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CLASP FOR WATCH-BRACELET OR THE LIKE

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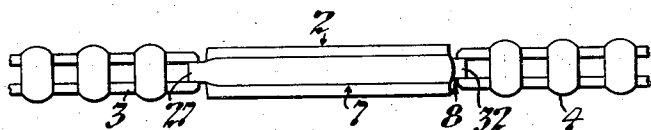


Fig. 1.



Fig. 2.

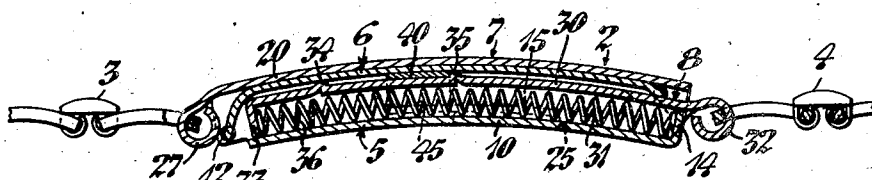


Fig. 3.

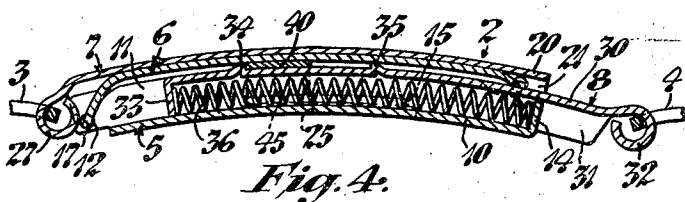


Fig. 4.

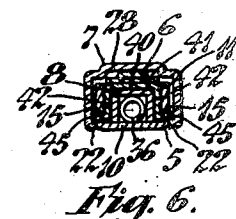


Fig. 6.

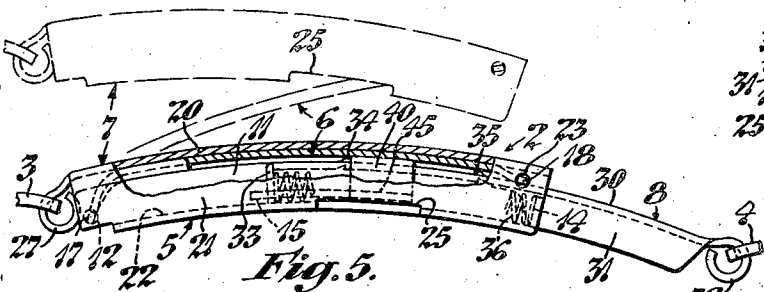


Fig. 5.

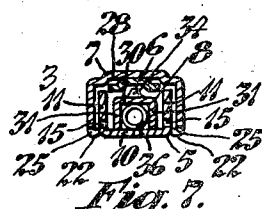


Fig. 7.

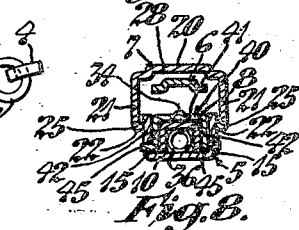


Fig. 8.

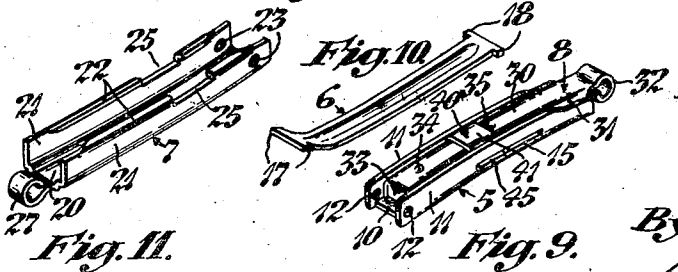


Fig. 10.

Fig. 9.

Fig. 11.

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# UNITED STATES PATENT OFFICE

2,408,279

## CLASP FOR WATCH BRACELETS OR THE LIKE

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Application January 3, 1944, Serial No. 516,765

8 Claims. (Cl. 24—71)

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This invention relates to buckles, clasps and similar connectors for watch-bracelets and the like and particularly to improvements in devices of the type comprising means for automatically adjusting the length of the strap, band or bracelet to yieldingly engage the wrist of the wearer.

One object of the invention is to provide an extensible fastening device of the type indicated which, after the latter has been placed upon the wrist, may be folded and clasped in closed relationship to yieldingly draw the strap or band snugly about the wrist.

Another object of the invention is to provide a fastening device of the type indicated comprising a plurality of hinged sections adapted to be folded in overlying nested relationship to contract the band or bracelet and a resiliently-operated extension element slidable in one of the hinged sections for drawing the bracelet snugly about the wrist of the wearer.

Another object of the invention is to provide a fastening device of the type indicated having means for securely latching the foldable sections in closed relationship and means operable by the slidable extension element when the latter is moved to extreme extended relationship for releasing the latching means to permit unclasping of the device.

Another object of the invention is to provide in a fastening device of the type indicated, a latching element slidably arranged in one of the foldable sections and means on the slidable extension element for sliding the latching element in one direction to engage it with means on another of the foldable sections to latch the several sections in closed relationship and in the opposite direction to disengage the latching element to permit the sections to be unfolded.

Another object of the invention is to provide in a fastening device of the type indicated, latching means which act to positively lock the foldable sections in closed relationship whereby to guard against accidental or unwarranted release of the clasp and loss of the bracelet from the wrist of the wearer.

Further objects of the invention are set forth in the following specification which describes a preferred form of construction of the device, by way of example, as illustrated by the accompanying drawing. In the drawing:

Fig. 1 is a plan view showing the parts of a bracelet chain or linkage having its ends fastened together by the present improved extensible clasp or connector;

Fig. 2 is a view similar to Fig. 1 shown in en-

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larged scale to more clearly illustrate the mechanical elements within the clasp;

Fig. 3 is a longitudinal sectional view of the clasping device taken on line 3—3 of Fig. 2 and showing the parts in clasped relationship and the resiliently-operated extension member in contracted position;

Fig. 4 is a view similar to Fig. 3 showing the extension member as extended or slid outwardly to expand the length of the bracelet;

Fig. 5 is a part-sectional view similar to Figs. 3 and 4 indicating the manner in which the latching element is slid longitudinally by the extension member to unlock the parts of the fastening device and indicating in dashlines the manner of unfolding the sections of the device;

Fig. 6 is a transverse sectional view of the folded fastening device taken on line 6—6 of Fig. 2 and showing the latching element in engagement with the top or cover member of the device to lock the foldable sections in closed relationship;

Fig. 7 is a view similar to Fig. 6 taken on line 7—7 of Fig. 2 and illustrating the opening in the cover member through which the latching element is withdrawn to unlock the foldable members or sections;

Fig. 8 is a view similar to Fig. 7 showing the parts of the fastening device as partly unfolded;

Fig. 9 is a perspective view of the base or bottom member of the clasp showing the resiliently-operated extension member and the latching element as slidably mounted therein;

Fig. 10 is a perspective view of the intermediate member of the fastening device shown in inverted position; and

Fig. 11 is a perspective view of the cover or top member of the fastening device shown in inverted position.

The present improved extensible clasp or fastening device 2 is shown in Fig. 1 as applied to use with the parts 3 and 4 of a bracelet composed of articulated links but in other cases it may be employed with fabric or leather cords. The clasp may comprise, in general, three cooperating foldable extension members, namely, a base member 5, an intermediate or connecting member 6 and a top member or cover 7 with the several members hinged together to adapt them to be folded into overlying nested relationship, and a resiliently-operated extension member 8 slidable in the base member for permitting limited expansion or contraction in the length of the bracelet after the parts of the clasp have been folded into closed relationship. The various members of the device may be constructed as stampings struck up

from sheet-metal stock and curved to conform to the contour of the wrist of the wearer.

The base member or section 5, see Fig. 9, is of trough-shape as constituted by a bottom plate 10 having side walls 11 folded upwardly therefrom, see also Fig. 7. At one end of the member 5 the side walls 11 are apertured, as shown at 12 in Fig. 9, for a purpose to be explained hereinafter, and at the opposite end of the member the bottom wall 10 is extended in an ear 14, see Fig. 4, which is bent upwardly during the assembly of the parts to provide an abutment for a spring 36 to be described later. The side walls 11 are further provided with elongated slots or openings 15 used for a purpose to be explained.

The intermediate or connecting member 6, shown in detail in Fig. 10, may consist of a metal strip having an embossed central portion or longitudinal rib for reinforcing or strengthening the structure and provided with laterally-projecting lugs 17 and 18 at its opposite ends. The lugs 17 are adapted to be received in the apertures 12 in the side walls of the base member 5 whereby to pivot the connecting member 6 to the base.

The top member or cover 7 is of channel-shape as constituted by a top plate 20 and side walls 21 folded downwardly therefrom. The side walls 21 are folded inwardly at the bottom to provide opposite detent-flanges or ledges 22, see Figs. 6 and 11, which extend throughout substantially the entire length of the cover 7. At one point the lower ends of the side walls 21 and the flanges 22 are cut away to provide relatively narrow openings or slots 25, see Figs. 5, 7, 8 and 11. The slots 25 are located near one end of the cover member 7 and at this end the side walls 21 have apertures 23, as shown in Fig. 11, adapted to receive the lugs 18 of the intermediate member 6 to pivotally connect the latter to the cover. At the opposite end of the member 7 the top wall 29 extends beyond the side walls 21 and is curled around to provide a loop 27 for connection with the crossbar of the end link of the bracelet-section 3, see Fig. 3. The top wall 29 of the cover member 7 may be embossed along its center to provide a longitudinally-extending rib-portion thus forming a recess 28 in the under side thereof into which the similar ribbed portion of the intermediate member 6 may nest when the sections 7 and 6 are folded into overlying relationship as shown in Fig. 6.

With the bottom member 5 and cover member 7 hingedly connected by means of the intermediate member 6, the parts are adapted to be folded, one over another, in nested relationship and to be unfolded in the manner indicated by the dash-lines in Fig. 5 to extend the length of the clasp and permit expansion in the total length of the bracelet to which it is applied.

To provide for further expansion in the length of the clasp 2 to adapt the watch-bracelet to be removed conveniently over the hand of the wearer, the slidable extension member 8 is employed. The extension member 8 is of inverted trough-shape as constituted by a top wall 30 and side walls 31 folded downwardly therefrom, see Figs. 3 and 7. At one end of the member 8 its top wall is extended in an ear which is curled around to form a loop 32, see Fig. 9, for receiving the crossbar of the end link of the bracelet-section 4. At the opposite end of the member 8 its top wall 30 is extended in a tab 33 which is bent downwardly as shown in Figs. 75

3, 4 and 9 to provide an abutment. The top wall 30 is further provided with a pair of spaced upwardly-projecting protuberances or teats 34 and 35 formed by indenting the metal from the under side thereof. The extension member 8 is slidably mounted between the side walls 11 of the base member 5 and adapted to be contracted longitudinally into the base by means of the helical spring 36, previously mentioned, which is pocketed within the member. One end of the spring 36 bears against the fixed abutment 14 on the base member 5 while its opposite end engages the depending abutment 33 of the slidable extension member 8.

The extension member 8 is held in place in the base-member 5 with the lower end of its side walls 31 resting upon the bottom wall 10 of the base and its side walls spaced slightly from the side walls thereof by means of a latching element 40. As shown in Fig. 8, the latching element consists of a strip of sheet-metal folded into inverted U-shape to provide a top wall 41 spanning the top wall 30 of the extension member 8 and side flanges 42 folded downwardly and straddling the side walls 31 of the latter. The lower ends of the flanges 42 are bent outwardly to provide laterally-extending latching fingers 45 projecting through the longitudinal openings 15 in the side walls 11 of the base member 5 and slightly therebeyond, see Figs. 6, 8 and 9. The latching element 40 is adapted to be slid longitudinally of the base member 5 with its latching fingers 45 riding in the slots 15 thereof.

In assembling the extension member 8, spring 36 and latching element 40 in the base member 5 the extension member first may be slid into the base and the latching element placed thereover between the lugs 34 and 35. The latching fingers 45 of the element 40 may be inserted through the slots 15 of the base 5 by springing its side walls 11 outwardly. With the extension member 8 and latching element 40 thus mounted in the base member 5 the spring 36 next is assembled in place by inserting it into the extension member, compressing it slightly and thereafter bending the ear or abutment 14 upwardly from the bottom wall 10 of the base member. With the spring 36 thus compressed between the abutment 14 of the base 5 and the abutment 33 of the extension member 8, it will act normally to slide the extension member inwardly to contract the length of the bracelet. As the extension member 8 approaches its innermost position under the action of the spring 36, the protuberances 35 thereon will engage the edge of the latching element 40 to slide the latter inwardly. When the extension member 8 is withdrawn from the base member 5 in approaching the furthest extent of its outward movement its protuberance 34 will engage against the opposite edge of the latching element 40 to withdraw the latter with its latching fingers 45 sliding in the slots 15 of the base, the purpose of this arrangement and cooperation of the elements being explained hereinafter.

In applying the bracelet to or removing it from the wrist the present improved clasp operates in the manner as next explained. The bracelet is placed on the wrist by passing it over the hand while the several foldable sections 5, 6 and 7 of the clasp 2 are in extended relationship. Thereafter the parts 5, 6 and 7 are folded into overlying relationship in the manner indicated partly by dash-lines in Fig. 5 and the parts 6 and 7 nested within the cover member 7. It will be

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noted by reference to Figs. 3, 6 and 7 that the intermediate member 6 fits within the longitudinal recess 28 in the under side of the cover member 7 and is spaced above the base member 5 throughout the greater portion of its length to permit sliding movement of the latching element 40 in the space therebetween. It will also be observed that the recessed under side of the intermediate member 6 provides clearance for the upstanding protuberances 34 and 35 on the slideable extension member 8.

Assuming that during the folding of the sections 5, 6 and 7 of the fastening device the slideable extension member 8 is in contracted position its protuberances 35 will be engaged with the edge of the latching element 40 to maintain the latter in the position shown in Figs. 2 and 3 with its fingers 45 abutting the left-hand end of the slots 15 in the side walls 11 of the base member 5. As the base member 5 and intermediate member 6 are nested within the cover member 7 the laterally-projecting latching fingers 45 of the element 40 will be caused to ride upwardly across the edges of the detent-flanges or ledges 22 and finally snap into position thereabove, see Fig. 6. As the latching fingers 45 ride across the flanges 22 the side walls 21 of the cover member 7 will yield or spring outwardly slightly to permit such action. The latching fingers 45 thus will be engaged with the detent-flanges or ledges 22 and because of the fact that the fingers extend through the slots or openings 15 in the side walls 11 of the base member 5 the sections 5 and 7 of the device will be securely latched or locked together to prevent accidental unfolding of the clasp members.

As the several sections 5, 6 and 7 are folded into overlying nested relationship the bracelet sections 3 and 4 will be drawn together to contract the length of the bracelet to adapt it to fit snugly about the wrist of the wearer. If the bracelet encircles the wrist too tightly the extension member 8 will be automatically withdrawn slightly from the base member 5 against the tension of the spring 36 to expand the length of the bracelet and effect a more comfortable fit thereof on the wrist. The extension member 8 will also be permitted to slide back and forth in the base member to different positions as indicated in Figs. 3 and 4 to automatically compensate for expansion and contraction of the wrist when the latter is bent or flexed. During this slight longitudinal movement of the extension member 8 in either direction the latching element, being constructed as a separate part from and having no direct connection with the extension member, will remain in the position in which it was initially located, due to friction between its fingers 45 and the detent-flanges 22, so as to effectively maintain the sections of the fastening device in closed relationship.

To open the clasp 2 to remove the bracelet from the wrist the end of the extension member 8 is withdrawn manually from the base member 5 to the position shown in Fig. 5 against the tension of the spring 36. As the extension member 8 approaches the furthest extent of its outward sliding movement its protuberance 34 will engage the inner edge of the latching element 40 to slide the latter to the position shown in Fig. 5, whereupon its fingers 45 will be located opposite or directly above the openings 25 in the cover member 7. With the parts in this relationship the cover member 7 may be swung upwardly, in the manner indicated by the dash-lines in Fig. 5,

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to unfold the sections of the clasp. It will be understood that as the cover member 7 is lifted the projecting ends of the latching fingers 45 will ride through the openings 25, see Fig. 8, to permit such unfolding of the parts of the clasp. With the sections 5, 6 and 7 unfolded and extended in aligned relationship the extension member 8 may be released and the spring 36, acting between the fixed abutment 14 on the base member 5 and the abutment ear 33 on the extension member, will again slide the latter into the base member. Unfolding of the sections 5, 6 and 7 of the clasp 2 extends the length of the clasp and expands the total length of the bracelet sufficiently to permit it to be removed over the hand of the wearer.

It has been explained that during the folding of the parts 5, 6 and 7 of the clasp into nested relationship the latching element 40 is positioned toward the left as viewed in Fig. 3 to cause its fingers 45 to snap across and overlap the detent-flanges 22. However, if desired, the extension member 8 may be held in its extended position as shown in Fig. 5 during the closing of the parts of the clasp so that the latching fingers 45 will pass through the openings 25 in the side walls 21 of the cover member 7. Thereafter, the extension member may be slid manually into the base member 5 to cause its protuberance 35 to engage the latching element 40 and slide the latter from the position shown in Fig. 5 to that illustrated in Figs. 2 and 3 with the fingers 45 riding in the slots 15 of the base member. Thus, the latching element is positioned to locate its latching fingers 45 above the detent-flanges or ledges 22 to thereby lock the parts of the clasp in closed relationship.

It will be observed from the foregoing specification that the present invention provides an extensible fastening device for wrist-watch bracelets and the like having a novel form of interlocking detents for retaining the articulated sections in nested relationship. It will be observed further that the invention provides a fastening device having a resiliently-operated slideable extension member for automatically drawing the bracelet snugly around the wrist of the wearer; and a separate latching element slideable in the clasp and operated by the extension member when the latter is slid to its furthest extent of expansion to unclasp the device. It will be observed further that the separate slideable latching element is frictionally held in latching position without the assistance of a spring or other means. This provides that the spring for operating the slideable extension member may be constructed of relatively light wire with a maximum number of convolutions to permit freer expansion of the bracelet within certain limits. This feature constitutes an improvement over devices of other construction wherein the latching fingers are formed integral with the slideable extension member, thus requiring a relatively strong spring for limiting the movement of the extension member to prevent unwarranted release of the latching means. Moreover, the provision of a separate latching element eliminates the frictional resistance to the normal sliding action of the extension member which is encountered when the latching means is formed as a part of and moved with the extension member during limited extension and contraction of said member.

While the improved device is herein illustrated and described as embodied in a preferred form of construction, it is to be understood that modi-

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fications may be made in the structure and arrangement of its parts without departing from the spirit or scope of the invention. Therefore, without limiting myself in this respect, I claim:

1. A clasp or connector for wrist-watch bracelets and the like comprising a plurality of sections hinged together to fold into nested relationship, an extension member slidable in one of said sections, resilient means for normally maintaining said extension member in contracted relationship, latching means on one of said sections, a movable latching element on another section engageable with said latching means to lock the several sections in folded relationship, means on the extension member operative on the latching element to engage it with the latching means when the extension member is contracted within the section in which it is mounted, and other means on the extension member operative on the latching element to release it from the latching means when the extension member is extended to the limit of its outward sliding movement.
2. A clasp or connector for wrist-watch bracelets and the like comprising a plurality of articulated sections foldable into overlying nested relationship, an extension member slidable in one of said sections for expanding and contracting the length of the bracelet, resilient means for resisting the outward sliding movement of the extension member, longitudinally-extending latching means on one of the sections, a latching element slidable in another section and engageable with the latching means on the first-named section to lock the sections in nested relationship, means on the slidable extension member for operating the latching element to engage it with the latching means when said extension member is slid into contracted relationship in the first-named section, and means on the slidable extension member engageable with the latching element as said extension member approaches the limit of its outward sliding movement to slide the latching element and disengage it from the latching means to unlock the foldable sections.
3. A clasp or connector for wrist-watch bracelets and the like comprising a plurality of articulated sections foldable into overlying nested relationship, a longitudinally-extending latching ledge on one of said sections, an extension member slidable in another of said sections to expand the bracelet, resilient means for resisting the sliding movement of the extension member, a latching element slidable in said last-named section and engageable with the latching ledge for locking the several sections in closed relationship, means on the extension member engageable with the latching element when said extension member is slid into contracted relationship to move the latching element in one direction to cause it to engage the latching ledge and means on the extension member engageable with the latching element when the extension member is slid into extended relationship whereby to move the latching element to disengage it from the latching ledge.
4. A clasp or connector for wrist-watch bracelets comprising a base member, an intermediate member and a cover member, said members being hingedly connected to adapt them to be folded into overlying nested relationship, an extension member slidable in the base member, resilient means for contracting the extension member within the base member while permitting it to be extended therefrom, a latching ledge on the cover member, a latching element slidable in the

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base member and provided with means engageable with the latching ledge to lock the foldable members in closed relationship, means on the extension member engageable with the latching element when said extension member is contracted into the base member to move the latching element in one direction to engage it with the latching ledge and means on the extension member for engaging the latching element when said extension member is extended from the base member to move said latching element in the opposite direction to release said latching element from the ledge to unlock the clasp members to permit them to be unfolded.

5. A clasp or connector for wrist-watch bracelets comprising a base member, an intermediate member and a cover member, said members being pivotally connected to adapt them to be folded into overlying nested relationship, longitudinally-extending latching ledges on the cover member, longitudinally-extending slots in the base member, a latching element provided with fingers slidable in the slots in the base member, an extension member slidable in the base member, resilient means acting between the base member and extension member to normally retract the latter into the clasp to contract the length of the bracelet while permitting it to be withdrawn to expand the length thereof, and spaced protuberances on the extension member, one of said protuberances being engageable with the latching element when said extension member is slid into the base member whereby to move the latching element in one direction to engage its fingers with the latching ledges to lock the foldable members in closed relationship and the other protuberance being engageable with the latching element when said extension member is extended from the base member to move said latching element in the opposite direction to release the fingers from the ledges to permit the members to be unfolded.

6. A clasp or connector for wrist-watch bracelets comprising a base member, an intermediate member and a cover member, said members being pivotally connected to adapt them to be folded into overlying nested relationship, longitudinally-extending latching ledges on the cover member, longitudinally-extending slots in the base member, an extension member slidable in the base member and provided with spaced projections, resilient means acting between the base member and extension member for normally sliding the latter into the base member to contract the length of the bracelet while permitting it to be extended to expand the length thereof, and a latching element spanning the extension member between the projections thereon and provided with latching fingers slidable in the slots in the base member, one of said projections engaging the latching element to slide it in a direction to carry its fingers into locking engagement with the latching ledges as the extension member is slid into the base member and the other of said projections being engageable with the latching element as the extension member is moved outwardly to the limit of its sliding movement to slide said latching element to release its fingers from locking engagement with the ledges to unlock the clasp members and permit them to be unfolded.

7. A clasp or connector for wrist-watch bracelets comprising a base member, an intermediate member, a cover member, said members being hingedly connected to adapt them to be folded into overlying nested relationship, an extension member slidable in the base member and provided

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with longitudinally-spaced projections, resilient means acting between the base member and extension member for urging the latter into the clasp to contract the length of the bracelet while permitting it to be withdrawn therefrom to expand the length thereof, longitudinally-extending latching ledges on the cover member provided with openings, longitudinally-extending slots in the base member, and a latching element extending transversely of the extension member between the projections thereon and provided with latching fingers slidable in the slots in the base member, one of the projections of the extension member being engageable with the latching element to slide the latter to engage its latching fingers with the ledges of the cover member to lock the foldable members in closed relationship and the other of said projections being engageable with the latching element to slide the latter as the extension member is withdrawn to the limit of its outward sliding movement to position the fingers opposite the openings in the ledges of the cover member whereby to permit them to be withdrawn therethrough to unlatch the foldable members.

8. A clasp or connector for wrist-watch bracelets comprising a base member, an intermediate member and a cover member, said members being pivotally connected to adapt them to be folded into overlying relationship, longitudinally-ex-

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tending slots in the base member, longitudinally-extending latching ledges on the cover member, an extension member slidable in the base member and formed with longitudinally-spaced up-  
 5 standing protuberances, resilient means acting between the base member and extension member for normally sliding the latter into the base member to contract the length of the bracelet and yieldable to permit the extension member to be  
 10 extended to expand the length thereof, and a latching element extending transversely of the extension member between the protuberances thereof and provided with latching fingers slid-  
 15 able in the slots in the base member, said latching element being of lesser width than the space between the protuberances whereby to permit relative sliding movement between the extension member and latching element, one of said pro-  
 20 tuberances being engageable with the latching element as the extension member is slid into contracted relationship to carry the latching fingers into locking engagement with the latching ledges  
 25 and the other protuberance being engageable with the latching element as the extension member approaches the limit of its outward sliding movement to withdraw the fingers from the ledges to unlock the several clasp members whereby to permit the members to be unfolded.

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