

SPECIFICATION **Fastener devices**

The present invention concerns fastener devices which can be employed for a variety of purposes. For example such devices, in appropriate sizes, can be employed as clasps for necklaces or chains, and as keyrings.

There exist on the market various clasps for necklaces or small chains.

A first of these known clasps is composed of two portions, each attached to one end of the necklace, the one having an external screw thread and the other a corresponding internal thread. In order to close the necklace it is often awkward to screw one piece into the other because of the small size of the clasp. Another of these clasps has a toroidal shape and is composed of two circular portions. The first portion is solid and slides in the second portion which is hollow. A spring housed in the hollow portion urges the solid portion towards the closed position. A tiny handle is arranged on the solid portion. As soon as one acts against the force of the spring this solid portion is caused to slide into the hollow portion and a gap is made which enables the ends of the necklace to be engaged. Then the handle is released and the ends are thus connected, the clasp acting after the style of one link in a chain. The hollow portion may be soldered directly onto one end of the necklace, and the opening will then enable the opposite end of the necklace to be engaged. Such a clasp is relatively delicate because on careless handling it frequently happens that the solid portion clips out of the hollow portion.

On the other hand there exists quite a range of keyrings having fastener devices which vary greatly. In one kind there is a longitudinally movable hollow cylinder which frees an opening in a loop and then is screwed up in order to close this opening. The nuisance of such a device is that there is a risk of this cylinder, during handling of the bunch of keys, becoming unscrewed little by little and finally opening at the wrong moment.

Another kind is a multi-turn ring of which one portion is raised, which enables the key to be carried round to the inside after having run right round the ring. It frequently happens that one breaks a fingernail or injures oneself at the time of raising this portion of the ring which enables the key to be introduced. Other keyrings are likewise not very practical because as above they may cause breakage of a fingernail or slight injuries.

The aim of the present invention is to provide fastener devices which are simple in use and of robust construction, which avoid the aforesaid disadvantages, and may be employed, in appropriate sizes, as a clasp, as a keyring, or for other purposes.

A fastener device according to the present invention comprises an elongated plane coupling piece having adjacent to one end a bight open to one side of the coupling piece through a mouth, a case which can slide over the coupling piece between a position in which the case closes the

mouth and a position in which the case leaves the mouth open, and a generally U-shaped spring member lying in an opening in the coupling piece, and in the plane of the coupling piece, one arm of the U including a portion bent in a loop to form a button which projects through an opening in the case, and the said arm also including a hook-shaped portion at its free end, for cooperating with a detent of the coupling piece to lock the said sliding movement, pressure on the button releasing the locking, and the spring member limiting the movement of the case towards the mouth-open position.

The accompanying drawings show two embodiments of the invention, given by way of example. In these drawings:—

Figure 1 shows a first embodiment in open position, with the case in longitudinal section; and

Figure 2 shows a second embodiment, with one half open and the other half closed, with part of the case in longitudinal section.

The embodiment in Figure 1 is a keyring. It includes a coupling piece 2, over which can slide a case 1. The coupling piece 2 has at one end a hook-shaped portion 3 defining a bight 4 which is open to one side of the coupling piece through a mouth 4a.

The case 1 can slide over the coupling piece 2 between a position in which the case closes the mouth 4a, and a position (as shown in Figure 1) in which the case leaves the mouth open. There is an opening 7 of irregular outline through the coupling piece, and this opening contains a U-shaped spring member 8 constituted by a bent strip of resilient metal. The coupling piece occupies the whole width of the case 1, but the opening 7 lies to one side of the coupling piece (the lower side in Figure 1). One arm of the U-shaped spring member 8 is formed with a loop 16 which extends outwards through an opening 13 in the side of the case 1 so as to form a button. The spring member terminates in a hook 15 which cooperates with a detent 14 on a reversely directed tip of the coupling piece 2. It is possible for the case 1 to move to the right in Figure 1 relative to the coupling piece 2, taking with it the spring member 8. As this movement continues, the tip of the hook 15 encounters a curved left-hand surface of the detent 14, and continued movement causes the hook 15 to be displaced upwards (as seen in Figure 1), until the detent 14 engages in the bight of the hook 15, and the spring member 8 reverts to its initial shape.

In this condition, the cooperation of the hook 15 and detent 14 resists movement of the case 1 to the left relative to the coupling piece from the closed position towards the open position.

To permit the keyring to be opened, a user must press the button 16 upwards, thus disengaging the hook 15 from the detent 14, whereupon the case 1 can be slid to the left, carrying the spring member 8 with it. As shown in Figure 1, the spring member, by engaging the left end of the opening 7, limits the movement of the case towards the mouth-open position.

Figure 2 shows an embodiment in which, in effect, the construction of Figure 1 is duplicated. There are two coupling pieces 2 and 2' enclosed by a common case 1, alongside one another.

5 These coupling pieces have hooks 3 and 3' at opposite ends of the device. The second coupling piece 2' is restrained in closed position by a spring member 8', including a loop 16' cooperating with an opening 13' in the case 1.

10 CLAIMS

1. A fastener device comprising an elongated plane coupling piece having adjacent to one end a bight open to one side of the coupling piece through a mouth, a case which can slide over the
15 coupling piece between a position in which the

case closes the mouth and a position in which the case leaves the mouth open, and a generally U-shaped spring member lying in an opening in the coupling piece, and in the plane of the coupling
20 piece, one arm of the U including a portion bent in a loop to form a button which projects through an opening in the case, and the said arm also including a hook-shaped portion at its free end, for cooperating with a detent of the coupling piece to
25 lock the said sliding movement, pressure on the button releasing the locking, and the spring member limiting the movement of the case towards the mouth-open position.

2. A device according to claim 1, substantially
30 as described with reference to Figure 1 or Figure 2 of the accompanying drawings.

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