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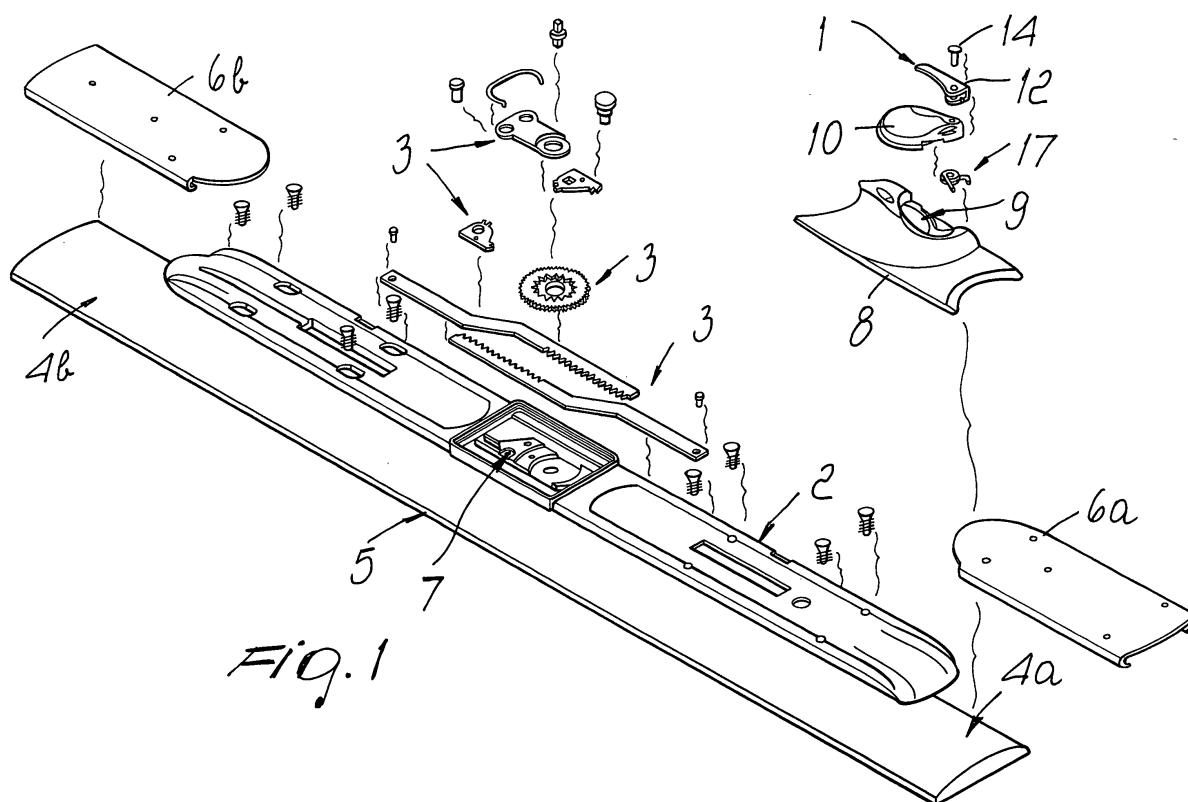
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(54) **Safety device, for ski bindings**

(57) A safety device, particularly usable in ski bindings including a lever-equipped button that is selectively and rotatably associated with a central body, constituted by a lever that has a first end, which is pivoted to the

button, and a second free end, which interacts, by abutment, with at least one locator provided in the central body. The lever thus arranged acts as a device for the temporary locking of the rotation of the button.



Description

[0001] The present invention relates to a safety device particularly usable in ski bindings or in other devices in which a mechanism is activated by way of a lever-

[0002] Devices for adjusting the position of ski bindings or the angular position of snowboard bindings are in fact currently commercially available and are generally constituted by locking means that can be activated and deactivated by way of lever-equipped buttons.

[0003] The main drawback of those conventional adjustment devices is that they can be activated accidentally, for example due to an impact by an external object on the lever or button, thus exposing the user to severe risks, because the support on the implement is suddenly lost.

[0004] Another drawback of the prior art adjustment devices provided with lever-equipped buttons is that most of them do not clearly indicate visually the position of said button.

[0005] Accordingly, the user, directly after an adjustment of the binding, may start the sports practice believing that the adjustment device has been locked while it is instead still open.

[0006] Again, this can cause a dangerous condition for the user, affecting his or her safety.

[0007] The aim of the present invention is therefore to solve the above cited technical problems of the prior art, by providing a safety device that provides a safe locking for the lever-equipped button.

[0008] An important object of the invention is to provide a safety device that can be activated and deactivated simply and rapidly.

[0009] Another important object is to provide a safety device that allows clear and evident visual indication, in any situation, of the locked/released condition of the binding.

[0010] Another object is to provide a device that is structurally simple and has low manufacturing costs.

[0011] This aim and these and other objects that will become better apparent hereinafter are achieved by a safety device, particularly for ski bindings comprising a lever-equipped button that is selectively and rotatably associated with a central body, characterized in that it comprises a lever that has a first end, which is pivoted to said button, and a second free end, which interacts, by abutment, with at least one first locator provided in said central body for the temporary locking of the rotation of said button.

[0012] Further characteristics and advantages of the invention will become better apparent from the detailed description of a particular embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

tively, a device for adjusting the distance between the toe unit and the heel unit of a ski binding and the device for activating said adjustment device; Figures 3 and 4 are plan views of the activation device, respectively in the locked position and in the adjustment position.

[0013] With reference to the above cited figures, the numeral 1 designates a safety device, particularly usable in ski or snowboard bindings, provided with suitable means for example for adjusting the angle or the mutual distance between the toe unit and the heel unit of the bindings with respect to the board or ski, said means comprising a central body 2 for containing a plurality of gears, generally designated by the reference numeral 3.

[0014] Two plates 6a and 6b, for supporting respectively a toe unit and a heel unit, not shown in the figures, are associated so that they can slide temporarily with the free ends 4a and 4b of the central body 2, which is associable with a ski 5 in a lower region.

[0015] In this particular embodiment, the central body 2 has a first central opening 7, which can be closed by a cover 8.

[0016] In the cover there is a second opening 9 for placing a lever-equipped button 10, which is teardrop-shaped and interacts with the gears 3 so as to allow the temporary sliding of the pair of plates 6a and 6b along the free ends 4a and 4b of the central body 2 and therefore allow adjustment of the ski binding.

[0017] The lever-equipped button 10 is in fact selectively and rotatably associable with the central body 2 and can assume a first locking position, in which it is accommodated within a first seat 11 formed in said central body 2, and a second position for activating the adjustment device, in which the button 10 protrudes approximately at right angles with respect to the ski 5.

[0018] The safety device 1 is constituted by a lever 12, which is pivoted to the button 10 at a first end 13a.

[0019] The pivoting is achieved for example by using a pivot 14, which passes approximately vertically through two first holes 15a and 15b formed within said first end 13a of the lever 12 and through a second hole 16 formed at the end of the button 10 that is directed toward the outer lateral edge of the cover 8.

[0020] An elastically deformable element, such as a spring 17, is provided coaxially to the pivot 14 and is suitable to keep the lever 12 in abutment and accommodated within a second seat 18, formed in the button 10, which is preferably shaped complementarily to a first inner lateral edge 19a of the lever 12.

[0021] Once the button 10 is in the locked position, the lever is arranged approximately parallel to the longitudinal axis of the ski 5 and is accommodated within the second seat 18.

[0022] In this condition, the second free end 13b of the lever 12 is shaped so as to interact, by abutment, with at least one first locator 20, provided in the central body 2.

Figures 1 and 2 are perspective views of, respec-

[0023] Said interposition of parts, between the lever 12, arranged in abutment, and the first locator 20, ensures the temporary locking of the rotation of the button 10.

[0024] The second lateral edge 19b, arranged opposite the first lateral edge 19a of the lever 12, has a linear shape, so as to arrange itself approximately on the same plane as the lateral edge of the ski 5, when the lever 12 is in the abutment position.

[0025] Once the lever 12 has been turned, so that the second end 13b does not interact with the first locator 20, the user can turn the button 10 until it reaches the second activation position.

[0026] In said second position, the lever 12, actuated by the spring 17, arranges itself, as in Figure 4, approximately parallel to the longitudinal axis of the ski 5. The second end 13b of the lever 12 is arranged at a second locator 21, which allows stable positioning of the lever 12 in the condition in which the button 10 is open.

[0027] In this position, the lever 12, by protruding laterally from the ski 5, acts as a visual indicator of the activation position of the button 10.

[0028] The operation of the device is therefore as follows: with particular reference to Figures 3 and 4, when the lever is arranged at the first locator 20 the lever-equipped button 10 cannot be removed from the locking position, thus ensuring that the adjustment performed on the ski binding is maintained and avoiding the danger of accidental activations of the button caused for example by impacts.

[0029] In order to change the adjustment of the ski binding, the user merely has to turn the lever 12 clockwise about the pivot 14 until it disengages from the first locator 20. Immediately thereafter, counterclockwise rotation of the button 10 is allowed, the button interacting with the underlying gears 3, so as to activate the adjustment device.

[0030] The spring 17 acts so as to move the lever 12, no longer retained by the user, into abutment in the second locator 21.

[0031] It has thus been found that the invention has achieved the intended aim and objects, a device having been provided which allows to perform, simply and rapidly, a safety locking of the lever-equipped button of an adjustment device for ski or snowboard bindings.

[0032] The materials used, as well as the dimensions of the individual components of the invention, may of course be more pertinent according to specific requirements.

[0033] The disclosures in Italian Utility Model Application No. TV2001U000008 from which this application claims priority are incorporated herein by reference.

[0034] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of

example by such reference signs.

Claims

1. A safety device, particularly for ski bindings comprising a lever-equipped button that is selectively and rotatably associated with a central body, **characterized in that** it comprises a lever that has a first end, which is pivoted to said button, and a second free end, which interacts by abutment with at least one first locator provided in said central body for the temporary locking of the rotation of said button.
2. The device according to claim 1, **characterized in that** said lever is pivoted to said lever-equipped button by means of a pivot that passes within one or more holes formed within said button and said first end of said lever.
3. The device according to claim 2, wherein said central body has a first seat for positioning said button, which interacts in a lower region with a plurality of gears for activating a device for adjusting said binding, **characterized in that** an elastically deformable element is associated with said lever and is adapted to keep it in abutment and accommodated within a second seat, which is formed in said button and is shaped complementarily to a first inner lateral edge of said lever.
4. The device according to claim 3, **characterized in that** said elastically deformable element is constituted by a cylindrical spring arranged coaxially to said pivot.
5. The device according to one or more of the preceding claims, wherein said lever-equipped button is arranged laterally to said central body, **characterized in that** said pivot passes approximately vertically through two first holes formed in said first end of said lever and through a second hole formed at the end of the button that is directed toward the outer lateral edge of said central body.
6. The device according to one or more of the preceding claims, wherein said lever-equipped button assumes a first locking position, in which it is accommodated within said first seat, and a second position for activating said adjustment device, in which said button protrudes approximately at right angles to said ski, **characterized in that** when said button is in the locking position said lever is arranged approximately parallel to the longitudinal axis of said ski and is accommodated within said second seat.
7. The device according to claim 6, **characterized in that** when said button is arranged in the locking po-

sition, said second end of said lever is shaped so as to interact by abutment with said first locator provided in said central body.

8. The device according to claim 7, **characterized in that** said first locator is constituted by a portion of the raised edge that constitutes said first seat. 5
9. The device according to one or more of the preceding claims, **characterized in that** the interposition of parts between said first locator and said lever, arranged in abutment, ensures the temporary locking of the rotation of said button. 10
10. The device according to one or more of the preceding claims, **characterized in that** the second lateral edge of said lever, which is external and opposite with respect to said first lateral edge, has an approximately linear shape that is suitable to arrange itself approximately on the same plane as the lateral edge of said ski when said lever is in the abutment position. 15 20
11. The device according to one or more of the preceding claims, **characterized in that** once said lever has been turned so that said second end does not interact with said first locator, the user can turn said lever-equipped button until it reaches the second activation position. 25 30
12. The device according to claim 11, **characterized in that** when said button is arranged in the activation position, said elastically deformable element forces said lever to assume a position that is approximately parallel to the longitudinal axis of said ski, so that said second end of said lever interacts with a second locator provided along the lateral edge of said central body. 35
13. The device according to claim 12, **characterized in that** when said button is arranged in the activation position, said lever, by protruding laterally and externally from said ski, acts as a visual indicator of the activation position of said button. 40 45

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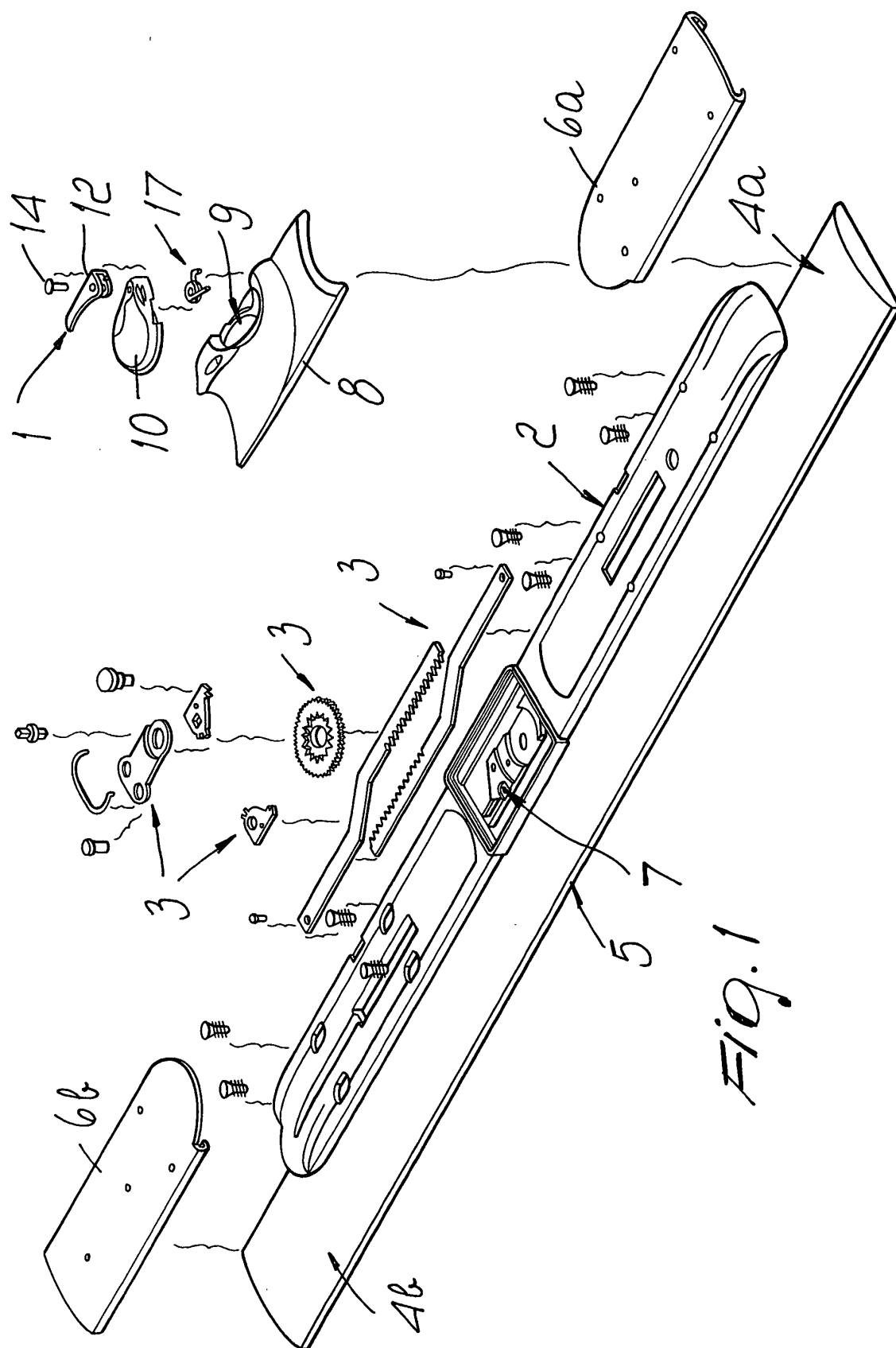


Fig. 1

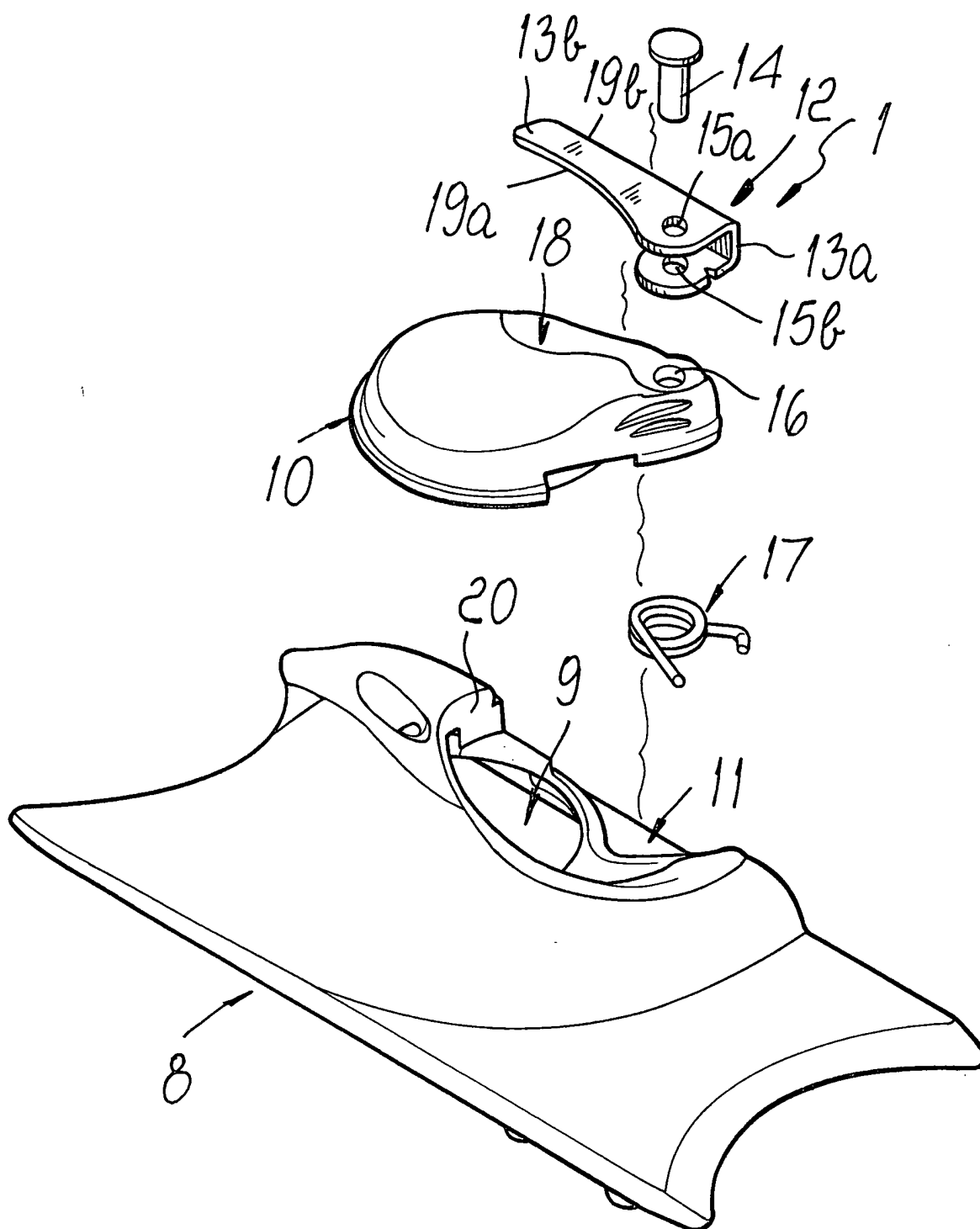


Fig. 2

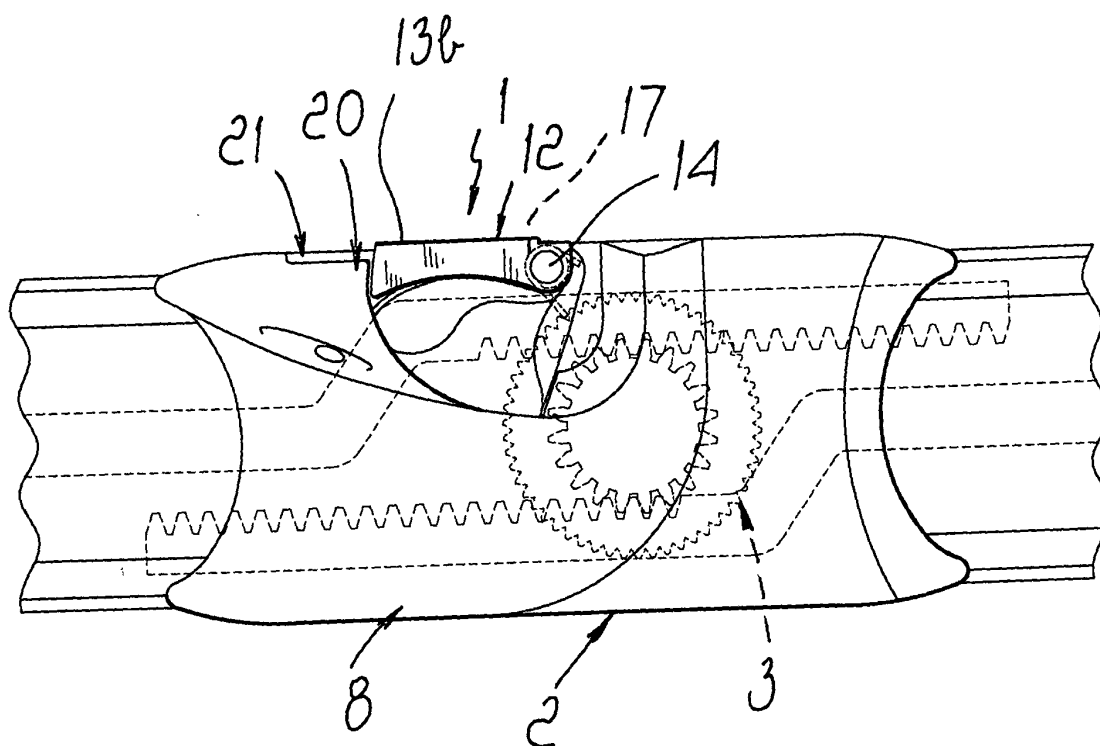


Fig. 3

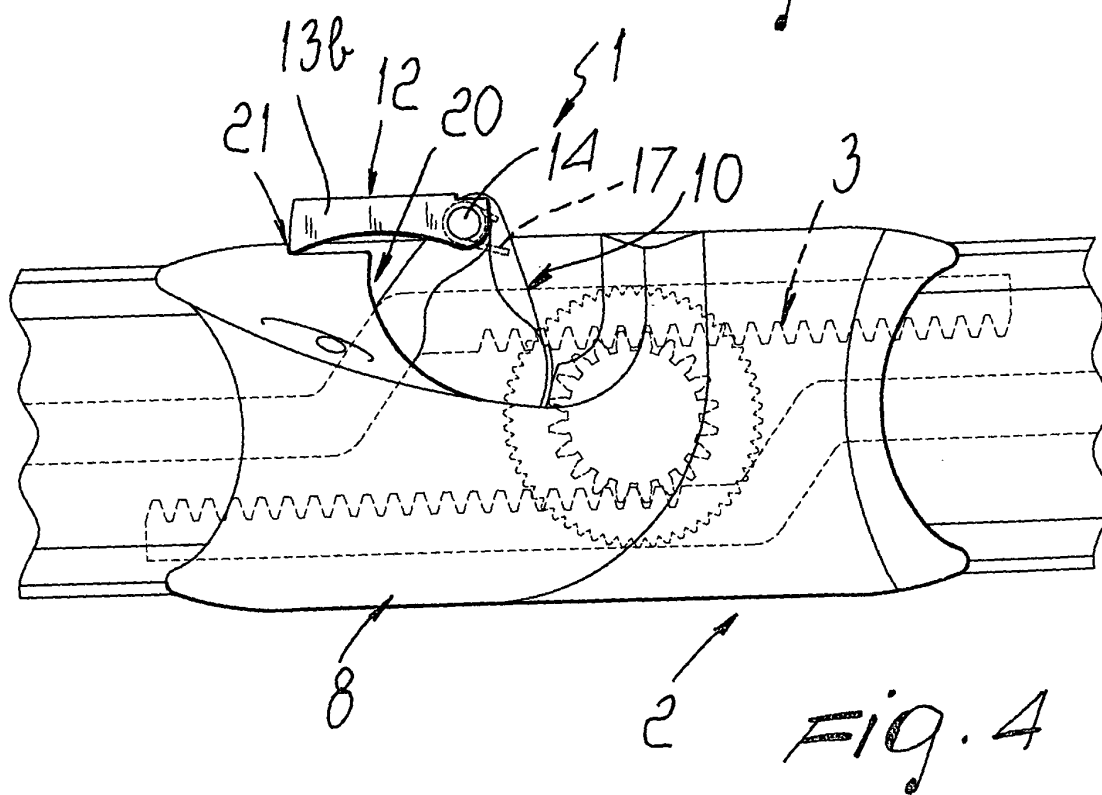


Fig. 4