(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 208 813**
A1

(12) EUROPEAN PATENT APPLICATION

(21) Application number: 85304231.5

(22) Date of filing: 13.06.85

(51) Int. Cl.⁴: E 05 B 67/36

(43) Date of publication of application: 21.01.87
Bulletin 87/4

(84) Designated Contracting States: AT BE CH DE FR IT LI LU NL SE

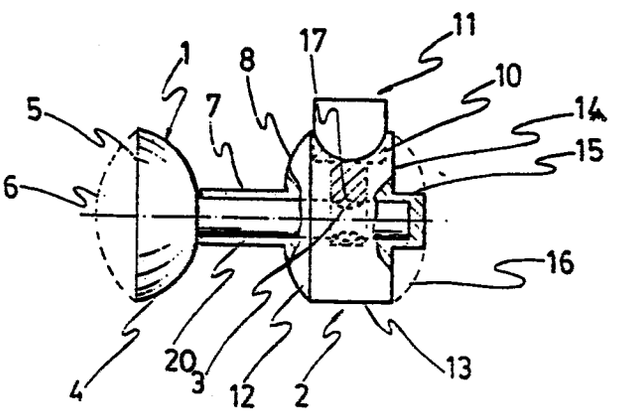
(71) Applicant: Martin Martin, Juan-Jose, Blasco de Garay, 26-2 C, Madrid (ES)

(72) Inventor: Martin Martin, Juan-Jose, Blasco de Garay, 26-2 C, Madrid (ES)

(74) Representative: Mosey, Stephen George et al, MARKS & CLERK Alpha Tower Suffolk Street Queensway, Birmingham B1 1TT (GB)

(54) Closure device.

(57) A closure device formed of two main parts, namely a first part (1) comprising a head (4) from one side of which extends a cylindrical rod (20) with an annular groove (3) adjacent its free end, and a second part (2) comprising a head (8) from one side of which extends a cylindrical spigot (7) provided with a blind axial bore (9) to receive the rod (20). The head (8) of the second part (2) has a radial hole (10) therein, the hole (10) communicating with the bore (9) and receiving a key-operated lock (11). A blocking member (17) of the lock can be actuated to engage in the groove (3) thereby securely locking the two parts (1, 2) together. As the two parts are linearly coupled and can turn relative to one another, the closure device is safe against any attempt to force the parts (1, 2) apart.



EP 0 208 813 A1

CLOSURE DEVICE

The present invention refers to a closure device with a crowbar-proof blocking, constituting an important advance over currently utilized closure systems, since it presents the maximum safety for the user, in as much as the two elements of which it is comprised cannot be separated by an unauthorised person.

The closure device of the invention is comprised of two complementary independent bodies, a male and a female, which engage along the respective axes thereof.

The male body comprises a cylindrical rod provided with at least one annular groove or recess at or adjacent one end, whereas its other end terminates in a curvo-convex head.

The female body has a general cylindrical shape, having another curvo-convex head from which projects a cylindrical spigot in which is an axial, blind hole, the diameter of which coincides with that of the rod of the male body to allow it to be received therein. The head of this female body also has a radial hole in which is secured a key-operated lock. The obturator of the lock is capable of being partially housed in the annular groove or recess of the rod when the two bodies are connected together.

When the obturator is activated, the device is blocked, as long as the key is not operated to release the blocking means.

When the closure device of the invention is in a blocked position, the obturator cannot be reached and all possibility of forcing open or separating both

elements by means of crowbars or any other object is removed since, in as much as the two bodies are arranged in a linear relationship, there are no fixed support points, as in the case of conventional locks, in the curved rod where a crowbar can be introduced to force it open.

Should an attempt be made forcibly to separate the parts of the closure device of the invention using a wrench or a bar, the two bodies of the device will turn with respect to each other, since the rod of the male body can turn in the housing of the female body, constantly maintaining the obturator in the groove of the rod.

For a better understanding, the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a perspective view of a male body of the closure device incorporating a crowbar-proof blocking of the invention,

Figure 2 shows a perspective view of a female body of the device of the invention, with a key operated lock not being shown, and

Figure 3 is a partly sectioned side view of the two bodies of the device connected together, with the key operated lock shown in a blocked position.

Referring to the drawings, the closure device incorporating a crowbar-proof blocking of the invention comprises two independent bodies 1 and 2 capable of being interconnected axially to secure the profiles of the elements to which the closure device is applied, and

preventing opening thereof.

The male body 1 is comprised of a cylindrical rod 20 provided with at least one annular groove or recess 3 near its one end, whereas its other end terminates in a curvo-convex head 4. This head 4, which can preferably be hemi-spherical in shape as clearly illustrated in Figure 3, instead of presenting a flat front plane 5, could be provided with a widening or spherical cap 6, as shown in this Figure 3, or it can merely be a sphere.

The body 2, constituting the female element, is comprised of a cylindrical body 7, one end of which terminates in another head 8 having a general curvo-convex shape. The cylindrical body 7 has an axial circular-section blind hole 9 whose diameter substantially coincides with that of the rod 20 of the male body 1.

The head 8 of the female body 2 is provided with a radial hole 10, which communicates with the axial hole 9 of the cylindrical body 7, and in which a key-operated lock 11 is secured. According to these figures, the head 8 of the female body 2 is comprised of a spherical cap 12, and a cylindrical zone 13, provided with the hole 10 for inserting the lock 11, the front end of this zone 13 being limited by a plane 14. To obtain the widest support and guide surface for the rod 20 of the male body, upon being inserted in the hole 9 of the female body 2, as illustrated in Figure 3, there is shown a cylindrical extension 15 of the zone 13, coaxial with the cylindrical body 7, constituting a prolongation of said head 8. If desired, this cylindrical extension 15 of the head 8 can be absorbed by the most spherical shape of said

head 2, as that schematically illustrated with dotted lines in Figure 3.

When engagement of the two bodies 1 and 2 is established, as illustrated in Figure 3, an obturator 17 of the lock 11, is partially received in the annular groove or recess 3 of the rod 20 of the male body 1, establishing the blocking between the two bodies, once the lock 11 is so activated to move the obturator 17 into the groove or recess 3.

The cylindrical body 7 of the female body 2 passes through the anchoring means provided in the elements or objects to be secured by means of the closure device, preventing removal thereof once the male body 1 is connected, based on the end widenings at the heads 4 and 8 of both bodies 1 and 2.

Since the closure device of the invention is constituted from an externally straight coupling determined by a cylindrical body 7 to the ends of which are disposed the heads 4 and 8, rotating about their common shaft but deprived of axial movement due to the blocking between the obturator 17 and the annular groove or recess 3, all possibility of separation of the bodies by inserting, for example, a crowbar therebetween is eliminated, since they would rotate to preventing it, thus resulting in a highly safe coupling device.

CLAIMS

1. Closure device incorporating a crowbar-proof blocking, characterised in that it comprises two complementary independent bodies, one of which includes a rod provided with at least one annular recess at one end and terminates at the opposite end in a curvo-convex head, whereas the other body, having a general cylindrical shape and including another end curvo-convex head, has an axial blind hole, whose diameter coincides with that of the rod of the other body to receive it therein, and a radial hole in which is secured a key-operated lock, the obturator of which is capable of being partially housed in the annular recess of the rod, locking the joining of both bodies, and which obturator also has a position at which the rod can be released.

2. Closure device comprising first and second elements, the first element having a head at one end and a rod extending therefrom, the rod having an annular recess at or adjacent its end remote from the head, the second element having a head at one end from which extends a cylindrical spigot into a blind axial hole in which the rod of the first element is intended to be fitted, the second element also having an aperture in its head communicating with said blind hole and containing a key-operated lock, a blocking part of which is arranged to be actuatable to move into and out of said recess in the rod to lock together or to release the two bodies.

3. A closure device as claimed in claim 1 or claim 2, wherein the head of the second element or other body has an axial extension in a direction away from the first element or said one body to accommodate the length of the rod.

4. A closure device substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

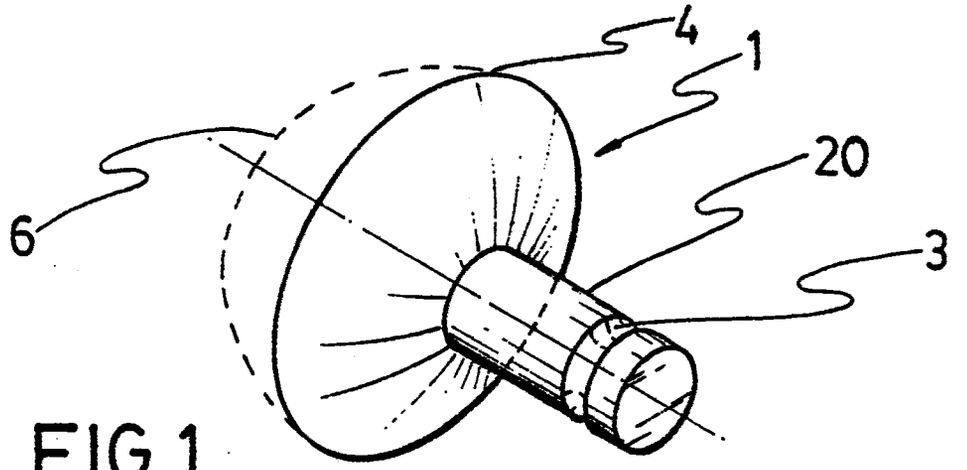


FIG.1

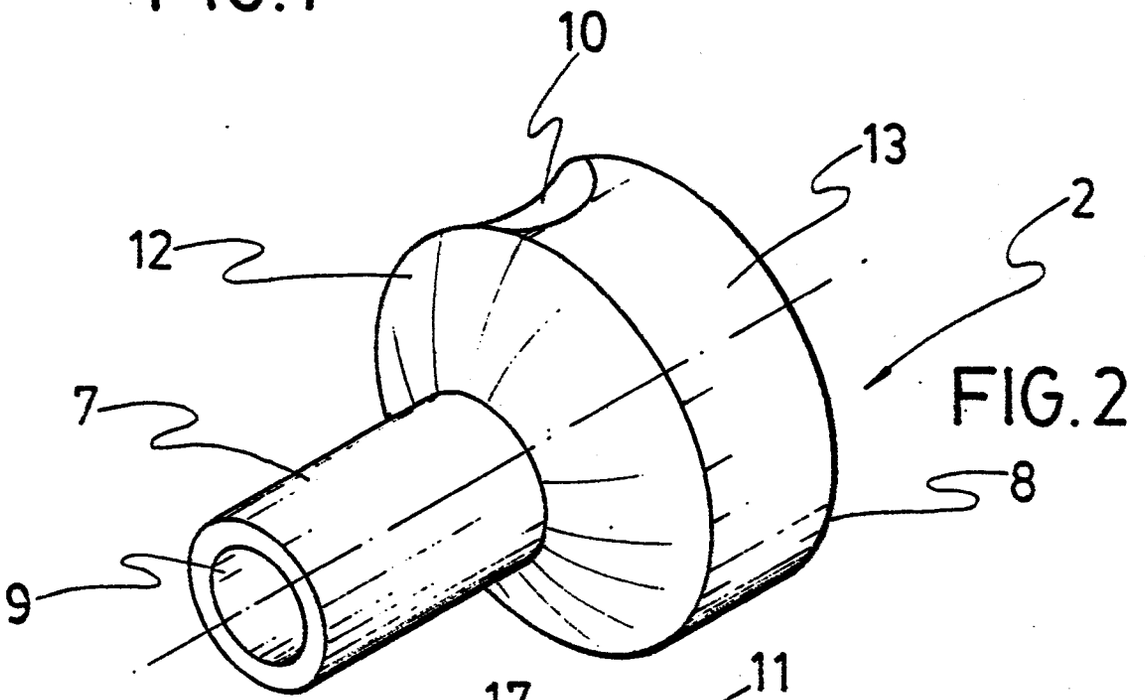


FIG.2

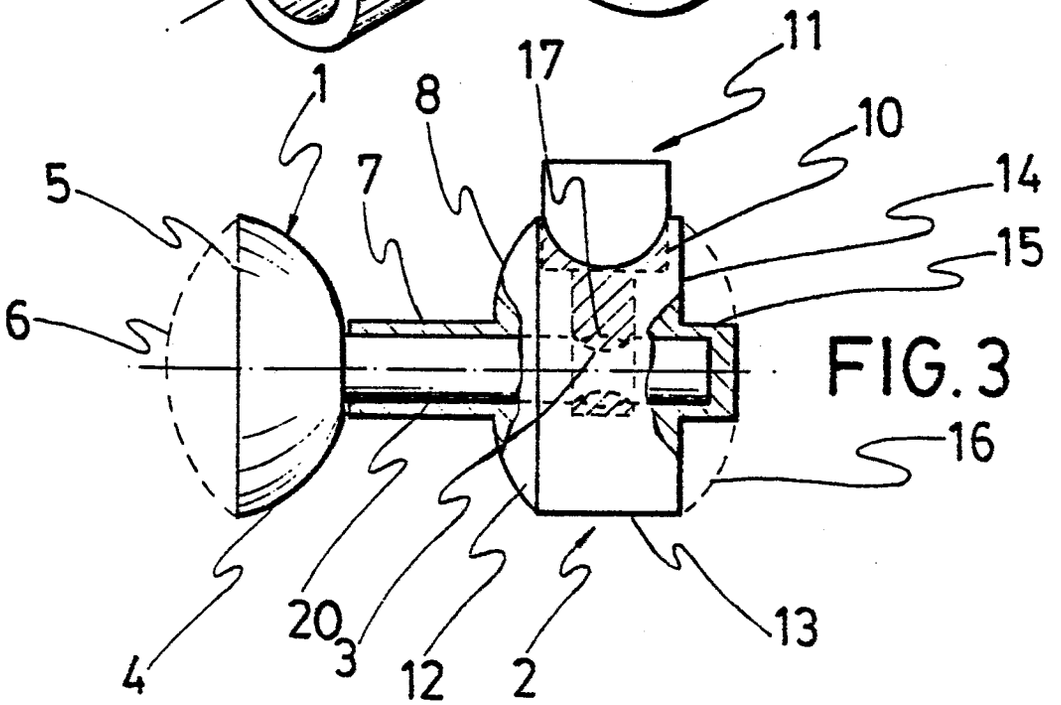


FIG.3

European Patent Office

EUROPEAN SEARCH REPORT

0208813

Application number

EP 85 30 4231

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	GB-A- 509 649 (WILSON) * Whole document *	2	E 05 B 67/36
Y		1	

X	US-A-1 617 204 (ERRECALDE) * Whole document *	2	

Y	DE-C- 435 887 (EHM) * Whole document *	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

E 05 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	31-01-1986	VAN BOGAERT J.A.M.M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO Form 1503. 03.82