Nov. 26, 1968 A. E. SAUER 3,412,577

BRACELET MEANS HAVING A RELATED CLASP MEANS, AND METHOD OF ASSEMBLING SAME

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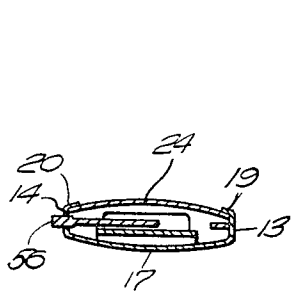


FIG. 3

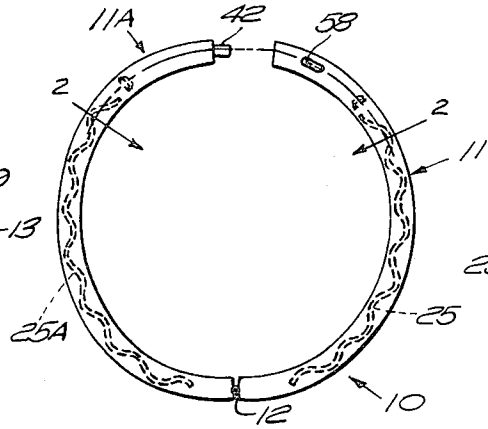


FIG. 1

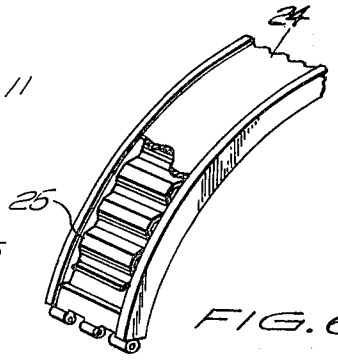


FIG. 6

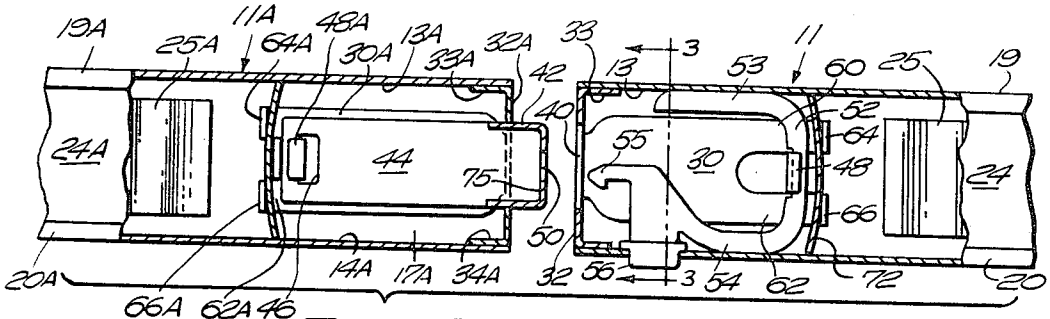


FIG. 2

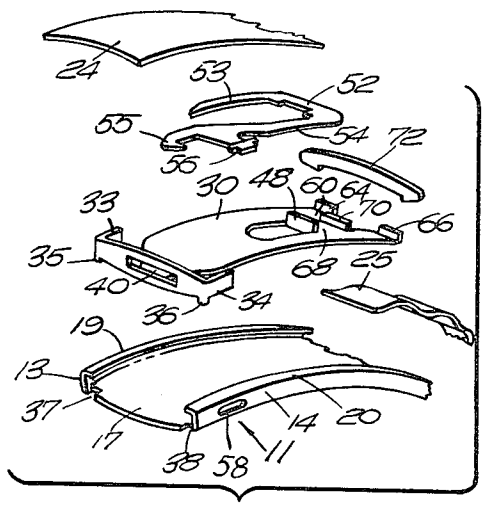


FIG. 4

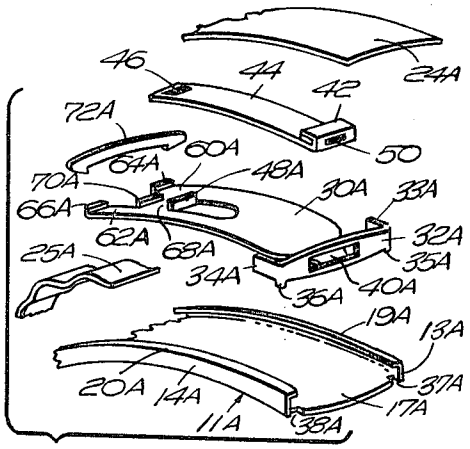


FIG. 5

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BRACELET MEANS HAVING A RELATED CLASP MEANS, AND METHOD OF ASSEMBLING SAME

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The present invention relates to articles of jewelry such as bracelets worn as objects of personal adornment and relates more particularly, to a novel and improved method and means for constructing such articles.

It is common in the manufacture of items of jewelry such as bracelets to solder the various elements in place. Taking a bracelet normally worn about the wrist, by way of example, the bracelet may be comprised of a pair of arcuate sections hinged together at one of the respective ends thereof and provided with suitable clasp means at the other end of each of the arcuate sections. Thus, the two sections, when assembled, form a circular member or bracelet which may be opened by releasing the clasp and expanding the members apart on the hinges. Similarly, the bracelet is locked on the wrist of the wearer by squeezing the two sections together until the clasp means engage. It is rather obvious that the hinges and clasp elements must be firmly affixed to the arcuate sections in order to provide a durable and lasting article of jewelry.

In the past it has been the usual approach, when constructing articles of jewelry exemplified in the foregoing example, to solder the various elements such as the hinges and clasp elements to the arcuate sections. This, of course, is a time consuming process requiring skilled labor. Moreover, soldering is not always completely reliable since impurities on the surface of the work, for instance, may cause a soldered interface to fail thereby permitting the constituent parts to break away.

With the foregoing in mind it is one object of the present invention to provide an improved method for constructing articles of jewelry.

Another object of the present invention is to provide a positive lock which may be assembled rapidly and easily in position to hold an attached element in an operative position.

A further object of the present invention is to provide a locking device adapted to be seated in position in a channel member, which said locking device is effective to prevent lateral and axial movement of element attached thereto.

Yet, an additional object of the present invention is to provide a locking device which is simple in action and which is, nevertheless, durable and reliable in use.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the method involving the several steps and the apparatus possessing the construction of elements and arrangement of parts which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing wherein:

FIGURE 1 is a view of an embodiment of a bracelet incorporating the locking device of the present invention, the bracelet being illustrated in its unclapsed or open position for purposes of clarity.

FIGURE 2 is a view taken along lines 2—2 of FIGURE 1, looking in the direction of the arrows, certain parts being broken away to show the locking devices in position.

FIGURE 3 is a sectional view taken along lines 3—3 of FIGURE 2 looking in the direction of the arrows.

FIGURE 4 is an exploded view illustrating the several elements comprising one of the locking units of the bracelet of FIGURE 1.

FIGURE 5 is an exploded view similar to FIGURE 4 illustrating the several elements comprising the mating locking unit of the bracelet of FIGURE 1.

FIGURE 6 is a fragmentary perspective view of a section of the bracelet with parts broken away to illustrate the corrogated member in position.

Before proceeding with a detailed description of the present invention, it should be mentioned that while the locking device of the instant invention is illustrated and described in operative relationship with a bracelet it will have equal application and utilization in other environments wherever it is desirable to lock a unit within a channel member having opposing side walls.

Turning now to a detailed description of the drawing with initial reference to FIGURE 1, the numeral **10** designates a generally circular bracelet of the type to be worn about the wrist of a human as an item of personal adornment, or for identication, or like purposes. The bracelet **10** is constituted of a pair of generally semicircular channel-shaped rigid members **11** and **11A** which are hinged together at the respective rear sections at **12** for limited rocking movement relative to each other. By means of such rocking movement the bracelet can be opened to pass around the wrist of the wearer and can be closed onto the wearer's wrist.

With attention now to FIGURES 2, 3, 4 and 5, there is illustrated therein the companion locking units accommodated in bracelet members **11** and **11A** respectively. It will be appreciated that the corresponding parts of the two locking units are similar in construction. Thus, in the following description the corresponding parts of the mating locking units supported in members **11** and **11A** will carry the same reference numerals. However, for clarity, the parts of the locking unit of bracelet member **11A** having a counterpart in member **11** will also carry the suffix "A" to distinguish them. Thus, in FIGURE 2 it is seen that channel member **11** is provided with parallel side walls **13** and **14**. Corresponding side walls are formed in channel member **11A** and are referenced at **13A** and **14A**. A web section **17** is provided integrally with side walls **13** and **14**, this web section **17** being, desirably, seamless to provide a flat, comfortable surface communicating with the wrist of the wearer. A similar web section **17A** is integral with side walls **13A** and **14A** of channel member **11A**. The upper margins of side walls **13** and **14** are folded inwardly to provide opposing guide tracks **19** and **20** (see FIGURES 3, 4 and 5). In the same manner, side walls **13A** and **14A** are folded inwardly along their opposing upper margins to provide guide tracks **19A** and **20A** as shown in FIGURE 5.

Reverting again to FIGURE 3, guide tracks **19** and **20** act to retain an arcuate cover plat **24** in position. Thus, cover plate **24** extends parallel to web section **17**, the cover plate **24** serving as the top wall of channel member **11** in the same fashion that web section **17** serves as the bottom wall thereof. As seen in FIGURES 1, 2, 4, 5 and 6, a corrugated member **25** may be provided in the zone between cover plate **24** and web section **17**. The alternating ridges and grooves of corrugated member **25** bear on the inner surface of web section **17** and cover plate **24** and urge the cover plate into engagement with respective tracks **19** and **20**. A cover plate **24A** is arranged in channel member **11A** in the same manner as just related with respect to companion channel member **11**.

Arcuate cover plate 24A extends parallel to web section 17A, and is held from upward displacement by tracks 19A and 20A. A further corrugated member 25A is positioned in the zone between web section 17A and cover plate 24A to hold the cover plate 24A in engagement with tracks 19A and 20A.

It will be appreciated that, while the channel members which are illustrated and which have been described are constituted of a plurality of pieces, i.e., channel sections and cover plates, these members could readily be of one piece construction such as would be provided by extruding tube to conform to the enclosed shape of the channel members generally illustrated in the cross-sectional view of FIGURE 3.

With attention now to FIGURES 2, 3, 4 and 5, the locking device of channel member 11 includes a shank 30 fitted in the frontal opening channel member 11, said shank 30, being bowed or curved along its longitudinal extension to conform with the radius of curvature of the arcuate configuration of channel member 11. A similar shank 30A is provided for the locking device of channel member 11A. The front end of each shank 30 and 30A constitutes a wall 32 and 32A, respectively, fully enclosing the frontal opening of respective channel members 11 and 11A. The front wall 32 of shank 30 has opposing horizontal ears 33 and 34 bent rearwardly from the opposite side margins thereof, these ears being so placed as to engage tightly against the inside surfaces of the opposing side walls 13 and 14 of channel member 11. In the same manner the front wall 32A of shank 30A has opposing ears 33A, 34A bent rearwardly so as to engage the opposite side walls 13A, 14A of channel member 11A. Moreover, front wall 32 has a pair of tabs 35 and 36, and front wall 32A has a pair of tabs 35A, 36A depending from the opposite outer edges thereof. The tabs 35, 36 and 35A and 36A seat in notches 37, 38, 37A, 38A, respectively, cut out of the front edge of each of the respective web sections 17 and 17A. In this way the limits of insertion of shanks 30, 30A into their associated channel members 11 and 11A are established. Further, the front walls 32, 32A are positioned to blend in smoothly with the surfaces forming the frontal openings of associated channel members 11 and 11A so that the person wearing the bracelet and her clothing will not become injured by sharp edges which could otherwise exist.

The front walls 32, 32A of each locking device is provided with an aperture 40, 40A, respectively, extending therethrough. As seen in FIGURES 2 and 5, the aperture 40A in the front wall 32A of the locking device fitted within channel member 11A has a tongue 42 projecting therethrough and extending somewhat beyond the front wall 32A. Tongue 42 is connected integrally to an elongated plate 44 bent arcuately to lay flat on the top surface of shank 30A. The rear section of plate 44 has a window or opening therein at 46. A finger 48A is pressed up from shank 30A to pass through opening 46 and be bent around the rear frame of the opening. Tongue 42 is dimensioned to fit snugly in aperture 40A, and this snug fit accompanied by the gripping of plate 44 by finger 48A acts to hold the tongue 42 and plate 44 securely in position on shank 30A. It will be seen in FIGURES 2 and 5, that the forward end of tongue 42 has a recess 50 therein, this recess being smaller than the width of the forward edge of said tongue 42.

With attention now to channel member 11 as illustrated in FIGURES 2 and 4, the finger 48 of shank 30 of the locking device of that particular channel member is employed to engage the rear end of a member 52. Said member 52 is generally U-shaped in plan and is constructed of resilient material. The opposing legs 53 and 54 of member 52 bear on the internal surfaces of side walls 13 and 14, respectively. The forward end of leg 54 has a hook or catch 55 formed therein. This catch 55 is in register with the aperture 40 through the front wall 32 of the locking device. Further, catch 55 is in alignment with the recess 50 of togue 42 so that, as channel members 11 and 11A are closed catch 55 enters recess 50 and snaps under the front wall 75 of tongue 42. In consequence thereof the two channel members are positively clasped or locked together. A release bar 56 is formed integrally with leg 54 and projects laterally through a port 58 provided through side wall 14. Release of catch 55 from front wall 75 of tongue 42 is effected by depressing release bar 56. This causes catch 55 to move toward the medial line of member 52 so that the catch can be unclasped and freed from recess 50 of tongue 42.

In FIGURES 2 and 4, it will be seen that the rearward margin of shank 30 is bifurcated to define a pair of legs 60 and 62, the rearward terminal ends of which are bent upwardly to form posts 64 and 66, respectively. In like manner the rear end of shank 30A is provided with legs 60A, 62A, the terminal ends thereof being bent upward to form posts 64A, 66A, respectively. A metal strip 68 bridges the span between legs 60 and 62, see FIGURE 4. This strip has a vertical ear 70 turned upwardly therefrom so that said vertical ear 70 lays intermediate the two posts 64 and 66, and lays somewhat forward of the two posts. Thus, the zone between posts 64, 66 and ear 70 constitutes a (first) pocket for receiving a resilient or spring-like bar shaped fastener 72. Similarly, a metal strip 68A spans the space between legs 60A, 62A. A vertical ear 70A is upturned from strip 68A. Said ear vertical 70A lays intermediate of and forwardly of posts 64A, 66A, thereby defining a zone or pocket between said posts 64A, 66A, and said ear 70A for the reception of fastener 72A constructed in the same manner as fastener 72. Each fastener 72, 72A is slightly bowed in the plane of its long axis and is seated in the aforesaid pocket between respective posts 64, 66 and 64A, 66A and respective ears 70, 70A so that its convex surface arches away from the associated front wall 32, 32A. The linear dimension of resilient fasteners 72, 72A is somewhat greater than the space between side walls 13, 14 of channel member 11, or side walls 13A, 14A of channel member 11A. Therefore, resilient fasteners 72, 72A will slide readily into the clearance between the associated side walls of channel members 11 and 11A. Yet, any attempt to remove the locking devices from said channel members will force the opposite ends of the respective resilient fastener 72 or 72A to unbow and to bind more tightly on its related side walls thereby preventing either lateral or longitudinal movement of the locking device. Moreover, the locking device of the present invention, by virtue of the advantageous arrangement whereby the opposite ends of the resilient fasteners 72, 72A bind on the side walls 13, 14, 13A, 14A, of members 11 and 11A, respectively, assisted by the unique positioning of forward walls 32, 32A through the respective tabs and notches and opposing ears to fully enclose the frontal portions of the associated channel members and bear on the side wall, web, and cover plate thereof, effectively fix the locking devices and the clasp members connected therewith against any longitudinal or lateral movement relative to the respective channel members in which they are seated.

In assembling a bracelet of the type illustrated it is necessary only to insert the locking device, one with the tongue 42 affixed thereto and the other with catch 55 affixed thereto, as described, into the appropriate channel member until tabs 35, 36 and 35A, 36A seat in the respective notches 37, 38 and 37A, 38A, and the opposing ears 33, 34, 33A, 34A engage the respective tracks 19, 20, 19A, 20A. Once the locking devices are seated therein the members are secured for operation to clasp and unclasp the bracelet 10.

It will thus be apparent that the instant invention provides a new and novel means for constructing jewelry articles such as bracelets, so as to provide a positive locking means without utilizing conventional soldering techniques. Moreover, the locking devices are constructed with self-seating tabs which avoid the necessity for con-

stant adjustment. Furthermore, the end plates advantageously conceal the mechanical members of the locking device, enhancing the appearance of the bracelet while adding strength and rigidity to the bracelet when the bracelet is locked in its closed position.

While the locking device of the present invention has been shown and described operatively associated with a tongue and latch unit, it should be understood that the locking device has broad applications beyond that illustrated. By way of example, it would be obvious to employ similar locking devices to hold the mating hinge sections of hinge **12** of the bracelet in place. Thus, the instant locking device may be applied wherever articles required a locking means, said articles being provided with opposite side walls, with but a minimum of modification to the present invention.

In this application there is shown and described only the preferred embodiment of the invention simply by way of illustration of the preferred mode of carrying out the invention. It will be readily apparent, however, that the drawing and description herein are merely illustrative in nature and are not intended to limit the scope of the invention.

What I claim is:

1. A method for constructing a bracelet or the like comprising, providing a pair of mating generally semi-circular channel members having oppositely disposed side walls, frontal openings and rear sections, hinging said pair of members together at the respective rear sections, providing a pair of shanks, each having a radius of curvature conforming to the curvature of said channel members, providing a front wall portion at the front edge of each shank of sufficient dimension to occupy the full frontal opening of each said channel member, providing an aperture through each front wall portion, mounting a catch on one of said shanks in alignment with its respective aperture, providing a catch receiver on the other of said shanks, providing a pocket adjacent the rear edge of each said shank, seating a resilient fastener element of greater length than the width between said side walls, the straight line distance between the ends of each fastener being greater than said width; in each said pocket, and finally pressing each said shank into a respective channel member until each said front wall portion occupies its respective frontal opening, whereby said catch is disposed in register with said catch receiver and each said fastener element presses against the side walls of its respective channel member to lock each said shank in its channel member.

2. A method for constructing a bracelet or the like comprising, providing a pair of mating generally semi-circular channel members having oppositely disposed side walls, frontal openings, rear sections, and guide tracks formed along the outer longitudinal margins, hinging said pair of members together at the respective rear sections, inserting a cover member in each of said guide tracks to form an outer wall for each said channel member, providing a pair of shanks, each having a radius of curvature conforming to the curvature of said channel members, providing a front wall portion at the front edge of each shank of sufficient dimension to occupy the full frontal opening of each said channel member, providing an aperture through each front wall portion, mounting a catch on one of said shanks in alignment with its respective aperture, providing a catch receiver on the other of said shanks in alignment with its respective aperture, providing a pocket adjacent the rear edge of each said shank, seating an arcuate resilient fastener element of greater length than the width and having a rearward convex surface and a forward concave surface between said side walls, the straight line distance between the ends of each said fastener being greater than said width, in each said pocket, positioning each said arcuate member in its respective pocket with said convex surface facing rearwardly of said shank and with said concave surface facing toward said front wall portion, and finally pressing each said shank into a respective channel member until each said forward wall portion occupies its respective frontal opening whereby said catch is disposed in register with said catch receiver and each said fastener element presses against the side walls of its respective channel member to lock each said shank in its channel member.

3. In a device of the class described, a pair of mating generally semi-circular members having opposing side walls, a web section joining said side walls to define a channel between said side walls, each said channel having a front opening and rear end, hinge means joining said members together at their respective rear ends, a separate shank positioned in each said channel proximate to the front opening of each said member, each shank having a front wall portion of dimension fully occupying a respective front opening of said member, each said front wall portion having an aperture therein, a catch mounted on one of said shanks in alignment with one of said apertures, a tongue connected to the other of said shanks and protruding through the aperture in the front wall portion thereof, a catch receiver formed in the forward end of said tongue, a pocket formed at the end of each shank remote from said front wall portion, a resilient fastener positioned in each pocket, each said fastener being of greater length than the width between the adjacent side walls, the straight line distance between the ends of each said fastener being greater than said width, whereby said fastener presses against said side walls to lock each said shank in its respective member, said catch and catch receiver being in register to interconnect said mating members when said pair of members are squeezed together, and means for releasing said catch from said catch receiver.

4. In a device of the class described, a pair of mating generally semi-circular members having opposing side walls, a web joining said side walls at their base to define a channel between said side walls; each said channel having a front opening, a rear end, and a guide track formed along the upper margins of each pair of opposing side walls; a cover disposed adjacent each pair of side walls, each said cover extending coterminously with a respective one of said members, hinge means joining said members together at their rear ends, a separate shank positioned in each said channel proximate to the front opening of each said member; each said shank having a front wall portion of dimension for contacting said side walls, said web, and said cover portion to thereby fully occupy the front opening of said related member; each said front wall portion having a pair of ears extending therefrom to engage a portion of said side walls, a pair of tabs depending from each said front wall portion, a pair of notches formed in each said web for receiving said tabs, each said front wall portion having an aperture therein, a catch mounted on one of said shanks in alignment with one of said apertures, a tongue connected to the other of said shanks and protruding through the aperture in the front wall portion thereof, a catch receiver formed in the forward end of said tongue, a pocket formed to the end of each shank remote from said front wall portion, a pair of resilient fasteners of arcuate shape and of greater length than the width between the side walls, the straight line distance between the ends of each said fastener being greater than said width, adjacent thereto, said arcuate fastener having a convex rear surface and a concave front surface, each said fastener being positioned in a respective one of said pockets with its convex surface facing rearwardly and its concave surface facing toward said front wall portion to thereby press against said adjacent walls to lock each said shank in its respective member, said catch and catch receiving means being in register to interconnect said mating members when said pair of members are squeezed together, and means for releasing said catch from said catch receiver.

5. In a device of the class described, a pair of mating generally semi-circular members having opposing side walls, a web section joining said side walls at their base to define a channel between said side walls, each said channel having a front opening and a rear end, hinge means joining said members together at their respective rear ends, a separate shank positioned in each said channel proximate to the front opening of each members, each shank having a front wall portion of dimensions to fully occupy the front opening of its associated member, each said front wall portion having an aperture therein, a catch mounted on one of said shanks in alignment with one of said apertures, a tongue connected to the other of said shanks and protruding through the aperture in the front wall portion thereof, a catch receiver formed in the forward end of said tongue, a pair of legs extending rearwardly from each said shank, the terminal portion of said legs being upturned to define spaced posts, a section spanning said legs, an upstanding ear projecting from said section disposed intermediate said posts, a resilient fastener seated between said posts and said ear of each shank, said fastener being of greater length than the width between the adjacent side walls, the straight line distance between the ends of each said fastener being greater than said width whereby said fastener presses against said side walls to lock each said shank in its respective member, said catch receiver being in register to interconnect said mating members when said members are squeezed together, and a lever extending laterally from said catch through said side wall to release said catch from said catch receiver.

6. A locking device for securing a component to a member having opposing fixed parallel side walls comprising, an elongated shank, a tab upturned from the surface of said shank for engaging with said component to hold said component on the surface of said shank, a front wall for said shank, said front wall having an aperture therethrough for accommodating an operative portion of said component, a pair of legs extending rearwardly from said shank, the rear terminal edges of said legs being upturned to provide a pair of spaced posts, a web section spanning said legs, an ear upturned from said web section and disposed forwardly of said legs whereby to define a pocket between said ear and said posts, a resilient fastener positioned in said pocket, said resilient fastener being of greater length than the width between said side walls the straight line distance between the ends of said fastener being greater than the said width whereby to press against said side wall and secure said shank in position therewith.

7. A locking device comprising a channel member having a web section, provided with a notch, and with said web section terminating in fixed parallel opposed side walls, a port in one of said side walls, a shank having a front wall provided with an aperture, a finger, a vertical ear, a tab aligned and located in said notch and two oppositely located horizontal ears engaging, respectively, said parallel opposed side walls, said finger and said vertical ear forming a second pocket, said shank overlying said web section, a pair of legs extending readwardly of said shank, the rear terminal edges of said legs being upturned to provide a pair of spaced posts, with a first pocket between said vertical ear and said posts, a resilient fastener positioned in said first pocket, the straight line distance between the ends of said resilient fastener being greater than the width distance between said fixed parallel opposed side walls, whereby to press against said parallel opposed side walls to secure said resilient member and said shank to said channel member, and a resilient U shaped member having opposed legs resiliently engageable with, respectively, the internal surfaces of said fixed parallel opposed side walls, a catch and a release bar formed in one of said opposed legs, said catch in alignment with said aperture and said release bar aligned with said port, said resilient U shaped member overlying said shank and located in said second pocket and retained in operative position therein by said finger.

8. A locking device comprising a channel member having a web section provided with a notch and with said web section terminating in fixed parallel opposed side walls, a shank having a front wall provided with an aperture, a finger, a vertical ear, a tab aligned and located in said notch and two oppositely located horizontal ears engaging, respectively, said fixed parallel opposed side walls, said finger and said vertical ear forming a second pocket, said shank overlying said web section, a pair of legs extending rearwardly of said shank, the rear terminal edges of said legs being upturned to provide a pair of spaced posts with a first pocket between said vertical ear and said pair of spaced posts, a resilient fastener positioned in said first pocket, the straight line distance between the ends of said resilient fastener being greater than the width distance between said fixed parallel opposed side walls, whereby to press against said parallel opposed side walls to secure said resilient member and said shank to said channel member, and an elongated plate provided with a window on one end and a tongue provided with a recess on the other end, said elongated plate overlies said shank with said finger projecting through said window thereby providing means to fasten said elongated plate to said shank, said tongue located in said aperture in operative position to receive a companion locking member.

9. A locking device for securing a component to a member comprising a web section having a pair of oppositely located notches and having opposed, fixed, parallel side walls defining a channel with a front opening, a shank provided with a forward wall having an aperture and a pair of oppositely located tabs adapted to mate with said pair of oppositely located notches, means securing said components to said shank in register with said aperture, a resilient fastener having opposite ends disposed at a distance greater than the distance between said opposed side walls, the straight line distance between the ends of said resilient fastener being greater than said width, means securing said resilient fastener to said shank, whereby said opposite ends press, respectively, against said opposed side walls when moved in a direction into said channel away from said front opening to position said shank in said channel, said opposite ends opposing movement of said shank in a direction toward said front opening.

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