United States Patent

Smyth et al.

[15] **3,695,074**

[45] **Oct. 3, 1972**

[54] **KEY CONNECTOR**

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[73] Assignee: **Zippo Manufacturing Company**, Bradford, Pa.

[22] Filed: **June 1, 1971**

[21] Appl. No.: **148,688**

[52] **U.S. Cl.** .....**70/456 R**, 70/459

[51] **Int. Cl.** **A47g 29/10**

[58] **Field of Search**.....70/456 R, 456 B, 457, 458, 70/459; 24/3 K, 3 M

[56] **References Cited**

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2,892,537	6/1959	Schwartz	206/38
3,600,917	8/1971	Krock	70/459
2,694,244	11/1954	Nolan	70/459 X
2,464,328	3/1949	Modrey	24/241

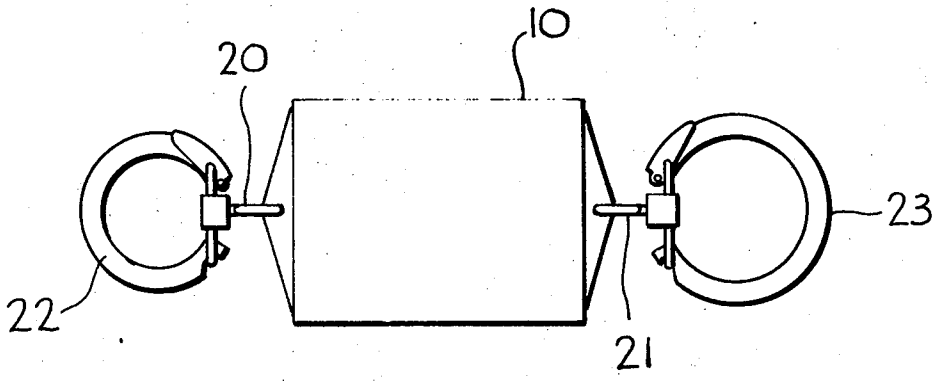
Primary Examiner—Robert L. Wolfe

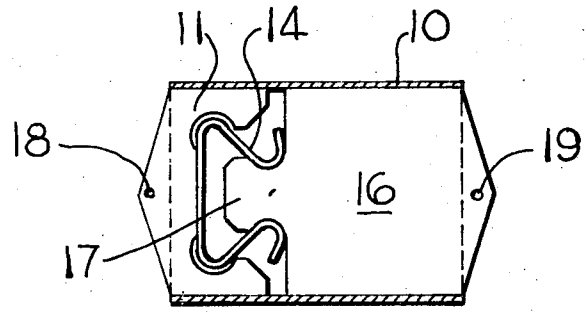
Attorney—Christel & Bean

[57] **ABSTRACT**

A detachable key connector has a socket element and a detachably connectible part which slides into the socket member. The socket member consists of a relatively flat tube having a plate fixed in one end thereof, with the inner edge of the plate formed to provide an undercut recess. A U-shaped spring has its base portion disposed in the undercut recess and includes converging leg portions. The detachably connectible part comprises a flat plate having a bulbous nose portion which snaps releasably between the convergent leg portions of the spring member.

7 Claims, 6 Drawing Figures





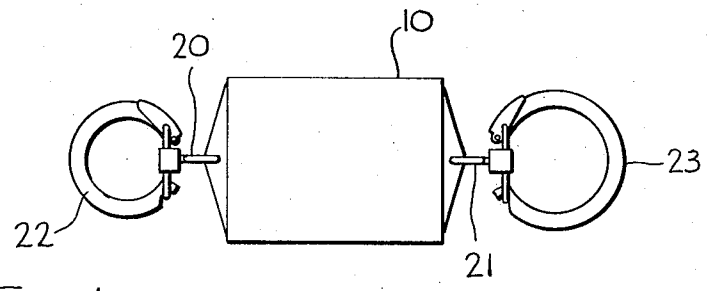


FIG. 1.

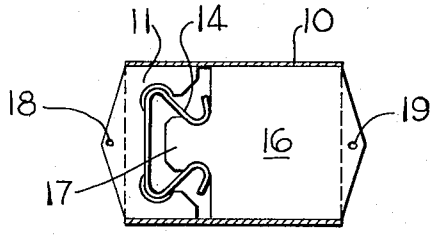


FIG. 2.

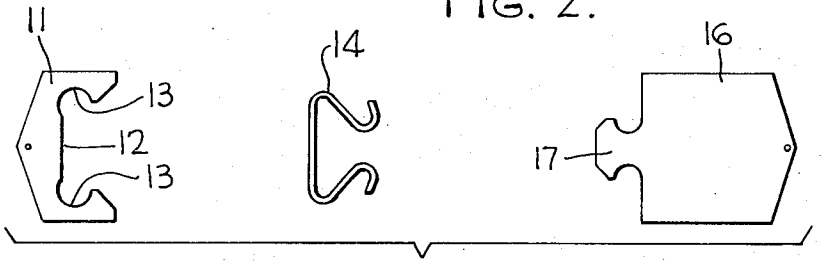


FIG. 3.

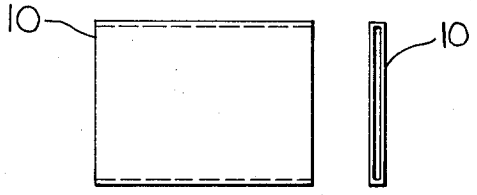


FIG. 4.

FIG. 5

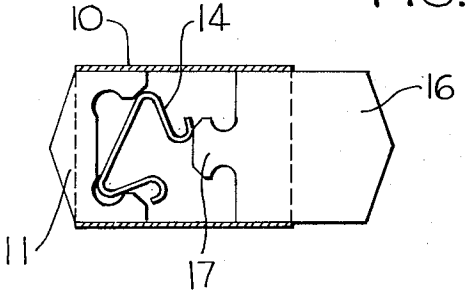


FIG. 6.

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KEY CONNECTOR

BACKGROUND OF THE INVENTION

This invention relates to key connectors and more particularly to a coupling device for convenient separation of a key or one group of keys from another key or group of keys.

Various devices have been proposed for this general purpose as, for instance, those shown in Nolan U.S. Pat. No. 2,694,244, dated Nov. 16, 1954 and Anderson U.S. Pat. No. 3,299,679, dated Jan. 24, 1967. These devices comprise generally a pair of telescoping members, each adapted to connect with a key or a key ring or chain. The telescoping members are normally held in connected relation by a spring detent but are separable when the key or keys of the two members are desired to be separated.

SUMMARY OF THE INVENTION

In the key connector of the present invention a socket member is formed by a plain flat tubular member having a plate fixed therein to close one end. A second plate is slidable into the socket member and has releasable connection with the first plate by means of an intervening spring connector. The second plate is separated from the socket member by merely pulling these members apart and without the necessity for releasing the members by operating a trigger or latch mechanism or otherwise unlocking the members for separation.

The design of the present connector is such as to require a minimum number of parts, which parts are extremely simple to fabricate and to assemble. The only part of the device which might in some instances become bent or fatigued is a simple wire spring element which is readily assembled into the socket member and also readily removed therefrom when replacement is desired.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a general elevational view of one form of the key connector device of the present invention;

FIG. 2 is a similar view with the casing element shown in cross section for additional illustration;

FIG. 3 is a disassembled elevational view of the internal parts shown in FIG. 2;

FIG. 4 is an elevational view of the casing element;

FIG. 5 is an end view thereof; and

FIG. 6 is an elevational view showing the device in the process of assembling the spring member therein.

DESCRIPTION OF THE ILLUSTRATED EMBODIMENT

The casing or housing element of the embodiment illustrated in the drawing is designated **10** and, as shown in FIGS. 4 and 5, comprises a flat rectangular tube. A plate element **11** is fixed in one end of casing **10** as by spotwelding, brazing or otherwise, and is provided with a recess **12** having reentrant notches **13** for receiving a spring element **14**. The latter is of generally U-shape with converging legs having outwardly bent terminal portions as clearly shown in FIG. 3.

The assembled position of spring **14** in recess **12** of plate **11** is clearly shown in FIG. 2, the spring being retained in this position by the engagement of its base portion in the reentrant notches **13**. The casing **10** together with plate **11** and spring **14** make up the female member of the connector. The male member comprises a plate **16** proportioned to slide smoothly into the open end of casing **10** and having a nose formation **17** for resilient engagement between the convergent leg portions of spring **14** as shown in FIG. 2.

The plate elements **11** and **16** have portions extending from casing **10** in assembled position which are perforated as at **18** and **19**, respectively, for receiving link portions **20** and **21**, respectively, of key rings **22** and **23**. Instead of the key rings **22** and **23**, or either of them, key chains or other devices such as identification tags may be attached to either of the plate elements **11** and **16**.

In assembling spring element **14** in casing **10** and, ultimately, in recess **12** of plate **11** as illustrated in FIG. 2, it is merely necessary to drop the same into casing **10** with the open end of casing **10** uppermost and with the base or bight portion of the spring lowermost. Spring element **14** will then assume approximately the position shown in FIG. 6 since one or the other of the ends of the base portion of the spring will inevitably drop into recess **12**. It is then merely necessary to insert plate **16** in casing **10** and push the same so that the nose formation **17** thereof bears against one of the outwardly bent terminal portions of spring **14**. Continued pushing disposes the spring in the position illustrated in FIG. 2, where it remains until it is deliberately disassembled. When this is desired it is merely necessary to engage a hook shaped implement beneath one of the terminal portions of the spring and pull outwardly to unseat the spring from recess **12**.

It will be noted that the casing **10** comprises merely a flattened tube with no other fabrication or formation and the plates **11** and **16** are simple flat metal blanks. The spring member **14** is likewise of simple form and adapted to be produced inexpensively. Assembly of the parts is likewise very simple as will be recognized from the foregoing description of a representative embodiment.

A preferred embodiment of the present invention has been described and illustrated herein to illustrate the principles of the invention but it is to be understood that numerous modifications may be made without departing from the broad spirit and scope of the invention.

We claim:

1. In a detachable key connector, a socket member defining a generally flat open-ended chamber, said chamber having a bottom wall including defining an internal recess having undercut portions at opposite sides thereof, a generally U-shaped spring member having convergent legs with the junctures of the legs with the base of the spring member retained in the undercut portions of said recess, and a companion member slidable into said socket member and having a nose portion resiliently engageable between the convergent legs of said spring member, said nose portion being laterally undercut to receive said convergent legs to be releasably retained thereby.

2. A connector according to claim **1** wherein said socket member comprises a flat tubular member having a plate element secured in one end thereof to close said end, said plate element having its internal edge formed with said recess and said undercut portions.

3. A connector according to claim 1 wherein said socket member and said companion member have means for attachment with keys or other devices to be detachably connected.

4. A connector according to claim 2 wherein said socket member plate element and said companion member have oppositely projecting portions provided with means for attachment with keys or other devices to be detachably connected.

5. A connector according to claim 1 wherein the convergent legs of the spring member have outwardly extending terminal portions.

6. A connector according to claim 1 wherein said companion member nose portion is of bulbous shape to provide undercut recesses for receiving the terminal portions of said legs in resiliently detachable engagement.

7. A connector according to claim 5 wherein said companion member nose portion is of bulbous shape to provide undercut recesses for receiving the terminal portions of said legs in resiliently detachable engagement.

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