

Oct. 26, 1937.

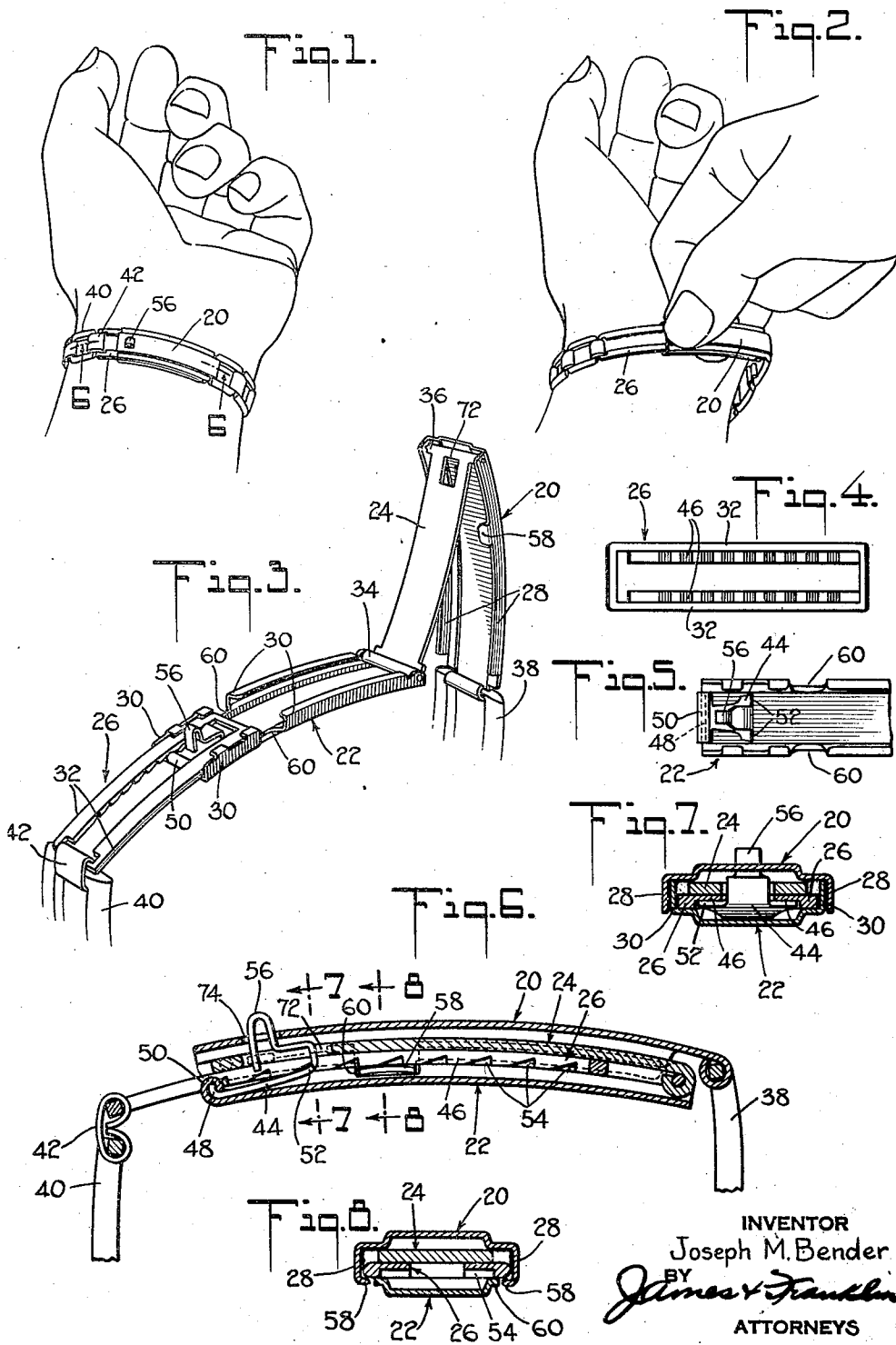
J. M. BENDER

2,097,055

EXTENSIBLE BRACELET CLASP

Filed July 14, 1937

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Fig. 9.

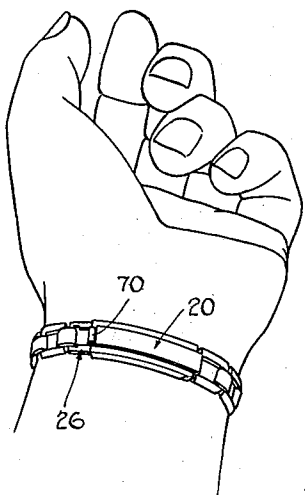


Fig. 10.

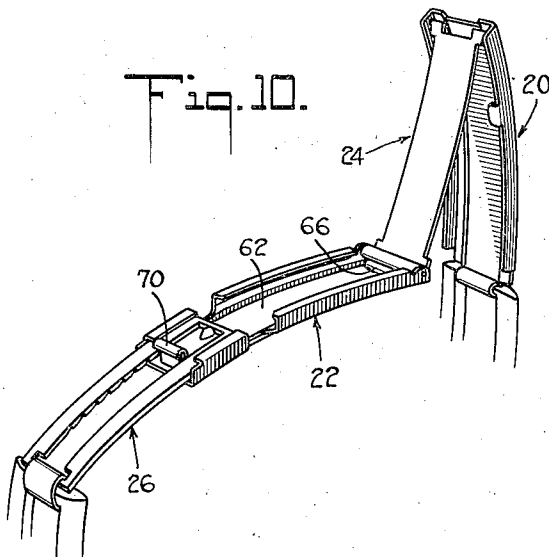


Fig. 11.

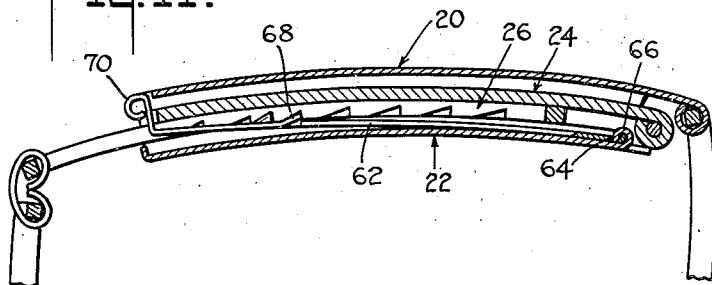
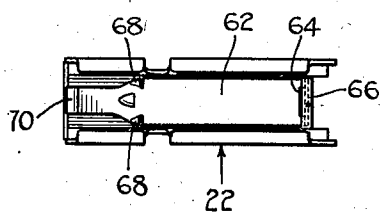


Fig. 12.



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UNITED STATES PATENT OFFICE

2,097,055

EXTENSIBLE BRACELET CLASP

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Application July 14, 1937, Serial No. 153,650

10 Claims. (Cl. 24—71)

This invention relates to an extensible clasp, and more particularly to an improved extensible bracelet clasp. This application is a continuation-in-part of my application Serial No. 115,938, filed December 15, 1936.

A well known type of extensible bracelet clasp comprises a plurality of sections hinged one to the other to fold together and to unfold for respectively closing and opening the clasp, and a section slidable in one of said hinged sections for adjusting the clasp to a desired contracted or expanded condition to fit the wrist of the user. To lock the clasp in folded condition, suitable sections of the clasp are provided with snap-fit interengaging elements; and to unlock the clasp to move the parts to unfolded condition it is necessary to pry up one of the sections against this snap-fit interengagement, this being usually accomplished by the finger nail of the user. In clasps of this type means are also provided for locking the relatively slidable sections in wrist adjusted position; and in one class of such devices the locking means are incorporated in the relatively slidable sections and such means are usually provided with a finger engaging element operable for releasing the locking means. By engaging this element and releasing the locking means, the clasp sections may be moved to expanded condition and by prying up one of the folded sections and releasing the snap-fit engagement, the clasp sections may be moved to unfolded and opened condition.

A prime object of the present invention pertains to the provision of an extensible bracelet clasp of the class described in which the parts are organized so that the closing and opening (folding and unfolding) and the wrist adjusting (contracting and expanding) of the clasp sections may be effected with great facility and with elemental simplicity. By means of the construction of the present invention, the control for opening (and closing) and for wrist adjusting the clasp sections is localized at one region of the clasp, and the expanding and unfolding of the sections are effected by a simple finger depressing operation. By the provision of this construction it thereby becomes unnecessary to provide means at different parts of the clasp for unlocking the same (to accomplish expanding and unfolding of the sections), and it becomes unnecessary to employ the finger nail of the user for either or both of such unlocking means. In the clasp structure of my present invention, the localized control means are, moreover, so related to the clasp sections that a very efficient

means is provided for locking the clasp sections in a folded condition and in a wrist adjusted position.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, my invention is directed to the extensible bracelet clasp combination sought to be defined in the appended claims and described in the following specification. The specification is accompanied by drawings in which:

Fig. 1 is a view showing the improved clasp of the present invention applied in adjusted position on the wrist of a user;

Fig. 2 is a view showing the manner in which the clasp is operated to move the parts to expanded and unfolded condition for removal from the wrist of the user;

Fig. 3 is a perspective view thereof showing the sections of the clasp moved to an expanded and unfolded (opened) condition;

Fig. 4 is a detail view thereof showing the slidable section detached from the other sections;

Fig. 5 is a fragmentary detail view of the bottom section of the clasp;

Fig. 6 is a longitudinal cross-sectional view of the clasp shown on an enlarged scale and showing the parts in closed (folded) and wrist adjusted (contracted) condition;

Fig. 7 is a view taken in cross-section in the plane of and in the direction indicated by the line 7—7 of Fig. 6;

Fig. 8 is a view thereof taken in the plane of and in the direction indicated by the line 8—8 of Fig. 6;

Fig. 9 is a view similar to Fig. 1 and showing a modified form of clasp structure;

Fig. 10 is a perspective view of this modification with the parts shown in expanded and unfolded condition;

Fig. 11 is a longitudinal cross-sectional view of this modification with the parts shown on an enlarged scale; and

Fig. 12 is a view showing the bottom section of the clasp of this modification.

Referring now more in detail to the drawings and having reference first to the form of the invention shown in Figs. 1 to 8 thereof, the extensible clasp of the present invention comprises a top section 20, a bottom section 22, a connecting section 24, the said mentioned sections being hinged one to the other to fold together and to unfold for closing and opening the clasp, and a section 26 slidable in said bottom section 22 for adjusting the clasp to a desired contracted

or expanded condition. These sections may be made from suitable sheet stock and are given a suitable curved contour so that they may nest together and fit the wrist of the hand. The connecting section 24 and the sliding section 26 are preferably made of thin flat stock while the top section 20 is provided with the depending side walls 28 and the bottom section 22 is provided with the upstanding side walls 30 so that when these side walls move to telescoping position, as shown for example in Fig. 7 of the drawings, the top and bottom sections 20 and 22 form a housing for the connecting and slidable sections 24 and 26 as well as for the other parts of the clasp.

To mount the section 26 slidably in the bottom section 22, the walls 30, 30 are channeled, as best shown in Fig. 3, these channel walls forming guide tracks for the side edges 32, 32 of the slidable section 26. For hinging the foldable sections together, any conventional hinge elements, such as shown at 34 and 36, may be provided. The free end of the top clasp section 20 is hingedly connected to the end link 38 of the bracelet, and the free end of the slidable section 26 is hingedly connected to the opposite end link 40 of the bracelet by conventional means such as by an enclosing band element 42.

Means are provided for locking the sections of the clasp in any of its desired adjusted positions, and this means comprises elements incorporated in the relatively slidable sections of the clasp. These locking elements consist of pawl and toothed means and comprise specifically a pawl element 44 fitted to the bottom section 22 and one or more toothed elements 46, preferably formed integrally with the slidable section 26. The pawl element 44 is preferably a resilient member having an end 48 anchored to the curled end 50 of the bottom section 22, and having at its other end two pawl elements 52, 52 which mate with the series of notches 54, 54 of the toothed elements 46, 46. This construction defines a spring pawl and ratchet mechanism for locking the relatively slidable sections in any wrist adjusted position.

For unlocking the pawl and ratchet mechanism (and for controlling the opening and closing of the clasp as will be shown hereinbelow), I provide a finger operated member which is localized at one region of the clasp, and the operation of which is effected by a simple finger depressing action. This finger operated member is exposed at the top face of the top section, as clearly shown in Fig. 1 of the drawings, and comprises a member 56 located at that part of the clasp which is the first to partake of the unfolding action of the clasp sections. This finger operated member 56 is connected to and is preferably formed integrally with the pawl element 44 and is constructed to extend upwardly through the clasp sections to a region adjacent the hinge 36 (joining the top and connecting sections), the top of said member comprising a finger depressible part which is exposed at and projects above the top face of the top clasp section 20. It will be apparent that upon simply depressing the member 56 by the thumb or by engaging the parts between the thumb and forefinger (as shown in Fig. 2), the pawl element 44 is depressed and the slidable section 26 is thereby released for movement to an expanded position of the sections.

For locking the sections in a folded condition, I provide means comprising a part in said top

section 20 engaged by a part of said slidable section 26 when said slidable section is in or is moved to a contracted position. Stated otherwise, such locking means comprises dovetailing parts in the top section 20 and bottom section 22 and a part in said slidable section 26 acting as a bolt for interlocking the dovetailing parts when the slidable section is in or is moved to a contracted position. More specifically, this comprises oppositely intumed fingers 58, 58 formed integrally with the depending side walls 28 of the top section 20 which are received by the cut-out parts 60, 60 of the channel side walls 30, 30 of the bottom section 22, and which, therefore, dovetail with the channel side walls 30, 30 when the parts are moved to folded condition. With this construction it will be noted that the sections may be locked in either of two ways. Firstly, with the sections in an unfolded condition, the slidable member 26 may be first moved inwardly (contracted) to some wrist adjusted position after which the sections 20 and 24 are moved to folded condition and then finally snapped into locked condition; the fingers 58, 58 snap-fitting over the side edge walls 32, 32 of the now contracted member 26 in the final step of this operation. Secondly, with the member 26 in its outermost position (see Fig. 3), the sections 20 and 24 may be first moved to the folded condition after which the slidable section 26 is moved inwardly to the wrist adjusted position; inward or contracting movement of the slidable section 26 to any extent serving (by riding over the fingers 58, 58) to lock the parts in the folded condition. The fingers 58, 58 are suitably contoured (curved and edges rounded) to most efficiently permit either and both of these locking methods. To unlock the parts to permit movement thereof to the unfolded condition, the slidable section 26 must first be moved outwardly to its outermost position as shown in Fig. 3 of the drawings.

It follows from this recited construction that the control for opening (and closing) and for wrist adjusting the clasp sections is localized at one region of the clasp, and the expanding and unfolding of the sections are effected by a simple finger depressing operation. It thereby becomes unnecessary to provide means, as in prior art devices, at different parts of the clasp for unlocking the same to accomplish the expanding and unfolding of the sections, and it becomes unnecessary to employ the finger nail of the user for either or both of such unlocking operations. To expand and unfold the bracelet sections the user need but depress the single finger operated element 56. The pawl and toothed elements are thereby released, permitting the slidable section 26 to move to the outer or expanded position shown in Figs. 2 and 3 of the drawings. This movement unlocks the parts for unfolding operation. The thumb of the operator, still located at the region of the member 56, may then be used to initiate the unfolding movement, the initiation taking place at the part of the clasp where the finger operated member 56 is located.

In Figs. 9 to 12 of the drawings I show a modification of the clasp of my invention in which the pawl element and the finger depressible portion are somewhat differently disposed than the corresponding element and member shown in the modification of Figs. 1 to 8 of the drawings. Otherwise the parts of the clasp shown in the modified form in Figs. 9 to 12 are substantially the same as those shown of the structure in Figs.

1 to 8, and such parts are designated by similar reference characters. In this modified form the pawl member comprises an elongated resilient element 62 anchored at its rear end 64 to an in-turned curled part 66 of the bottom section 22 and provided at its front end with the pawl elements 68, 68. The finger operated element 70, which is preferably formed integrally with this resilient pawl element, extends beyond the end of the bottom member 22 and is constructed to extend through the slidable member 26 (as in the first form of the invention), the said member extending upwardly just beyond the ends of the top section 20 and connecting section 24, as is clearly shown in Figs. 9 and 11 of the drawings. In the form of the invention shown in Figs. 1 to 8, the finger depressible member (56) extends upwardly through the bodies of the top section 20 and connecting section 24, these bodies being provided for this purpose with the registering openings 72 and 74. In the modification (Figs. 9 to 12) no openings in the bodies of these sections need be provided. The finger depressible part of the finger operated member is nevertheless localized adjacent the hinge connecting the top and connecting sections, thus accomplishing all of the advantageous results obtained in the form of the invention shown in Figs. 1 to 8. The operation of the structure of this modified form of the invention is otherwise the same as that described in connection with Figs. 1 to 8 of the drawings.

The method of use, the operation and the advantages of the extensible clasp of the present invention will in the main be fully apparent from the above detailed description thereof.

It will be apparent that while I have shown and described my invention in a preferred form, many changes and modifications may be made in the structure disclosed without departing from the spirit of the invention defined in the following claims.

I claim:

1. An extensible clasp comprising a top section, a bottom section, a connecting section, the said mentioned sections being hinged one to the other to fold together and to unfold for closing and opening the clasp, a section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, means in said bottom and slidable sections for locking the sections in adjusted positions, and a finger operated member for said locking means extending upwardly from said bottom and slidable sections and being exposed at the top face and at an end of said top section.
2. An extensible clasp comprising a top section, a bottom section, a connecting section, the said mentioned sections being hinged one to the other to fold together and to unfold for closing and opening the clasp, a section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, the top and bottom sections mating to form a housing for the other sections, means in said bottom and slidable sections for locking the sections in adjusted positions, and a finger depressible member for said locking means extending upwardly from said bottom and slidable sections and being exposed at the top face of said top section at the end of the latter adjoining the slidable section.
3. An extensible clasp comprising a top section, a bottom section, a connecting section, the said mentioned sections being hinged one to the other to fold together and to unfold for closing and opening the clasp, a section slidable in said

bottom section for adjusting the clasp to a desired contracted or expanded condition, a spring controlled pawl element on said bottom section, a cooperating toothed element on said slidable section, the pawl and toothed elements comprising means for locking the sections in desired adjusted position, and a finger operated member connected to said pawl element for releasing the locking means, said member extending upwardly from said sections to a region adjacent the hinge joining the top and connecting sections and having a finger engaging part exposed in such region at the top face of said top section.

4. An extensible clasp comprising a top section, a bottom section, a connecting section hinged at its opposite ends to the top and bottom sections, said sections being foldable together and unfoldable for closing and opening the clasp, another section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, the top and bottom sections mating to form a housing for the other sections, a pawl element fixed to said bottom section, toothed elements on said slidable section mating with said pawl element, said pawl and toothed elements comprising means for locking the sections in desired adjusted positions, and a finger depressible member connected to said pawl for releasing the same, said member projecting upwardly from said sections to a region adjacent the hinge joining the top and connecting sections and having a finger engaging part exposed in such region at the top face of the clasp.

5. An extensible clasp comprising a top section, a bottom section, a connecting section, the said sections being hinged one to the other to fold together and to unfold for closing and opening the clasp, another section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, means in said bottom and slidable sections for locking the sections in adjusted position, and a finger operated member for said locking means extending upwardly from said sections to a region adjacent the hinge joining the top and connecting sections and having a finger depressible part exposed in such region at the top face of the said top section.

6. An extensible clasp comprising a plurality of sections hinged one on the other to fold together and to unfold for closing and opening the clasp, a section slidable in the lowermost of said hinged sections for adjusting the clasp to a desired contracted or expanded condition, mating elements in the relatively slidable sections for locking said sections in adjusted position, and a finger operated member for the mating locking elements, said finger operated element extending upwardly from said relatively slidable sections to a region adjacent the hinge in the top section and having a finger depressible part exposed in such region at the top face of said top section.

7. An extensible clasp comprising a top section, a bottom section, a connecting section, the said mentioned sections being hinged one on the other to fold together and to unfold for closing and opening the clasp, a section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, elements for locking the relatively slidable sections in adjusted positions, a member for releasing the locking elements, and means for locking the sections in folded condition, said means comprising a part in said top section engaged by a part of said slidable section when said slidable section is in a contracted position.

8. An extensible clasp comprising a top section, a bottom section, a connecting section, the said mentioned sections being hinged one on the other to fold together and to unfold for closing and opening the clasp, a section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, elements for locking the relatively slidable sections in adjusted positions, a member for releasing the locking elements, and means for locking the sections in folded condition, said means comprising a part in said top section engaged by a part of said slidable section when said slidable section is in a contracted position, the said top section part being located close to the hinge joining the said top and connecting sections.

9. An extensible clasp comprising a top section, a bottom section, a connecting section, the said mentioned sections being hinged one on the other to fold together and to unfold for closing and opening the clasp, a section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, the top and bottom sections mating to form a housing for the other sections, elements for locking the relatively slidable sections in adjusted positions, a member for releasing the locking elements, and means for locking the sections in folded condition,

said means comprising dovetailing parts in said top and bottom housing sections and a part in said slidable section acting as a bolt for interlocking the dovetailing parts when said slidable section is in a contracted position.

10. An extensible clasp comprising a top section, a bottom section, a connecting section, the said sections being hinged one to the other to fold together and to unfold for closing and opening the clasp, another section slidable in said bottom section for adjusting the clasp to a desired contracted or expanded condition, means in said bottom and slidable sections for locking the sections in adjusted position, a finger operated member for said locking means extending upwardly from said bottom and slidable sections to a region adjacent the hinge joining the top and connecting sections and having a finger depressible part exposed in such region at the top face of the said top section, and means for locking the sections in folded condition, said means comprising relatively short fingers in said top section located close to the said hinge, said fingers being engaged by a part of said slidable section when the slidable section is in a contracted position.

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