

Description

The invention relates to an engagement lock for a container with locking rings comprising first and second members adapted for snap-fit interlocking after the first member has been introduced into a cavity provided in the second member, said first member comprising a rod-shaped elongate body whose one end, the insertion end, is suitable for introduction into the cavity, the other head end of said rod-shaped body, as well as said second member, having larger transverse dimensions than the insertion end so as to render them suitable for use with locking rings of internal dimension intermediate that of the insertion end and the head end/second member, said insertion end of said elongate body being formed by a flexible core, in the form of a length of multiple strand steel wire embedded in a layer of a rigid material, the other end of said core extending into the other head end of said elongate body being also embedded in a layer of a rigid material together forming a head.

An engagement lock of the type indicated above is known from US—A—3 980 337.

The elongated body of such a prior art lock is a cable or wire which is too flexible, and consequently, this flexible member will yield and be bent if e.g. the stroke of a hammer is used in order to try to insert and interlock it with the other member. Moreover, the individual strands of the wire will be untwisted or loosened during such an attempt at interlocking.

An engagement lock is disclosed in the Danish Patent Specification 134 811 corresponding to the British Patent Specification 1 498 526. In this lock the rod-shaped body is a rigid solid rod of metal, and the resistance to its introduction into the cavity during the interlocking can e.g. be overcome in the abovementioned manner by the stroke from a hammer. This lock is meant to be opened by cutting the rod-shaped body by means of a strong pair of scissors or shears.

However, it has turned out to be possible for an unauthorized person to open this engagement lock by inserting a pipe around one of the two members of the lock and bending it from side to side until the rod-shaped body breaks.

The object of the invention is to provide an engagement lock which cannot be broken like the lock of the British Patent Specification 1 498 526 by inserting a pipe to surround one of the two members of the lock and bending it from side to side until the first member breaks, and which does not have the drawbacks associated with the interlocking procedure as known from the US Patent Specification 3 980 337, where the first member is bent and/or untwisted and loosened.

Accordingly there is provided an engagement lock for a container with locking rings comprising first and second members adapted for snap-fit interlocking after the first member has been introduced into a cavity provided in the second member, said first member comprising a rod-shaped elongate body whose one end, the inser-

tion end, is suitable for introduction into the cavity, the other head end of said rod-shaped body, as well as said second member, having larger transverse dimensions than the insertion end so as to render them suitable for use with locking rings of internal dimension intermediate that of the insertion end and the head end/second member, said insertion end of said elongate body being formed by a flexible core, in the form of a length of multiple strand steel wire embedded in a layer of a rigid material, the other end of said core extending into the other head end of said elongate body being also embedded in a layer of a rigid material together forming a head, characterized in that said flexible core is totally surrounded by a layer of a material which braces the core and which is sufficiently rigid to allow the elongate body which forms one member of the lock to be interlocked with the second member by the stroke of a hammer, without the strands of the flexible core being separated.

If an attempt is made at opening the lock of the invention in the manner mentioned above, the steel wire yields so as to still retain the head which cannot pass through the locking rings, and the container can therefore not be opened. Moreover, the material around the steel wire braces it, allowing the rod-shaped body, which forms one member of the lock, to be introduced into the second member to be interlocked with it by the stroke of a hammer, without the first member being bent or the steel wire being unwound.

As stated in claim 2, the layer which totally surrounds the flexible core is sufficiently brittle to break when an attempt is made at opening the lock by bending.

One or more annular grooves may be formed in the rigid layer, around the steel wire, to create lines of weakness and the advantage of this is that when an attempt is made at opening the lock in said manner, the layer breaks at the bottom of one of the grooves where the layer is thinnest. Thus, no cracks are formed in the longitudinal direction of the material and accordingly the attachment of the head to the steel wire remains completely intact.

It has been found that the steel wire may very expediently be surrounded by plastics, such as polyacetal. It has also been found that the steel wire may very expediently be surrounded by metal, e.g. steel, zinc or aluminium.

The invention is described in more detail below with reference to the drawing, in which

Fig. 1 shows, partly in section, the locked state of a lock of the invention passed through the locking rings of a container, and

Fig. 2 shows a longitudinal section of the member of the engagement lock which is formed by the rod-shaped body.

The engagement lock shown in Fig. 1 comprises two members 1 and 2 which are adapted to automatic interlocking after the first member 1, which is in the form of a rod-shaped body, has been introduced into a cavity in the second member 2. The engagement lock is used for

locking a container for the transport of goods, the rod-shaped body 1 being passed through the locking rings of the container, indicated by 3 and 4 in Fig. 1, before it is interlocked with the second member 1 of the lock. The rod-shaped member 1, which is preferably circular in cross-section, has at one end a head 5 of considerably larger diameter than the rod-shaped body itself so that the head 5 cannot be passed through the locking rings 3 and 4.

At the opposite end of the head 5 the rod-shaped member 1 has a tapered insertion end 6 and rearwards of said taper an abruptly reduced cross-section area so as to produce a shoulder 7. From the shoulder 7 the cross-section is again increased in the direction of the head 5.

The second member 2 of the lock comprises a circular cylindrical sleeve 8 with an internal, annular recess 9 containing a locking ring 10. The sleeve 8 with the locking 10 is encased in a solid envelope 11 of plastics, e.g. polyacetal.

The two members 1 and 2 are interlocked when the insertion end 6 of the rod-shaped body 1 is passed through the locking ring 10 of the sleeve 8 and expands the locking ring 10 against its elastic force until the members 1 and 2 are engaged in the position shown in Fig. 1 in which the locking ring 10 snaps behind the shoulder 7 of the rod-shaped body 1 as a consequence of the elastic force.

The lock is opened by cutting the rod-shaped body 1 by means of a pair of strong scissors or shears which are disposed between the head 5 and the locking ring 4 or between the envelope 11 and the locking ring 3.

The structure of the rod-shaped body 1 appears from Fig. 2. The front, approximately half length of the body 1 with the insertion end 6 consists of a rigid material, preferably metal, in which a core in the form of a steel wire 12 is attached, said steel wire extending away from the insertion end almost in the entire length of the rest of the rod-shaped body 1. The opposite end of the steel wire 12 is embedded in a solid material which also forms the head 5. This material may e.g. be metal or plastics. In the shown embodiment polyacetal is used. A plurality of annular grooves 14 are formed in the polyacetal layer of the cylindrical part 13 forwards of the head 5 so that the thickness of the polyacetal layer on the steel wire is significantly thinner in the bottom of said grooves 14. When an attempt is made at breaking the rod-shaped body of the polyacetal layer breaks at the bottom of one of the grooves and the attachment of the head 5 to the steel wire 12 is not affected by this. Therefore, the lock can only be opened by shears in the manner described.

Claims

1. An engagement lock, for a container with locking rings (3, 4), comprising first and second members (1, 2) adapted for snap-fit interlocking after the first member has been introduced into a cavity provided in the second member (2), said

first member (1) comprising a rod-shaped elongate body whose one end, the insertion end (6) is suitable for introduction into the cavity, the other head end of said rod-shaped body, as well as said second member (2), having larger transverse dimensions than the insertion end so as to render them suitable for use with locking rings (3, 4) of internal dimension intermediate that of the insertion end and the head end/second member, said insertion end (6) of said elongate body being formed by a flexible core, in the form of a length of multiple strand steel wire embedded in a layer of a rigid material, the other end of said core extending into the other head end of said elongate body being also embedded in a layer of a rigid material together forming a head (5), characterized in that said flexible core is totally surrounded by a layer (13) of a material which braces the core and which is sufficiently rigid to allow the elongate body which forms one member of the lock to be interlocked with the second member by the stroke of a hammer, without the strands of the flexible core being separated.

2. An engagement lock according to claim 1, characterized in that the layer (13) which totally surrounds the flexible core is sufficiently brittle to break when an attempt is made at opening the lock by bending.

3. An engagement lock according to claim 1, characterized in that one or more annular grooves are formed in the rigid layer (13), around the steel wire (12), to create lines of weakness.

4. An engagement lock according to claims 1 to 3, characterized in that the rigid layer (13) around the steel wire consists of a plastic material such as polyacetal.

5. An engagement lock according to claim 1 to 4, characterized in that the rigid layer (13) around the steel wire consists of a metal.

Patentansprüche

1. Verriegelung durch Kupplung für einen Container mit Verriegelungsringen (3, 4), mit ersten und zweiten Teilen (1, 2), die zu einer einschnappenden Befestigungsverbindung geeignet sind, nachdem das erste Teil in eine, am zweiten Teil (2) vorgesehene Ausnehmung eingesetzt wurde, wobei das erste Teil (1) einen länglichen, stabförmigen Körper aufweist, dessen eines Ende, das Einführungsende (6), zur Einführung in die Ausnehmung geeignet ist, wobei das andere Kopfende des stabförmigen Körpers ebenso wie das zweite Teil (2) größere Querabmessungen als das Einführungsende aufweist, so daß sie für die Verwendung mit den Verriegelungsringen (3, 4) geeignet sind, die innere Abmessungen besitzen, die zwischen denen des Einführungsendes und denen des Kopfendes/des zweiten Teils liegen, wobei das Einführungsende (6) des länglichen Körpers aus einem flexiblen Kern in Form eines Längsabschnitts eines aus vielen Litzen bestehenden Stahldrahtes gebildet wird, der in eine Schicht aus einem starren Material eingebettet ist, wobei sich das andere Ende des Kerns in das

locking a container for the transport of goods, the rod-shaped body 1 being passed through the locking rings of the container, indicated by 3 and 4 in Fig. 1, before it is interlocked with the second member 1 of the lock. The rod-shaped member 1, which is preferably circular in cross-section, has at one end a head 5 of considerably larger diameter than the rod-shaped body itself so that the head 5 cannot be passed through the locking rings 3 and 4.

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2. An engagement lock according to claim 1, characterized in that the layer (13) which totally surrounds the flexible core is sufficiently brittle to break when an attempt is made at opening the lock by bending.

3. An engagement lock according to claim 1, characterized in that one or more annular grooves are formed in the rigid layer (13), around the steel wire (12), to create lines of weakness.

4. An engagement lock according to claims 1 to 3, characterized in that the rigid layer (13) around the steel wire consists of a plastic material such as polyacetal.

5. An engagement lock according to claim 1 to 4, characterized in that the rigid layer (13) around the steel wire consists of a metal.

Patentansprüche

1. Verriegelung durch Kupplung für einen Container mit Verriegelungsringen (3, 4), mit ersten und zweiten Teilen (1, 2), die zu einer einschnappenden Befestigungsverbindung geeignet sind, nachdem das erste Teil in eine, am zweiten Teil (2) vorgesehene Ausnehmung eingesetzt wurde, wobei das erste Teil (1) einen länglichen, stabförmigen Körper aufweist, dessen eines Ende, das Einführungsende (6), zur Einführung in die Ausnehmung geeignet ist, wobei das andere Kopfenende des stabförmigen Körpers ebenso wie das zweite Teil (2) größere Querabmessungen als das Einführungsende aufweist, so daß sie für die Verwendung mit den Verriegelungsringen (3, 4) geeignet sind, die innere Abmessungen besitzen, die zwischen denen des Einführungsendes und denen des Kopfendes/des zweiten Teils liegen, wobei das Einführungsende (6) des länglichen Körpers aus einem flexiblen Kern in Form eines Längsabschnitts eines aus vielen Litzen bestehenden Stahldrahtes gebildet wird, der in eine Schicht aus einem starren Material eingebettet ist, wobei sich das andere Ende des Kerns in das



andere Kopfende des länglichen Körpers hinein erstreckt und ebenfalls in eine Schicht aus einem starren Material eingebettet ist, wodurch sie zusammen einen Kopf (5) bilden, dadurch gekennzeichnet, daß der flexible Kern vollständig von einer Schicht (13) eines Materials umgeben ist, die den Kern aussteift und ausreichend starr ist, um den länglichen Körper, der einen Teil der Verriegelung bildet, das Ineinandergreifen mit dem zweiten Teil mittels eines Hammerschlages zu gestatten, ohne daß die Litzen des flexiblen Kerns sich trennen.

2. Verriegelung nach Anspruch 1, dadurch gekennzeichnet, daß die Schicht (13), die den flexiblen Kern vollständig umgibt, ausreichend spröde ist, so daß sie bricht, wenn versucht wird, die Verriegelung durch Umbiegen zu öffnen.

3. Verriegelung nach Anspruch 1, dadurch gekennzeichnet, daß eine oder mehrere ringförmige Nuten in der starren Schicht (13) um den Stahldraht (12) herum ausgebildet sind, um Sollbruchlinien zu bilden.

4. Verriegelung nach den Ansprüchen 1 bis 3, dadurch gekennzeichnet, daß die starre Schicht (13) um den Stahldraht (12) aus einem Kunststoff, z.B. Polyacetal besteht.

5. Verriegelung nach den Ansprüchen 1 bis 4, dadurch gekennzeichnet, daß die starre Schicht (13) um den Stahldraht (12) aus einem Metall besteht.

Revendications

1. Verrouillage par engagement pour un conteneur comportant des anneaux de verrouillage (3, 4), qui comprend des premier et second éléments (1, 2) conçus de façon à réaliser un interverrouillage automatique après l'introduction du premier élément dans une cavité ménagée dans le second élément (2), ledit premier élément (1) comprenant un corps allongé en forme de tige

dont une extrémité, dite extrémité d'insertion (6) est conçue de façon à être introduite dans la cavité, l'autre extrémité, en forme de tête, du corps en forme de tige, ainsi que ledit second élément, ayant des dimensions transversales plus grandes que l'extrémité d'insertion, afin de pouvoir être utilisés avec des bagues de verrouillage (3, 4) dont les dimensions internes sont comprises entre celles de l'extrémité d'insertion et de la tête/second élément, ladite extrémité d'insertion (6) du corps allongé étant constituée par une âme flexible, présentant la forme d'une longueur de câble d'acier multibrins noyée dans une couche d'un matériau rigide, l'autre extrémité de ladite âme, qui s'étend dans l'autre extrémité en forme de tête dudit corps allongé, étant également noyée dans une couche d'un matériau rigide en formant ensemble une tête (5), caractérisé en ce que ladite âme flexible est totalement entourée par une couche (13) d'un matériau qui entoure l'âme et qui est suffisamment rigide pour permettre au corps allongé qui constitue l'un des éléments du verrouillage de s'interverrouiller dans le second élément à l'aide d'un marteau, sans que les torons de l'âme flexible se séparent.

2. Verrouillage selon la revendication 1, caractérisé en ce que la couche (13) qui entoure totalement l'âme flexible est suffisamment cassante pour se briser lorsqu'on tente d'ouvrir le verrou par flexions.

3. Verrouillage selon la revendication 1, caractérisé en ce qu'on forme une ou plusieurs rainures annulaires dans la couche rigide (13) autour du câble d'acier (12), afin de créer des lignes de faiblesse.

4. Verrouillage selon les revendications 1 à 3, caractérisé en ce que la couche rigide (13) entourant le câble d'acier est constituée d'une matière plastique telle qu'un polyacetal.

5. Verrouillage selon les revendications 1 à 4, caractérisé en ce que la couche rigide (13) entourant le câble d'acier est constituée d'un métal.

