

- [54] **CLASP**
- [75] Inventor: **Jon Hedu**, Watertown, Conn.
- [73] Assignee: **The Siemon Company**, Watertown, Conn.
- [22] Filed: **May 13, 1966**
- [21] Appl. No.: **550,004**

**Related U.S. Application Data**

- [63] Continuation-in-part of Ser. No. 312,218, Sept. 27, 1963, Pat. No. 3,251,110, which is a continuation-in-part of Ser. No. 226,828, Sept. 28, 1962, Pat. No. 3,196,878.

- [52] **U.S. Cl.**..... **24/230 SC**
- [51] **Int. Cl.**..... **A44b 17/00**
- [58] **Field of Search**..... **24/230**

**References Cited**

**UNITED STATES PATENTS**

- |           |         |               |           |
|-----------|---------|---------------|-----------|
| 2,178,572 | 11/1939 | Forstner..... | 24/230    |
| 2,765,471 | 10/1956 | Cousins.....  | 24/201    |
| 3,009,227 | 10/1961 | Ryan.....     | 24/230    |
| 3,072,938 | 1/1963  | Phaneuf.....  | 24/230 UX |
| 3,200,464 | 8/1965  | Cousins.....  | 24/230    |

**FOREIGN PATENTS OR APPLICATIONS**

- |           |        |             |        |
|-----------|--------|-------------|--------|
| 901,042   | 7/1945 | France..... | 24/230 |
| 1,128,175 | 1/1957 | France..... | 24/230 |

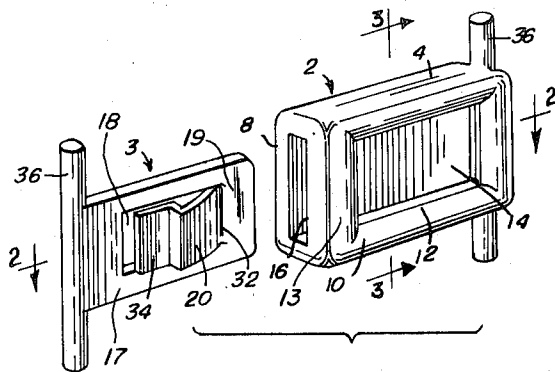
- |         |        |                    |        |
|---------|--------|--------------------|--------|
| 333,868 | 3/1921 | Germany.....       | 24/230 |
| 2,168   | 1/1907 | Great Britain..... | 24/230 |

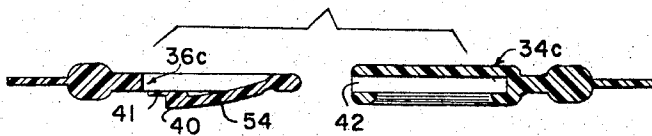
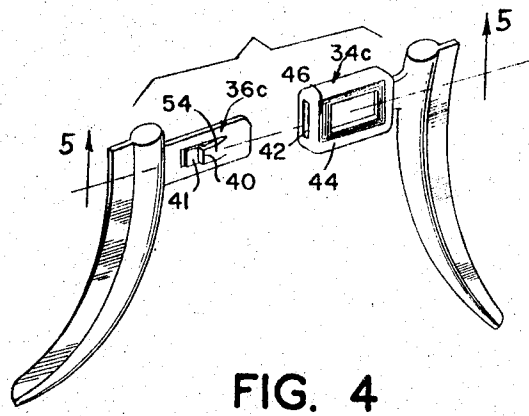
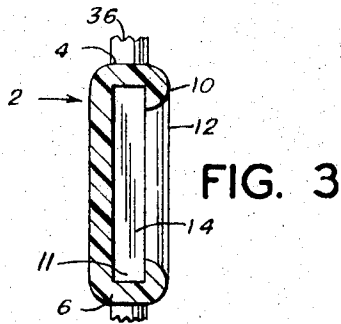
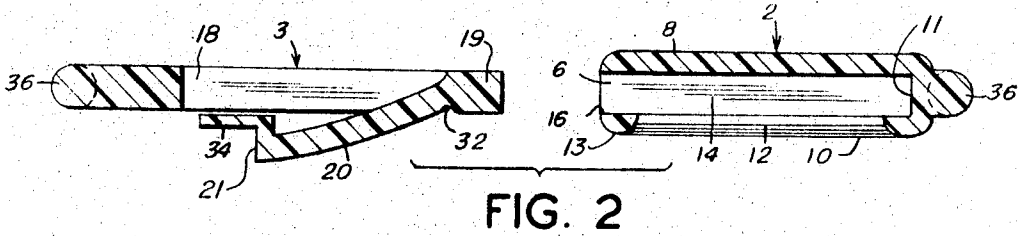
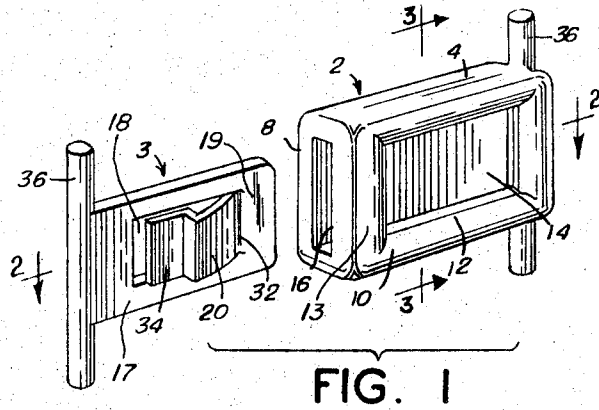
*Primary Examiner*—Bernard A. Gelak  
*Attorney, Agent, or Firm*—Roylance, Abrams, Berdo & Kaul

[57] **ABSTRACT**

A fastener device consists of a separable housing member and insert member. The housing member has a base plate, upstanding side walls, and upstanding end wall and a bar member at one end thereof to define an opening for the insert member. The insert member has a frame plate with a central opening therein and an integral resilient tongue member having an inclined portion extending over the central aperture, a shoulder extending from the inclined portion and a tang terminating at the free end of the tongue member. When the insert member is introduced through the opening in the housing, the tongue is flexed toward the central aperture until the shoulder moves past the bar member, whereupon the tongue will flex outwardly until the tang abuts against the bar member. Engagement of the shoulder along the side of the bar member prevents the members from being disassembled until the tongue member is digitally depressed.

**8 Claims, 5 Drawing Figures**





INVENTOR  
**JON HEDU**

BY *Beale and Jones*

ATTORNEYS

## CLASP

This is a continuation-in-part of application Ser. No. 312,218, filed Sept. 27, 1963, now U.S. Pat. No. 3,251,110 which in turn is a continuation-in-part of application Ser. No. 226,828 filed Sept. 28, 1962, now U.S. Pat. No. 3,196,878.

This invention relates to a clasp fastener having a pair of slidably disconnected sections. The subject fastener is suitable for a variety of uses in garments, jewelry, keychains or whenever it is desired to detachably hold together two articles.

It is an object of this invention to provide a disconnectable fastener which is easily engaged and disengaged, and which is constructed in a manner to give long, troublefree service.

Another object is to provide an inexpensive, attractive clasp fastener.

The clasp has a housing or socket member and an insert member which slidably fits within and locks to the socket member. The socket is formed of four walls which define an open-ended hollow cavity therebetween. One wall of the socket has an aperture therein. The insert member is adapted to slide through the open end of the socket into the cavity. A tapered tongue member having a shoulder projects from the insert member into the socket aperture to hold the members together. Means are provided to bias the shoulder into the aperture; and means are also provided for attaching each of the clasp members to a garment or other article.

The above and other advantages will be apparent from the following description and the accompanying drawings wherein;

FIG. 1 is a perspective view of a preferred embodiment of the invention;

FIG. 2 is a sectional view of the insert member and socket member of the clasp, taken along the line 2-2 in FIG. 1; and

FIG. 3 is a sectional view of the socket member, taken along the line 3-3 in FIG. 2;

FIG. 4 is a perspective view of the clasp used in conjunction with an integral molded brassiere stay; and

FIG. 5 is a sectional view of the clasp and stay members of FIG. 4, taken along the line 5-5 in FIG. 4.

The clasp of this invention has a pair of separable members in the form of a housing 2 and an insert member 3 which are preferably made of resilient plastic material. They may be made by conventional injection molding techniques.

It will be seen in FIG. 1 that the housing 2 has four planar walls; a top wall 4, a bottom wall 6, a rear wall 8, and an apertured front wall 10. A relatively large aperture or fenestration 12 consumes a major portion of the front wall.

These walls define an elongated cavity 14 which has a quadrilateral cross section and which runs longitudinally within the socket. The socket has one end substantially unobstructed since the cavity has an opening 16 at one end. The opposite end is closed by an end wall 11 and the central axis through opening 16 is generally perpendicular to the central axis through the aperture 12. Thus, if the flat wall 8 is considered a base plate, the walls 4 and 6 form upstanding side walls and the wall 11 forms an upstanding end wall. A bar member 13 extends between the side walls at the end opposite the wall 11 to help define the opening 16.

The illustrated embodiment uses an insert or male member 3 having a frame with a plate 17 tongue member which is resiliently deflectable from the remainder of the frame plate. The frame plate 17 has a central aperture 18 therein and thus has opposed side rails and a forward rail 19. A major portion of the tongue member overlies the central aperture 18 and, because the tongue member is somewhat smaller than the central aperture, there is formed an elongated slit having a U-shape. The tongue member has a thickness about equal to that of the remainder of the frame plate, which is sufficiently thin to give it resilience. Its flexibility may be increased by hollowing out a small portion 32 at the juncture of the inclined portion 20 of the tongue member and the front rail of the insert member. This inclined portion 20 tapers outwardly from the face of the insert member and merges into a shoulder 21 which in turn merges into a tang 34. In FIG. 1 it will be noted that the height of the shoulder 21 is less than the thickness of the bar member 13 so the inclined portion 20 will not project through the fenestration 14. The members 2 and 3 can be assembled by inserting the forward rail 19 through the opening 16 and pushing the members relatively toward one another until the shoulder 21 moves past the bar member 13 whereupon the tongue member will flex outwardly until the tang 34 abuts against the bar member 13. This serves to keep the members together more snugly since some biasing force is still exerted by the resilience of the tongue member when the members are locked together. Also, the tang prevents the tongue member from being bent outwardly when a strong tensile force is placed on the interlocked members.

In this clasp, when the members are slidably placed together, the tongue member will depress as it passes through the opening 16 and as the frame plate 17 moves into the cavity 14. It will then snap out to lock into the aperture 12.

The means for attaching the clasp members of FIGS. 1, 2 and 3 to an article is a transverse pin-like projection 36 which may be held in an apertured holder or by any other suitable means.

FIGS. 4 and 5 illustrate the present clasp utilized in conjunction with a pair of stays which enable it to be used in a front-clasping brassiere. In this embodiment, each of the stays is integrally molded with its respective clasp members. The stays are arcuately bowed outwardly so that they may assume the contour of the areas to be joined, in this example the inner edges on the bust cups of a brassiere. Each of the stays, which comprises the attaching means in this embodiment, has a relatively thick stiffening portion which is close to its clasp member. Outwardly of this stiffening portion is a thin flange which is for attachment to the bust cups. This thin flange is capable of being penetrated by a sewing needle, so the stay may be attached to the fabric of a brassiere by sewing.

The clasp member shown in this latter embodiment is similar to that described with reference to FIGS. 1, 2 and 3. The female member 34c has an end slot or aperture 42, a partially open face 44, and locking bar 46 which is spaced from the closed end of the female member and lies between slot 42 and the opening in the face. The vertical dimension of the slot 42, when the clasp is oriented as shown in FIG. 4, is greater than that of the aperture in the open face 44. The socket or female member 34c may be described as a housing hav-

ing an elongate base plate with grooved side and end wall portions and projecting in a common direction therefrom.

The male member 36c is made of a resilient material and it has a substantially straight body or elongate frame portion. A U-shaped cut extends through the faces of the body portion to define a substantially solid catch portion 54 which has a thickness substantially the same as the thickness of the body portion. The U-shaped cut may be said to define a fenestration, with the catch portion or tongue providing an inclined surface which is attached to the frame and extends outwardly of the fenestration. The remainder of the frame has opposed side and end portions surrounding the fenestration. The catch portion 54 is sufficiently resilient to be easily pressed inwardly. A shoulder 40 and tang 41 are located toward the free outer end of the catch portion 54. The shoulder is located closer to the free end portion than to the other end of the catch portion 54, and it faces the free end portion of the catch portion 54. Essentially, the tang defines the bottom of a notch which is in outer end of the catch portion 54. The distance provided by the notch from the crest of shoulder 40 to the tang 41 is no greater than the thickness of the locking bar 46. As shown in FIG. 5, these are equal, but the depth of the notch may be less. The tang 41 and notch extend to the free end portion of the catch portion or tongue 54.

The operation of the clasp shown in FIGS. 4 and 5 is identical to that described above with respect to FIGS. 1, 2 and 3. When the male member 36c is inserted in the female member 34c, the catch or tongue portion 54 is depressed until shoulder 40 clears the locking bar 46. Then, the resiliency of the catch portion causes it to move outwardly, causing the shoulder 40 to project into the opening in face 44 and engage against the locking bar 46. In this position there is a generally flush relationship between the crest of shoulder 40 and the outer face 44 of the female member 34c. The sides and ends of the male members 36c are in contacting engagement with the grooves formed by the front, top, bottom and end walls of the female housing. The peripheral edges of the male member 36c are in contacting relationship with the top, bottom and end walls of the female member 34c. When interengaged, the member 36c and its catch portion 54 are disposed in a plane substantially common to the plane of the female housing.

Disengagement of the members 34c and 36c is accomplished by pressing the catch portion 54 and pulling the members apart, to permit shoulder 40 to slide freely below the locking bar 46.

In the above discussion, the structure and operation of a most useful clasp assembly have been set forth. Many design changes will occur to those skilled in the art. It is, of course, understood that the scope of this invention is defined by the following claims, and not limited only to the described embodiments.

I claim:

1. A fastener device comprising:
  - a pair of separable members, one of said separable members having an elongate base plate, said base plate having wall portions projecting in a generally common direction from adjacent at least an end portion and opposed side portions and bar-like structure extending between the opposed side wall portions in spaced relationship to the end wall por-

tion to define a housing having a fenestration therein with that end portion of the housing which is opposed to the end wall portion thereof being substantially open and unobstructed, the other of said separable members comprising an elongate frame member having opposed side and end portions and a fenestration therein together with a resiliently disposed substantially solid tongue member having a thickness substantially the same as the thickness of the frame member projecting from one end portion of the frame member into the fenestration whereat the tongue member terminates in a free end portion, said tongue member defining an inclined surface extending from flush with the frame member to a location outside the fenestration whereat the surface terminates to define a shoulder facing the free end portion and closer to the free end portion than to the one end portion forming a notch having a depth not greater than the thickness of the bar-like structure extending along said tongue member from said shoulder to said free end portion, the frame member being receivable within the housing by projecting the one end portion of the frame member through the open and unobstructed end portion of the housing with the shoulder and free end portion of the tongue member into the fenestration of the housing and into engagement with said bar-like structure to substantially securely position said tongue within said housing to preclude the advent of protuberances by relative movement between said tongue and said housing, and maintain a flush relationship therebetween and with the side portions and the one end portion of the frame member being in engagement with the side and end wall portions of the housing, said frame member and the tongue portion thereof being disposed in a plane substantially common to the plane of the housing and within the confines thereof when the frame member is attached thereto, and means for attaching said separable members to separable and adjoining areas.

2. A fastener device as defined in claim 1, wherein:

said means for attaching comprises: attaching elements integral with said separable members, and extending outwardly thereof; at least one of said attaching elements being configured to at least in part assume the contour of the areas to be joined.

3. A fastener device as defined in claim 2, wherein:

at least one of said attaching elements comprises: a stiffening portion; and a flange for attachment to each of said adjoining areas.

4. A fastener device as described in claim 1, wherein:

the opposed side wall portions of said housing have longitudinal channels therein and the one end wall portion of said housing has a rear channel therein, the opposed side portions and said one end portion of the frame being receivable within the longitudinal channels and the rear channel, respectively, by projecting the said one end portion of the frame member through the open and unobstructed end portion of the housing with the side portions and the one end portion of the frame member being substantially in engagement with the longitudinal

channels and the rear channel of the housing to preclude any relative movement between the frame member and the housing.

5. A fastener device comprising:

a pair of separable members, one of said separable members having an elongate base plate, said base plate having wall portions projecting in a generally common direction from adjacent at least an end portion and opposed side portions and bar-like structure extending between the opposed side wall portions in spaced relationship to the end wall portion to define a housing having a fenestration therein with that end portion of the housing which is opposed to the end wall portion thereof being substantially open and unobstructed, the other of said separable members comprising an elongate frame member having opposed side and end portions and a fenestration therein together with a resiliently disposed substantially solid tongue member projecting from one end portion of the frame member into the fenestration whereat the tongue member terminates in a free end portion, said tongue member defining an inclined surface extending from flush with the frame member to a location outside the fenestration whereat the surface terminates to define a shoulder facing the free end portion and closer to the free end portion than to the one end portion forming a notch having a depth not greater than the thickness of the bar-like structure extending along said tongue member from said shoulder to said free end portion, the frame member being receivable within the housing by projecting the one end portion of the frame member through the open and unobstructed end portion of the housing with the shoulder and free end portion of the tongue member into the fenestration of the housing and into engagement with said bar-like structure to substantially securely position said tongue within said housing to preclude the advent of protuberances by relative movement between said tongue and said housing, and maintain a flush relationship therebetween and with the side portions and the one end portion of the frame member being in engagement with the side and end wall portions of the housing, said frame member and the tongue portion thereof being disposed in a plane substantially common to the plane of the housing and within the confines thereof when the frame member is attached thereto, and means for attaching said separable members to separable and adjoining areas.

6. A fastener device comprising:

a pair of separable members; one of said separable members forming a housing and having a base plate with opposed sides and ends; a pair of upstanding side walls along the sides of said base plate; an end wall upstanding from one end of said base plate and extending between said side walls; and a bar member extending between said side walls along said other end of said base plate; said bar member being spaced away from said base plate and thus forming an opening between said

bar member, said base plate and said side walls, said opening being located adjacent said other end of said base plate;

said side walls, end wall and bar member defining and circumscribing a fenestration spaced from said base plate;

the other of said separable members forming an insert member having a frame plate with opposed side edges and a forward end and a rear end; said frame plate having a central aperture therein;

those portions of said frame plate between said side edges and said central aperture forming side rails and that portion of said frame plate between said forward end and said central aperture forming a forward rail;

a tongue member resiliently connected to said forward rail and extending rearwardly therefrom to terminate at a free end; said tongue member having a width and length less than that of said central aperture to permit said tongue member to resiliently flex into said central aperture;

said tongue member including

an inclined portion extending rearwardly from said forward rail to a location spaced away from said frame plate;

a shoulder extending from the rear end of said inclined portion toward said frame plate; and

a tang extending rearwardly from said shoulder and terminating at the free end of said tongue member;

said separable members being capable of being fastened by forward insertion of said insert member through said opening and into said housing;

said tongue member being flexed by passage between said bar member and said base plate until said shoulder moves forwardly past said bar members whereupon said tongue flexes outwardly in said fenestration until said tang abuts against said bar member thereby assembling said insert member with said housing;

said insert member being disassemblable from said housing by application of digital pressure against said inclined portion of said tongue member in said fenestration until inclined portion flexes beneath said bar member and then rearwardly withdrawing said insert member through said opening.

7. A fastener device as defined in claim 6 wherein the height of said tongue member shoulder is no greater than the thickness of said bar member to prevent protrusion of said inclined portion of said tongue member outwardly through said fenestration.

8. A fastener device as defined in claim 7 wherein the width of said frame plate between said side edges is substantially equal to the distance between said side walls of said housing and wherein the distance between the forward end of said frame plate and said shoulder is substantially equal to the distance between said bar member and said end wall to assure a tight and wriggle-proof engagement between said housing and said insert member when assembled.

\* \* \* \* \*