BAND, OR LINKAGE

Filed Oct. 23, 1928

Fig. 1.

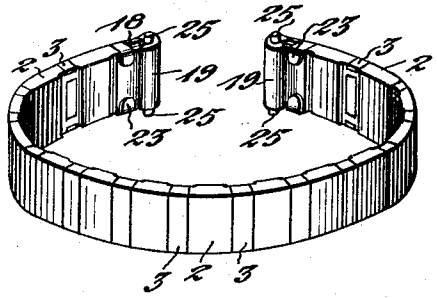


Fig. 2.

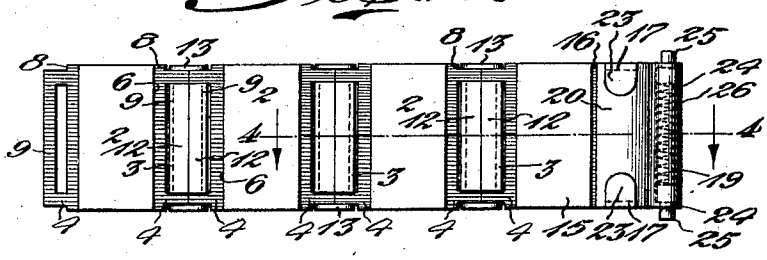


Fig. 3.

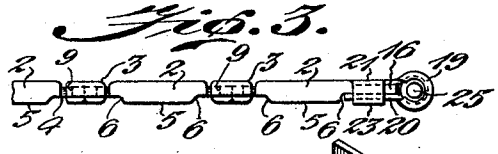


Fig. 4.

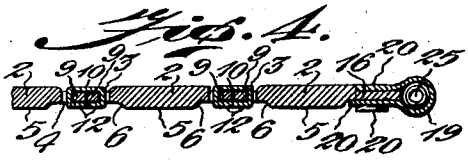


Fig. 5.

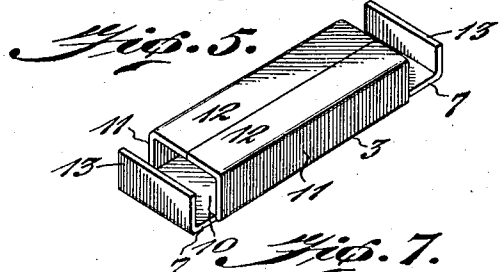


Fig. 6.

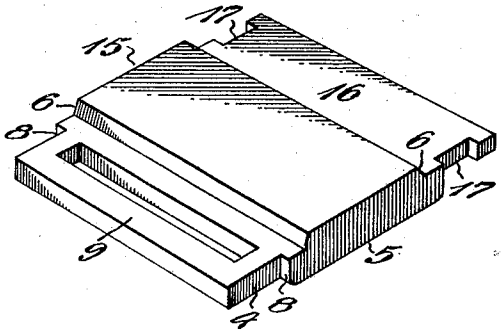
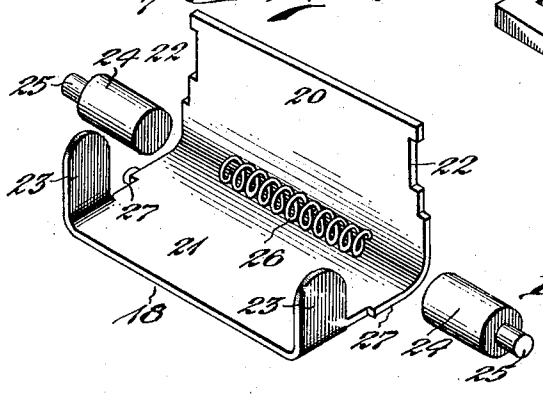


Fig. 7.



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# UNITED STATES PATENT OFFICE

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## FLEXIBLE STRAP, BAND, OR LINKAGE

Application filed October 23, 1928. Serial No. 314,487.

This invention relates to improvements in flexible metal straps, bands or linkages for use in the manufacture of bracelets, chains, belts and like articles of jewelry or adornment.

One object of the invention is to provide a device of the type specified having relatively flat link-units or chain-elements connected together in close association to adapt the strap, band or linkage to flex readily to conform to the contour of the wrist or other part of the body on which it is worn.

Another object of the invention is to provide a device of the type specified in which the articulated link-units or chain-elements are neatly and smoothly joined together without disclosing unsightly seams, and which may be flexed to a considerable extent without revealing open joints.

Another object of the invention is to provide a device of the type specified in which the main link-units or chain-elements are of solid structure to adapted them to be ornamented on the face by enameling, embossing, engraving or by setting jewels therein.

Another object of the invention is to provide a device of the type specified which is strong and sturdy in construction and proof against breakage or dislocation of its parts.

Further objects of the improvement are set forth in the following specification which describes a preferred form of construction of the invention as illustrated by the accompanying drawings. In the drawings:

Fig. 1 is a perspective view illustrating the improved strap, band or linkage embodied in a bracelet for attachment to the sides of a wrist-watch;

Fig. 2 is an enlarged bottom plan view of the end section of the improved strap, band or linkage;

Fig. 3 is a side view of the same;

Fig. 4 is a longitudinal sectional view of the end section of the linkage taken on line 4—4 of Fig. 2;

Fig. 5 is a further enlarged perspective view of the box-like connecting-link of the linkage, showing it in inverted position;

Fig. 6 is a similar perspective view of the end link-element showing it in inverted position or bottom side up; and

Fig. 7 is a composite perspective view showing the connector or end-member of the linkage which adapts it for use as a watch bracelet.

The present improved strap, band or linkage has the general appearance of a series of flat, oblong blocks arranged in abutting relation, and having an unbroken surface on the top and sides devoid of any indication of the mechanical means which connect the parts together. The linkage is composed of a plurality of articulated elements of two different forms, the main element 2 being constructed as a solid plate or block having loops at its sides; and the connecting-elements 3 being of substantially box form to adapt them to engage across the loops of two adjoining main links to connect the parts together.

The main links 2 are stamped out from sheet-metal of substantial thickness to provide a flat plate or block suitable for ornamentation on its upper face; for instance, by applying a baked coating of enamel thereto, or in other cases, by engraving or embossing the surface or setting jewels or brilliants therein. The central or main portion of the link-element 2 takes the form of a rectangular panel 5 having its edges slightly beveled or rounded to heighten the artistic appearance. On either side of the link-element 2 are transversely-extending loops 4 constructed integral with the main body of the element, but preferably reduced in thickness as shown most clearly in Figs. 4 and 6. On the under side of the link-element 2 the loops 3 are recessed back beyond the marginal limits of the central panel 5 of the link, thereby forming beveled shoulders 6 which define the sides of a raised abutment on the bottom of the link. The loops 4 are of oblong contour with their ends recessed or set inwardly from the ends of the central panel 5, thereby forming shoulders 8.

The connecting-links 3, shown in detail in Fig. 5, are preferably constructed from sheet-metal in the form of narrow boxes. They may be struck up from suitably shaped blanks

with a flat top 10, and sides 11 bent at right-angles thereto and folded inwardly to form bottom walls 12 having their ends meeting or abutting in a closed seam. The top 10 of the link 3 is extended at 7 beyond the ends of the side walls 11 and bottom walls 12, and then folded downwardly in a tab or end strip 13 which serves an important purpose as later explained.

In joining the main link-elements 2 together to form the strap, band or linkage, the connecting-links 3 are looped around the cross-bars 9 of the loops 4 on two adjoining elements. It will be understood that when the connecting-links 3 are formed their bottom walls 12 are left standing in alinement with the side walls 11 so that a connecting-link 3 may be assembled with two associated main links 2 by straddling its side walls across the bars 9 of the adjoining loops 4. After the sides 11 of the connecting-link 3 have been inserted through the loops 4 and straddled across the two abutting cross-bars 9, the sides are folded down over the bottom portions of the bars as shown in Fig. 2. The extensions 7 on the top wall 10 of the connecting-link 3 will thereby be caused to rest across the top of the loops 4 with the end strips or tabs 13 overlying the opposite ends of the two connected loops to cover and conceal the joint therebetween. In this manner the main link-elements 2 are hingedly connected to rock or tilt one in relation to the other to permit flexure of the whole band or linkage; the provision of the end tabs 13 serving to cover the joints between the parts so that when they are rocked or canted no open space will be revealed. It is further to be noted that the end tabs 13 fit snugly against the ends of the loops 4 within the recesses formed by the shoulders 8 and thus provide a smooth, unbroken contour on the sides or edges of the bracelet to prevent the latter from catching in the garments, while also enhancing its artistic appearance.

When applied to use as a wrist-watch strap, band or bracelet, the linkage may be supplied with any suitable form of clasp or end-member for connecting it to the sides of the watch. Preferably, the end-member is of the same general construction as the main link-elements of the band. As shown in Fig. 6, the end-link 15 has the general contour of the main-links 2, the only difference being that one of the side loops is displaced by an unperforated portion or ear 16. The ear or projection 16 is of the same size and shape as the loop 4 on the opposite side of the link-element 15, being recessed with notches 17 cut into its opposite ends.

Adapted to be fastened to the ear or projection 16 is an enclosing-member 18 constructed from a sheet-metal blank in the form shown in Fig. 7. The enclosing-member 18 is folded on itself and bent to form a cylindrical loop or tubular barrel 19, with the flat portions of the metal, designated 20 and 21, extending rearwardly therefrom in opposite spaced relation to adapt them to overlie the opposite faces of the ear or projection 16. The bottom flat portion 20 is formed with notches 22 cut into its edges in conformity with the outline at the ends of the ear 16; while the top portion 21 has narrow tabs or fingers 23 bent over from its edges and adapted to be engaged with the notches 17 at the ends of the ear 16. The fingers 23 are folded over the bottom strip 20, as shown at the right in Figs. 3 and 4, to clamp the enclosing-member 18 in place on the end-link 15. The fingers 23 engage with the notches 17 to hold the member 18 fixedly in place on the ear 16, and its top portion 20 being set flush with the top of the end-link 15 provides an unbroken contour on the upper surface thereof.

Slidably held in the barrel 19 at the end of the member 18 are a pair of plunger-pins 24 formed with end-pintles or trunnions 25 adapted for insertion into the holes in the ears which project from the sides of the watch, this construction being in accordance with the usual arrangement of the end-connectors. A spring 26 arranged between the plungers 24 tends to urge them outwardly to maintain the pintles 25 permanently engaged with the holes in the ears on the watch. The plungers 24 are held in place against the pressure of the spring 26 by means of flanges 27 rolled or swaged over from the ends of the barrel 19. In attaching and releasing the end-member of the bracelet from the ears on the watch the plungers 24 are pressed inwardly against the tension of the spring 26 in accordance with the usual custom.

It will be observed from the foregoing that my invention provides a particularly simple and ingenious form of construction for producing straps, bands and linkages adapted for use as bracelets, chains, belts or other articles of jewelry and adornment. The improved construction shown and described renders the device particularly neat and attractive in appearance with a smooth, unbroken surface on its top and sides devoid of unsightly joints, and with the mechanical connections entirely hidden from view.

The strap, band or linkage has the appearance of a series of articulated plates or blocks of alternately varying width, and the main link-elements being of solid construction provide for any preferred form of ornamentation, such as enameling, embossing, engraving or in other cases for setting with jewels.

The improved construction of the linkage is extremely simple, requiring only two elements which may be formed by stamping operations, thus rendering the whole device particularly economical to manufacture.

The linkage is rugged and sturdy in con-

struction and proof against breakage or dislocation of its parts.

The invention also includes an improved form of construction for the end-member or connector employed for the purpose of attaching the strap or bracelet to a wrist-watch.

While I have herein shown and described the device as embodied in a preferred form of construction, various modifications may be made in the shape and arrangement of the parts thereof without departing from the spirit or scope of the invention. Therefore, without limiting myself in this respect, I claim:

1. A strap, band or linkage comprising a plurality of main link-elements having centrally-disposed transversely-extending solid portions with loops at their sides of less thickness than the central portions; and closed box-like connecting-links having portions projecting through the loops on two adjacent main links and bent therearound to hingedly connect the parts, said connecting-links having end portions overlying the ends of the loops on the main links to cover and conceal the joints therebetween and with the overlying portions of the connecting-links in the same plane as the top of the central solid portions of the main link-elements to provide a smooth unbroken upper surface on the linkage.

2. A strap, band or linkage comprising a plurality of relatively flat solid block-like link-elements having narrow loops at their sides of less thickness than the mid portions of said link-elements; and connecting-links of box-like closed box construction enclosing the adjoining cross-bars of the loops on two adjacent main link-elements with their overlying portions flush with the top and bottom of the central portions of the main link-elements and having end portions overlying the ends of said loops to cover and conceal the joints between the parts while presenting a closed structure on its top, bottom and sides.

3. A strap, band or linkage comprising a plurality of block-like link-elements having relatively narrow loops on their sides which are recessed inwardly from the top and bottom faces of the link-element and also recessed inwardly from its ends; and sheet-metal connecting-links each having a top wall overlying the top of the loops on two adjacent block-links flush with the main portion thereof, side walls bent downwardly from the top wall and inserted through the openings in two adjacent loops and folded around the cross-bars thereof to provide bottom walls, said top wall of the connecting-link being extended beyond the ends of its side and bottom walls and folded over to overlie the recessed ends of the loops on the block-links whereby to cover and conceal the joints between the parts.

4. A strap, band or linkage comprising a plurality of solid block-like link-elements having central panels provided with narrow loops on their sides of less thickness than the main portions of the link-elements and recessed inwardly from its ends; and connecting-links each comprising a box-like member folded from sheet-metal with its sides extending through the openings in the adjoining loops on two adjacent block-links and folded across the cross-bars thereof to provide bottom walls having their edges abutting, said connecting-link also having end strips folded to overlie the ends of the loops on the two connected block-links and disposed in the recesses thereof to provide a smooth, flush surface on the top and sides of the strap, band or linkage.

5. In a device of the type specified, the combination of a series of block-like link-elements having loops on their sides; hollow box-like connecting-links enclosing the cross-bars of the loops to connect the block-links in articulated relation; and a connector at the end of the linkage comprising a block-like end-link corresponding to the main link-elements and having a loop on one of its sides for receiving the connecting-link, an ear or projection on its opposite side formed with notches at its ends; a folded strip of sheet-metal bent to form a loop at its ends and having portions abutting the top and bottom of the ear on the end-link, one of said portions being provided with fingers engaging the notches in the ends of the ear and folded over to clamp the parts together.

In testimony whereof I affix my signature.

CHARLES H. KESTENMAN.