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(54) **Locking ring.**

(57) The subject of the present invention is a ring for locking a cover onto a fibre cask and the like, which has the peculiarity of comprising a metal profile strip (1,1') which can be disposed in a ring, to the ends of which can be coupled a clamping element (3,3').

There are further provided interfitting means constituted by tongues or projections (6,6') which can be inserted into slots (2,2') defined at the ends of the said profile strip (1,1') and supported by attachment base members (5,15,16) of the said clamping element (3,3') to obtain coupling of the clamping element (3,3') to the profile strip (1,1').

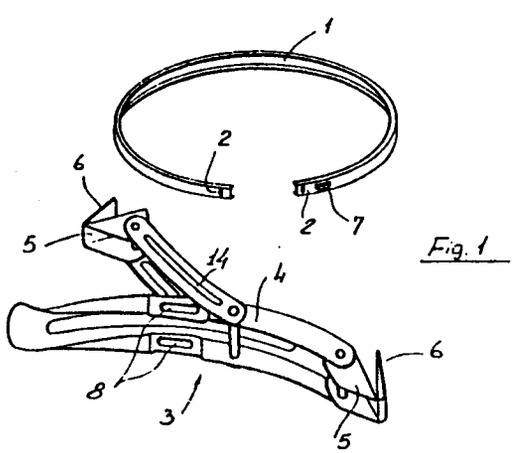

Fig. 1

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A ring for locking the cover onto a fibre cask or the like

The present invention has as its subject a ring for locking the cover onto a fibre cask or the like.

As is known, fibre casks and the like are generally provided with covers which are fixed to the upper edges of the casks themselves, by means of locking rings.

These latter are generally constituted by a shaped metal strip which is provided with a lever clamping member constituted by two parts which must be preliminarily fixed at the ends of the metal strip, thus creating considerable problems during the production and assembly stages.

In fact, the connection of the ends of the metal strip to the parts constituting the lever is achieved by means of a spot welding operation.

Such operations, as well as requiring the use of welding machines must be performed with extreme skill by qualified labour.

Moreover, welding can be very difficult because of the different characteristics of the metal material utilised for the production of the strips.

If the welding is not performed in the correct manner the closure formed will have low reliability in that it is not infrequently the case that rupture takes place in the attachment zones between the parts constituting the lever and the ends of the metal strip.

The object which the present invention proposes is that of eliminating the previously indicated disadvantages by providing a locking ring for fibre cask covers and the like, which can be made simply utilising mechanical operations, of considerable security and reliability.

Within the scope of the above-explained objects, a particular object of the invention is that of providing a closure ring in which all the operations for connection between the clamping element and the metal strip, constituting the locking ring, can be considerably simplified.

The locking ring in question, by not requiring supplementary costs such as welding, has advantages from a purely economic point of view.

The locking ring itself, moreover, can be easily and rapidly fitted to the various types of fibre casks and, moreover, is able to offer the widest guarantees of reliability and safety in use.

The above-explained objects, as well as the objects listed and others, which will be more clearly evidenced hereinbelow, are achieved according to the invention by a locking ring for the cover of a fibre cask or the like, characterised by the fact that it comprises a profile, which can be disposed in a ring, at the ends of which is connectable a clamping element; there being provided, moreover, means for coupling the said clamping element to the said profile.

Further characteristics and advantages of the invention will become more clearly apparent from a study of the description of two preferred, but not exclusive, embodiments of a locking ring for the cover of a fibre cask and the like, illustrated purely by way of indicative, but non-limitative, example, with the aid of the attached drawings, in which:

Figure 1 schematically represents, in perspective a metal profile and, separated therefrom and on an enlarged scale a locking element for connection to the profile itself;

Figure 2 shows the clamping element fitted to the profile;

Figure 3 shows the locking ring in the cover locking position;

Figure 4 shows a different embodiment of the clamping element;

Figure 5 shows the profile to be utilised with the lever of Figure 4.

With reference to Figures from 1 to 3, a closure ring for locking a cover onto a cask or the like, has a metal profile strip, generally indicated with the reference numeral 1, which preferably has a substantially C-shape cross-section.

The said profile strip 1 can be folded to assume a substantially ring-shape conformation and, at its ends, has transverse slots 2 which constitute a fitting element for coupling of a clamping element generally indicated with the reference numeral 3 and preferably constituted by a lever arrangement.

In more detail, the clamping element 3 has a lever arm 4 which is articulated at one end to a small bracket 5 provided with one or more tongues 6 which can be inserted into the slots 2.

At a median portion 4 is articulated the end of a connecting arm 14 which, at the other end, is articulated to a similar small bracket 5 also provided with a tongue 6 which can be connected to the slots 2 provided at the other end of the profile strip.

The tongues 6 can be inserted into the slots formed at the ends of the profile strip 1 and are then foldable against the strip itself in such a way as to render the connection between the profile strip 1 and the metal band securely fixed.

With the structure adopted, in the clamping stage, the tongues are in practice squeezed radially against the peripheral surface both of the cover and of the cask, consequently increasing the clamping and not creating forces which tend to disconnect them.

Close to one of the slots 2 there is, moreover, provided a projecting slot 7 which is accessible radially, which, with the lever in the clamping position, is disposed in correspondence with coincidence slots 8 which are correspondingly defined on the lever arm 4 in such a way as to allow coupling of safety elements or locking elements which further clamp the lever arms together thus guaranteeing integrity of the closure.

In practice, after having fitted the tongues 6 into the slots 2 and folded the tongues themselves against the profile strip 1, clamping is effected normally by acting on the free end of the lever arm 4 to obtain a secure and safe coupling. With particular reference to Figures 4 and 5, there is illustrated a conceptually similar embodiment in which the profile strip, indicated with the reference numeral 1', has in correspondence with the facing ends, a plurality of openings 2' spaced from one another.

Correspondingly, the clamping member, indicated 3', is constituted by a small base 15 to which is pivoted the end of the lever arm 4' which is articulated at its median portion with the end of a link arm 14' articulated at its other end to a second base member 16.

The base members 15 and 16 are provided with projections, indicated 6' which are correspondingly defined on the slots or apertures 2' and which are insertable in a similar manner to that described hereinabove. The base member 15 has lateral sides 20 which define a window 21 in which is disposable, in coincidence, a coincidence window 22 defined in correspondence with the window 21 on the lever arm 4' in such a way as to obtain an insertion region for locking elements, in a conceptually similar manner to that already described hereinabove.

From what has been illustrated above it will be seen how the invention achieves the proposed objects, and in particular the fact is to be emphasised that there is provided a locking ring in which the clamping element, constituted by the lever 3 or 3' is applicable with rapidity and simplicity, merely by exploiting the purely mechanical operations due to coupling of the tongues 6 or projections 6' in corresponding slots 2 or 2' formed on the end of the metal profile strip 1 or 1'.

Another important aspect of the invention is constituted by the fact that the folded tongues or projections are able to exert a considerable mechanical resistance in that when they are subjected to the traction force of the profile strip for closure they are radially compressed between the cover and the upper edge of the cask, without there being any possibility of their mechanical yielding.

The invention, thus conceived, is susceptible of numerous modifications and variations, all lying within the scope of the inventive concept.

Moreover, all the details can be replaced by other, technically equivalent elements.

Claims:

1. A locking ring for the cover of a fibre cask or the like, characterised by the fact that it comprises a profile strip (1,1') disposable in a ring, to the ends of which is connectable a clamping element (3,3') there being further provided interfitting means (6,6') for coupling the clamping element (3,3') to the said profile strip (1,1').

2. A locking ring according to the preceding Claim, characterised by the fact that the said interfitting means are constituted by transvers slots (2) formed at the end of the profile strip (1), in which are engageable tongues (6) projecting from connection brackets (5) of this clamping element (3).

3. A locking ring according to the preceding Claims, characterised by the fact that the clamping element (3) is constituted by a lever element having a lever arm (4) articulated at one end to the said brackets (5) and, in a median portion, with the end of a link arm (14) articulated to the other bracket (5).

4. A locking ring according to one or more of the preceding Claims, characterised by the fact that the tongues (6) can be introduced into the slots (2) and are foldable under the profile strip (1).

5. A locking ring according to one or more of the preceding Claims, characterised by the fact that the said tongues (2), in the closure condition of the lever element (3) are compressed radially by the profile strip

(1) against the peripheral portions of the cover and the cask.

6. A locking ring according to one or more of the preceding Claims, characterised by the fact that it includes, in correspondence with one end of the profile strip (1), a projecting slot (7) accessible axially with respect to the ring (1) and disposable in coincidence with corresponding slots (8) defined on the lever arm (4).

7. A locking ring according to one or more of the preceding Claims, characterised by the fact that it includes a clamping element (3') constituted by a first base member (15) to which is connected the end of a lever arm (4') articulated in its median portion to a link arm (14') connected to a second base member (16), the said first (15) and second (16) base members being provided with projections (6') insertable in corresponding slots (2') defined at the ends of the profile strip (1') and foldable under the profile strip (1') itself.

8. A locking ring according to one or more of the preceding Claims, characterised by the fact that the first base member (15) has lateral sides (20) defining a window (21) disposable in coincidence with a cooperating window (22) defined on the lever arm (4') and disposable in coincidence with the window (21) when the clamping element (3') is in the closure position.

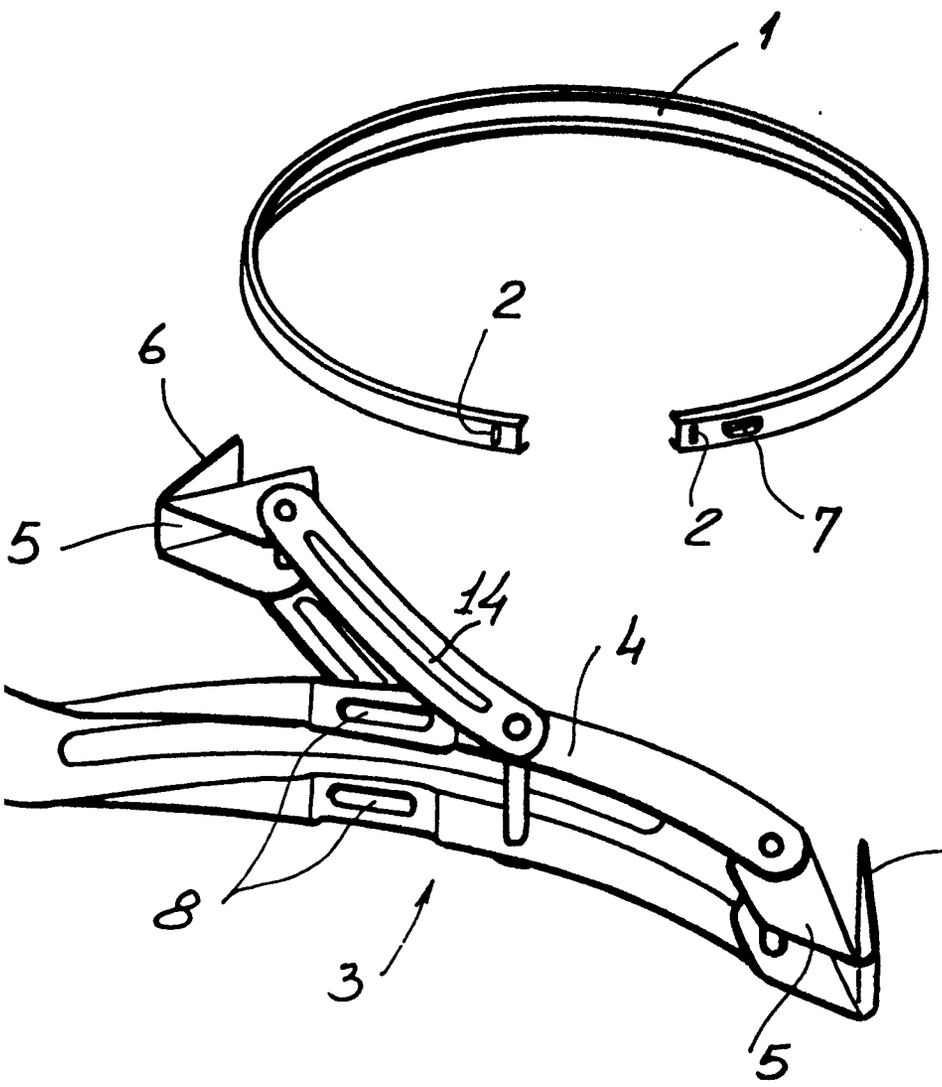


Fig. 1

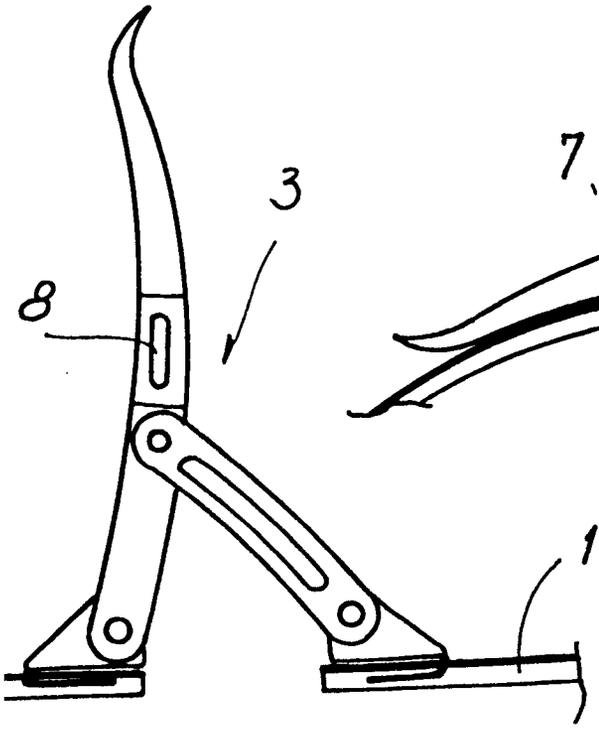


Fig. 2

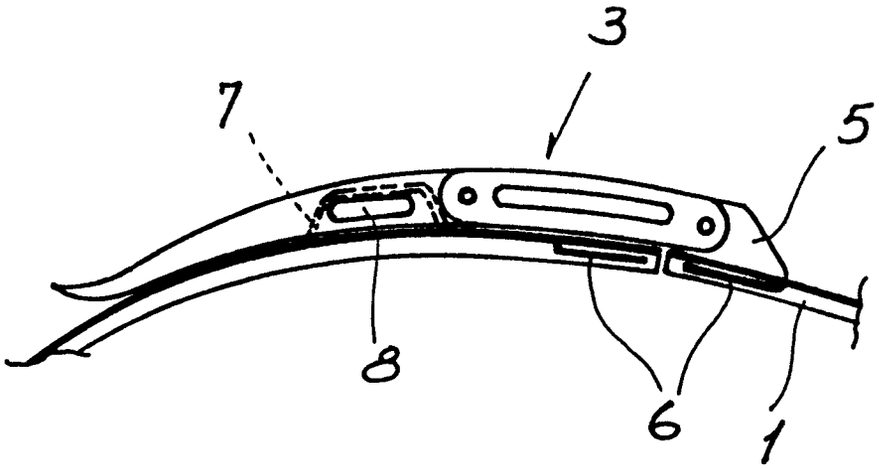
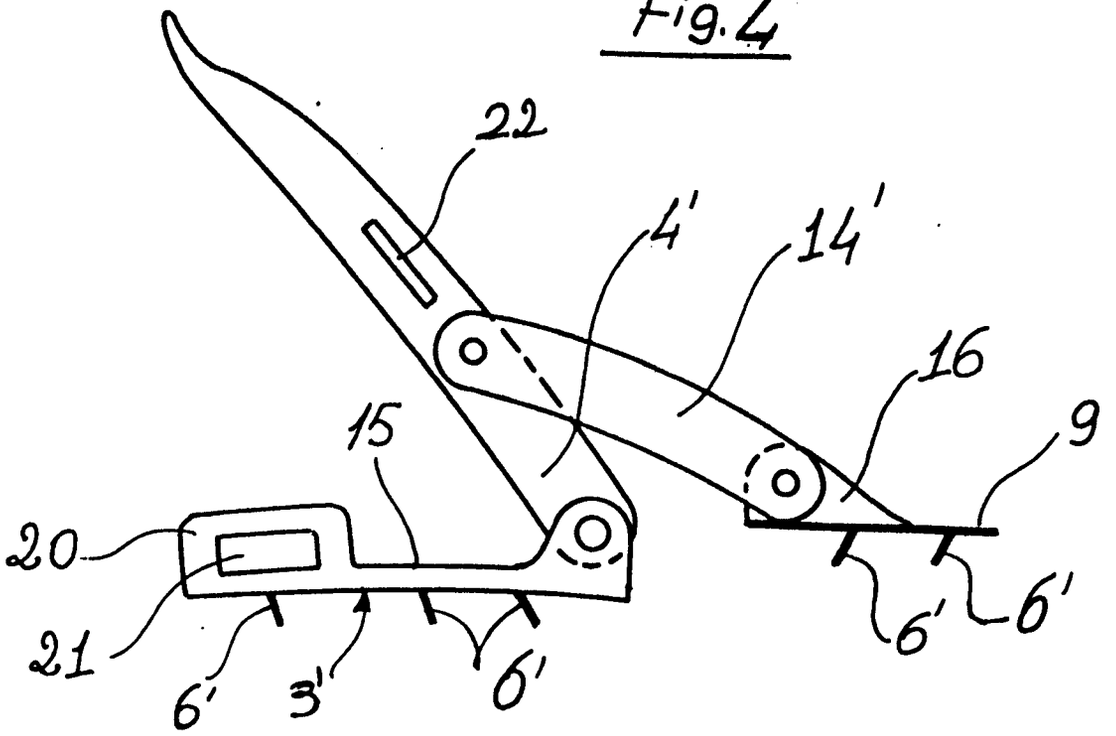


Fig. 3

Fig. 4



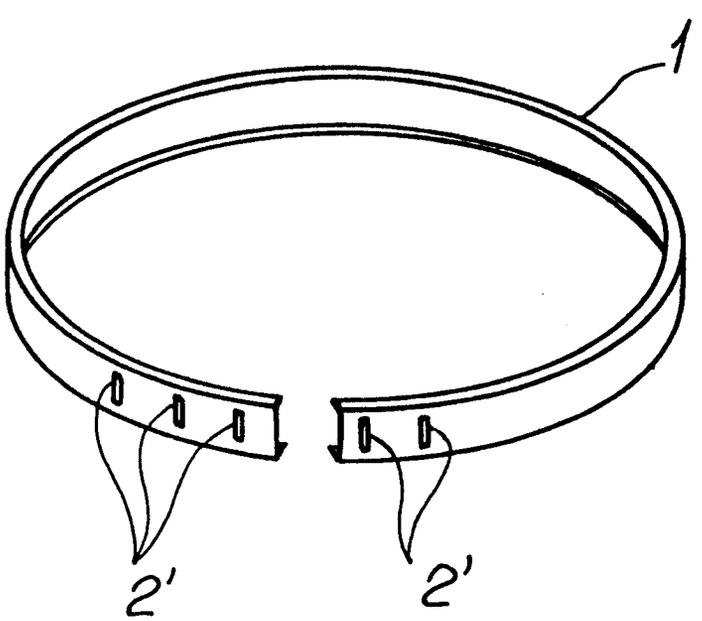


Fig. 5