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(54) Antitheft device for locking the steering wheel of any kind of vehicle

(57) The present invention relates to an antitheft device for locking the steering wheel of any kind of vehicle, comprising a first outer locking element (1; 21), provided with means (2; 23, 25) for the coupling with a section (3, 3'; 24) of the steering wheel, a second inner locking element (5; 22), movable with respect to said first locking element (1; 21) and provided with at least a projecting tongue (6; 27) coupling with the steering wheel (3, 3'; 24) and interacting with said coupling means (2; 23, 24) with a section of the steering wheel provided on said first element (1; 21) so as to lock the outer ring of the steering wheel and at least one spoke (4; 29) of the steering wheel, opening and closure means (7, 8, 9, 10, 11; 28) for the antitheft device, said first outer element (1; 21) being provided with a projection interfering with other parts of the vehicle so as to prevent the free rotation of the steering wheel when the antitheft device is on.

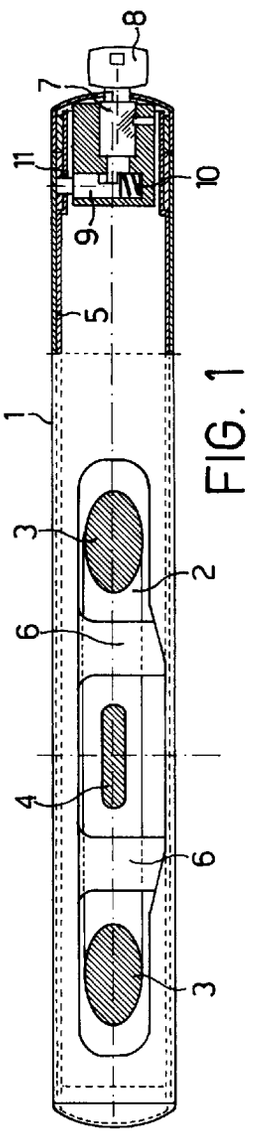

FIG. 1

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Description

The present invention relates to an antitheft device for locking the steering wheel of any kind of vehicle.

More particularly, the invention relates to an antitheft device of the above kind acting in the steering wheel so as to lock both the outer ring and the spokes, so as to make extremely difficult and laborious its removal by an ill-intentioned person.

It is well known that at present many different antitheft mechanical devices are available. Their diffusion is obviously due to the always greater number of thefts and to the fact that the skill of the thieving allow to avoid also the difficulties caused by the most sophisticated electronic devices.

Among the mechanical antitheft devices it is possible to individuate those acting on the vehicle pedals, eventually acting also on the steering wheel, and those provided only on the steering wheel, so as to prevent its free motion and thus the driving of the car.

The antitheft devices of the second kind presently available on the market are basically comprised of a mechanical element coupled to the steering wheel, preferably in an inner position, between two diametrically opposed points, and provided with an element projecting with respect to the steering wheel so as to strike , in case one tries to drive the car with the antitheft device on, against the front windscreen, against the door or against the legs of the driver, preventing the driving of the car.

This kind of structure can be easily removed by an ill-intentioned person provided with the suitable tools, simply making only one cut along the ring of the steering wheel close to the antitheft device, so as to make it is to take off the same.

In view of the above, the antitheft effect of the above device is limited, and can at most be a deterrent for not well supplied or unskilled thieving, that therefore cannot properly work.

It must further put into evidence that the Insurance Companies operating in countries like Great Britain does not reimburse the theft in case an antitheft device as described above is used, i.e. an antitheft device requiring only one cut for its removal.

In view of the above, the Applicant has realized a solution for an antitheft device to be applied to the vehicle steering wheel locking both the ring and the spokes of the steering wheel, so that its removal requires the execution of at least three different cuts.

Advantages deriving from a solution like that herein proposed are really remarkable, since the antitheft device according to the present invention realizes a safety element definitely better with respect to those presently available, satisfying also the needing of the Insurance Companies.

It is therefore a specific object of the present invention an antitheft device for locking the steering wheel of any kind of vehicle, comprising a first outer locking element, provided with means for the coupling with a section of the steering wheel, a second inner locking element, movable with respect to said first locking element and provided with at least a projecting tongue coupling with the steering wheel and interacting with said coupling means with a section of the steering wheel provided on said first element so as to lock the outer ring of the steering wheel and at least one spoke of the steering wheel, opening and closure means for the antitheft device, said first outer element being provided with a projection interfering with other parts of the vehicle so as to prevent the free rotation of the steering wheel when the antitheft device is on.

According to a first embodiment of the antitheft device according to the invention, said first and second elements are made up of two tubular elements, slidingly provided one within the other, the outer element being provided with a shaped slot coupling with a section of the steering wheel and the inner element being provided with at least one curved projecting tongue, preferably two tongues, that, when the antitheft device is opened, is within the first element without obstructing said slot and when is closed is in correspondence of said slot, straddling on a spoke of the steering wheel.

Particularly, said opening and closure means of the antitheft device according to the invention can be comprised of at least one safety lock acting against one pin bucked by a spring and coupling within a hole provided within said second inner element.

Said lock can be provided at one end of the first outer element.

In a second preferred embodiment of the antitheft device according to the invention, said second element slides axially, in front and within said first outer element.

Particularly, said means four coupling with a section of the steering wheel provided in said first element are comprised of a circle arch element, coupable with a steering wheel having every diameter, while said at least one projecting tongue is provided at the bottom of a T-shaped element coupled to the second inner element and is curved.

Preferably, two curved tongues are provided.

Still according to the invention, above said second inner element a rod is provided, said rod being slidable with respect to the same element so as to conform to the diameter of the steering wheel, and its end opposite to the end coupled with the second inner element is curved so as to couple with the steering wheel ring, means being provided for locking said rod in position after the adjustment.

The present invention will be now described for illustrative but not limitative purposes according to its preferred embodiments with particular reference to the figures of the enclosed drawings, wherein:

figure 1 is a partially sectioned view of a first embodiment of the antitheft device according to the invention;

figure 2 shows the antitheft device of figure 1 on a steering wheel;

figure 3 is a section view taken along line A-A of figure 2;

figure 4 is a top view of a second embodiment of the antitheft device according to the invention;

figure 5 is a bottom view of the antitheft device of figure 4;

figure 6 is a lateral view of the antitheft device of figure 4 open;

figure 7 is a lateral view of the antitheft device of figure 4 closed;

figure 8 is a perspective view of the antitheft device of figure 4 on a steering wheel;

figure 9 is a top view of a third embodiment of the antitheft device according to the invention;

figure 10 is a bottom view of the antitheft device of figure 9;

figure 11 is a lateral view of the antitheft device of figure 9 open;

figure 12 is a lateral view of the antitheft device of figure 9 closed; and

figure 13 is a perspective view of the antitheft device of figure 9 on a steering wheel.

Making first reference to figure 1 - 3, the antitheft device according to the invention comprises a substantially tubular outer element 1, having a slot 2, so shaped to be provided on the ring 3 of the vehicle steering wheel, enclosing also the spokes 4. In figure 2 it is shown in dotted lines also a second ring 3', in order to demonstrate that the antitheft device can be applied on any kind of steering wheel, aside from its dimensions.

The shape of the slot 2 is such that it couples with a steering wheel having any diameter, either of the sport kind or those for lorries, taking also the spokes 4, aside their number and dimensions.

Within the outer element 1, an inner element 5 is provided, said element 5 being provided with two projecting tongues 6 which, when the antitheft device is in the position shown in figure 2, are in a straddling position on the steering wheel spoke 4.

Theoretically, it can be also provided only one projecting element 6, or a number greater than the one shown.

Further, the antitheft device according to the invention is provided with a lock 7, with key 8, acting on a pin 9, bucked by the action of a spring 10, said pin 9 coupling and uncoupling with a hole 11 realized on the inner element 5.

As already said in the above, the number, the position and the kind of lock can be modified according to the specific needing without thus modifying the basic solution according to the invention.

When it is wished to put the antitheft device according to the invention on the car steering wheel, the inner element 5 is brought in such a position with respect to the outer element 1 that the projecting tongues 6 are positioned within the element 1, without occupying the space for the slot 2.

Then, the antitheft device according to the invention is brought on the steering wheel, with the slot 2 resting on the ring.

Now, simply rotating by the lock 7, previously opened, the inner element 5 with respect to the outer element 1, the tongues 6 are brought in correspondence of the slot 2, until the pin 9 is snapped within the check hole 11, locking the antitheft device in this position.

It can be easily seen from figures 1 - 3 that the antitheft device proposed and described locks both the steering wheel ring 3 in two positions, and the spoke 4, so that in order to release the antitheft device it is necessary to make three different cuts, and the part of the outer 1 and inner 5 elements projecting with respect to the steering wheel realize an obstacle to the free rotation of the steering wheel.

Obviously, the elements 1 and 5, as well as the lock 7, will be realized employing materials and technical solutions making them extremely safe with respect to possible effractions.

Further, the antitheft device will be realized and finished so as not to damage parts of the vehicle and not to injure the user.

Referring now to figures 4 - 8, it is shown a second embodiment of the antitheft device according to the invention, wherein it is provided a first element, working as handle and preventing the rotation of the steering wheel, and a second element 22, longitudinally sliding with respect to the first element 21, having the locking devices that will be described in greater detail in the following.

At the bottom of the first element 21 it is provided a shaped element 23, which couples externally with the ring 24 of the steering wheel (see figure 8) and provided with two slots 25.

At the end of the element 22 opposed to the one sliding coupled with the first element 21, a T-shaped element 26 is provided, said element 26 having two tongues 27, downward projecting, and shaped so as to couple with the ring 24 of the steering wheel (see figure 8), and spaced apart each other so as to couple with the slots 25, when the antitheft device is closed (see figure 7).

It is further provided an opening and closure lock 28 for the antitheft device, in this case shown above the first element 21, but that can be of different kind, differently positioned and in different number.

The antitheft device according to figures 4 - 8 is provided opened, as shown in figure 6, on the steering wheel ring, and thus, by the sliding of the element 22 backward within the element 21, the closure is obtained as shown in figure 7.

Once closed, the antitheft device is placed on the steering wheel as shown in figure 8, so that the locking of the ring 24 in two positions and of the spoke 29 is obtained. Consequently, in order to release the antitheft device without employing the lock 28 it would be necessary to make three cuts.

The rear handle portion 30 will constitute the obstacle to the rotation of the vehicle steering wheel, and furthermore locks the sliding part 22 on the tubular 21 by the main lock 28 placed within the handle 30.

In figures 9 - 13, a third embodiment of the antitheft device according to the invention very similar to the one described with reference to the figures 4 - 8 is shown, so that the corresponding elements are indicated by the same reference and will not be further described.

Particularly, the only substantial difference with respect to the former embodiment is the provision of a rod 31, slidingly supported above the T-shaped element 26, and having the end 32 opposite to the one coupled with the T-shaped element 26 curved, so as to be coupable with the steering wheel ring 24.

Therefore, when it is wished to put the antitheft device on, it is sufficient at first to bring the end 32 of the rod 31 on the portion of the ring 24 opposite with respect to the one upon which the antitheft device is placed, and thus withdrawing the element 21 - element 22 assembly back, until extending the rod 31 out of the T-shaped element 26 for the length corresponding to the steering wheel diameter.

Now, the rod 31 is locked by the lock 33 and the antitheft device is placed as previously described.

This solution is described in figure 13.

The present invention has been described for illustrative, but not limitative purposes, according to its preferred embodiments, but it is to be understood that modifications and/or changes can be introduced by those skilled in the art without departing from the relevant scope as defined in the enclosed claims.

Claims

1. Antitheft device for locking the steering wheel of any kind of vehicle, characterized in that it comprises a first outer locking element, provided with means for the coupling with a section of the steering wheel, a second inner locking element, movable with respect to said first locking element and provided with at least a projecting tongue coupling with the steering wheel and interacting with said coupling means with a section of the steering wheel provided on said first element so as to lock the outer ring of the steering wheel and at least one spoke of the steering wheel, opening and closure means for the antitheft device, said first outer element being provided with a projection interfering with other parts of the vehicle so as to prevent the free rotation of the steering wheel when the antitheft device is on.

2. Antitheft device according to claim 1, characterized in that said first and second elements are made up of two tubular elements, slidingly provided one within the other, the outer element being provided with a shaped slot coupling with a section of the steering wheel and the inner element being provided with at least one curved projecting tongue, that, when the antitheft device is opened, is within the first element without obstructing said slot and when is closed is in correspondence of said slot, straddling on a spoke of the steering wheel.

3. Antitheft device according to claim 2, characterized in that two curved tongues are provided.

4. Antitheft device according to claim 2 or 3, characterized in that said opening and closure means of the antitheft device according to the invention are comprised of at least one safety lock acting against one pin bucked by a spring and coupling within a hole provided within said second inner element.

5. Antitheft device according to claim 4, characterized in that said lock is provided at one end of the first outer element.

6. Antitheft device according to claim 1, characterized in that said second element slides axially, in front and within said first outer element.

7. Antitheft device according to claim 6, characterized in that said means four coupling with a section of the steering wheel provided in said first element are comprised of a circle arch element, coupable with a steering wheel having every diameter, while said at least one projecting tongue is provided at the bottom of a T-shaped element coupled to the second inner element and is curved.

8. Antitheft device according to claim 7, characterized in that two curved tongues are provided.

9. Antitheft device according to one of the claims from 6 to 8, characterized in that above said second inner element a rod is provided, said rod being slidable with respect to the same element so as to conform to the diameter of the steering wheel, and its end opposite to the end coupled with the second inner element is curved so as to couple with the steering wheel ring, means being provided for locking said rod in position after the adjustment.

10. Antitheft device for locking the steering wheel of any kind of vehicle, according to each one of the preceding claims, substantially as illustrated and described.

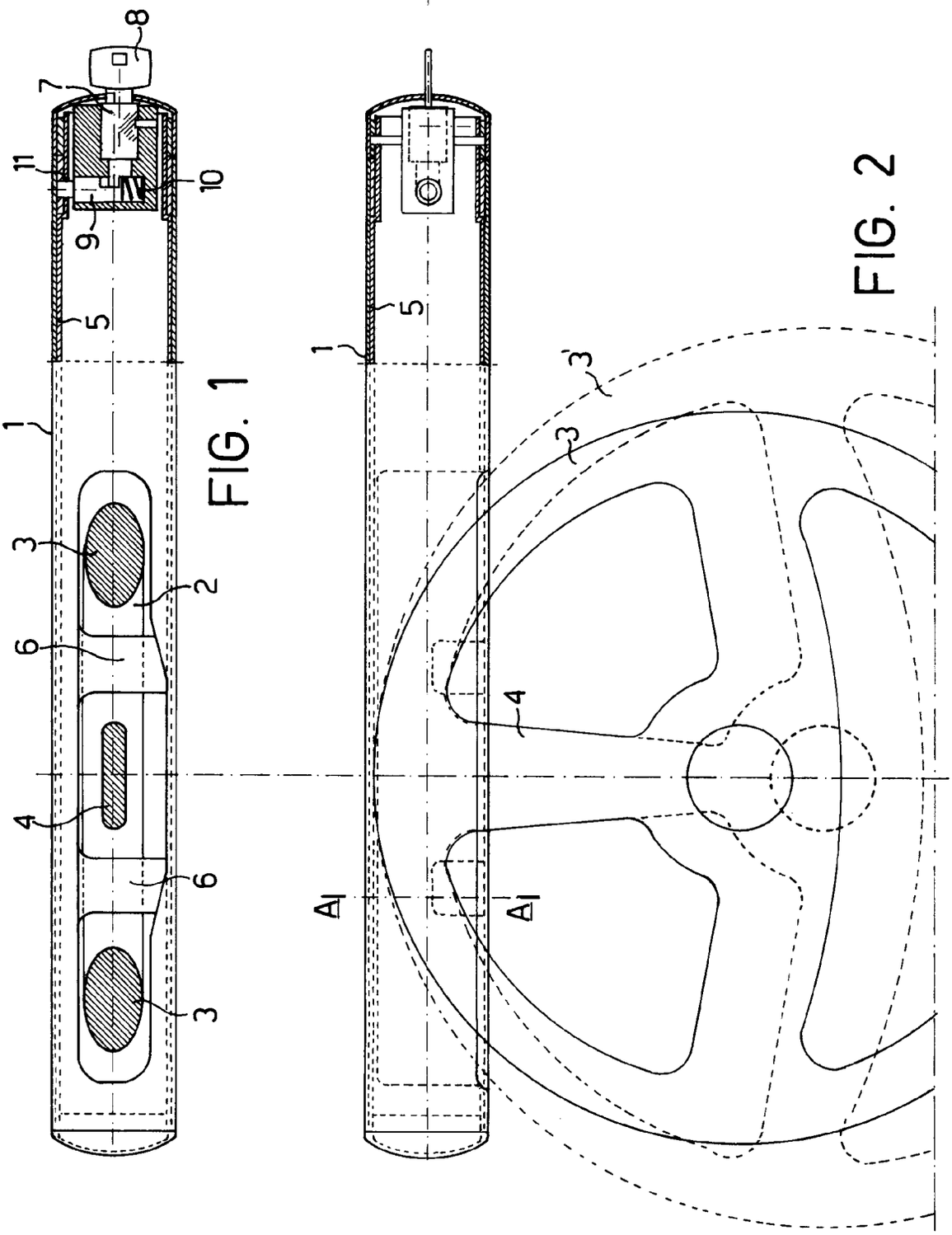

FIG. 1

FIG. 2

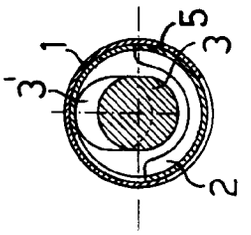

FIG. 3

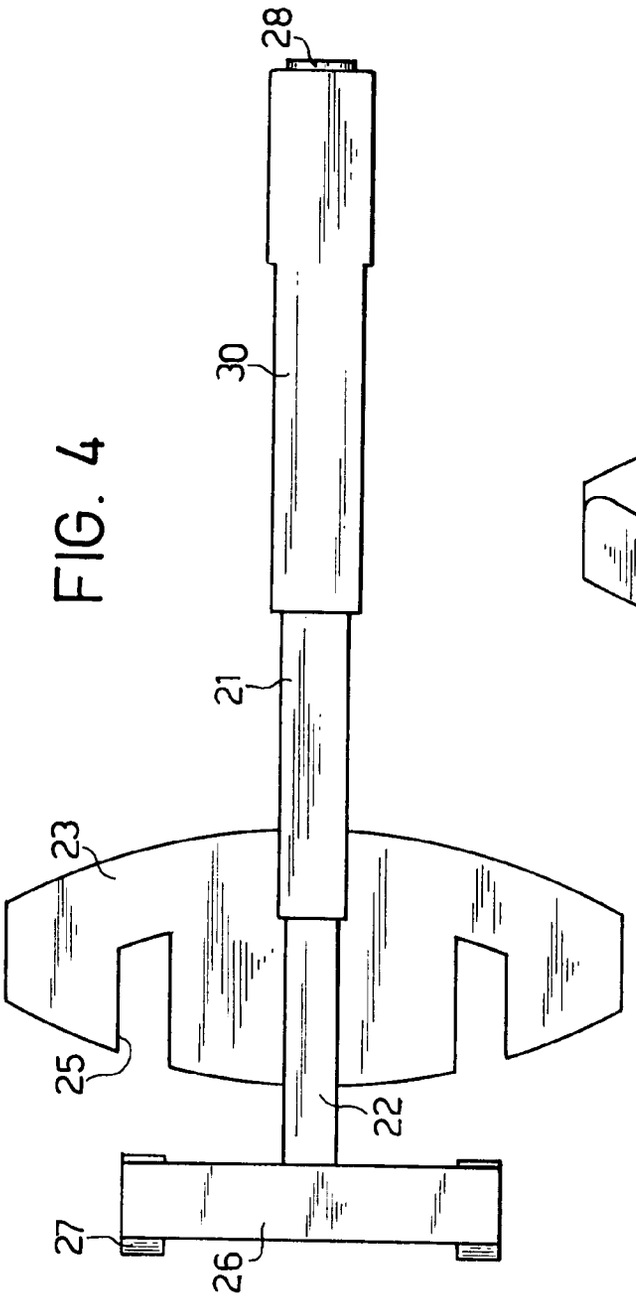

FIG. 4

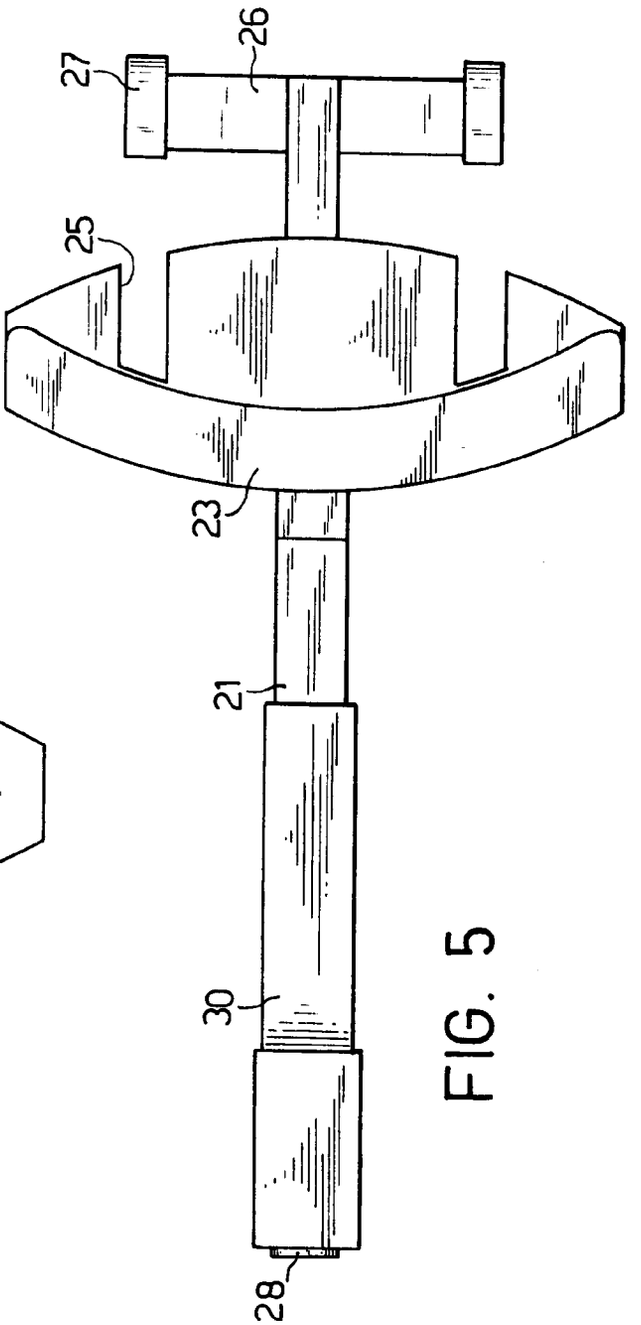

FIG. 5

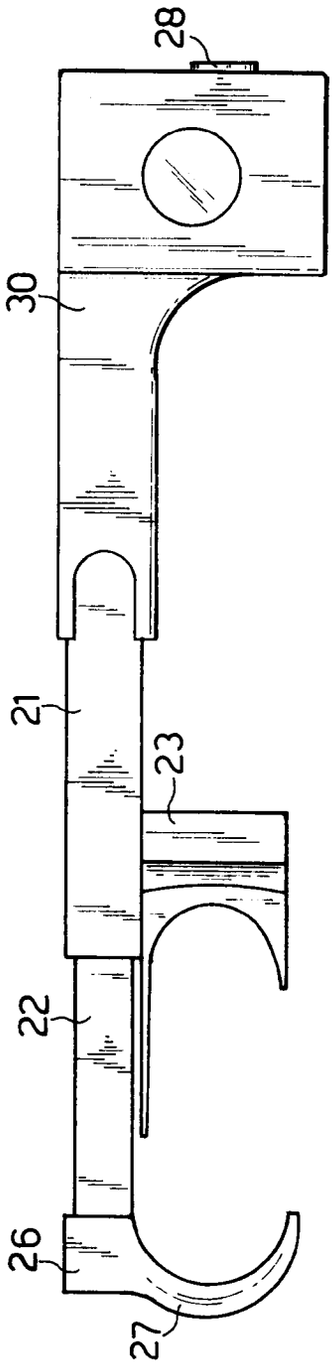

FIG. 6

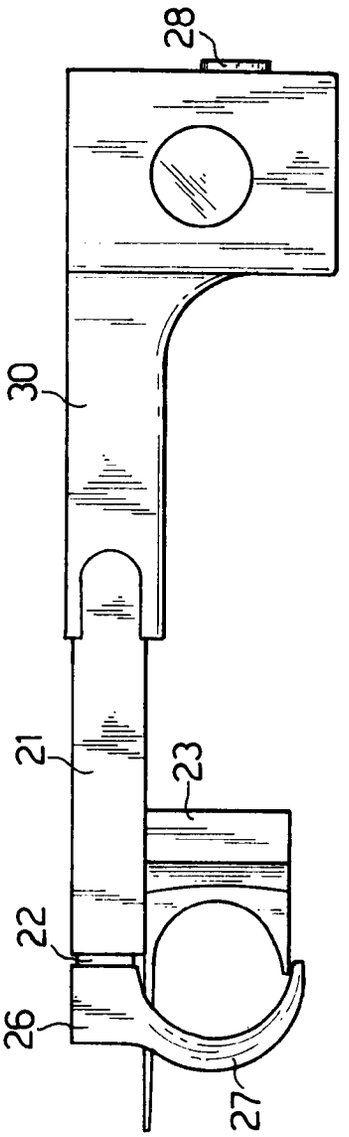

FIG. 7

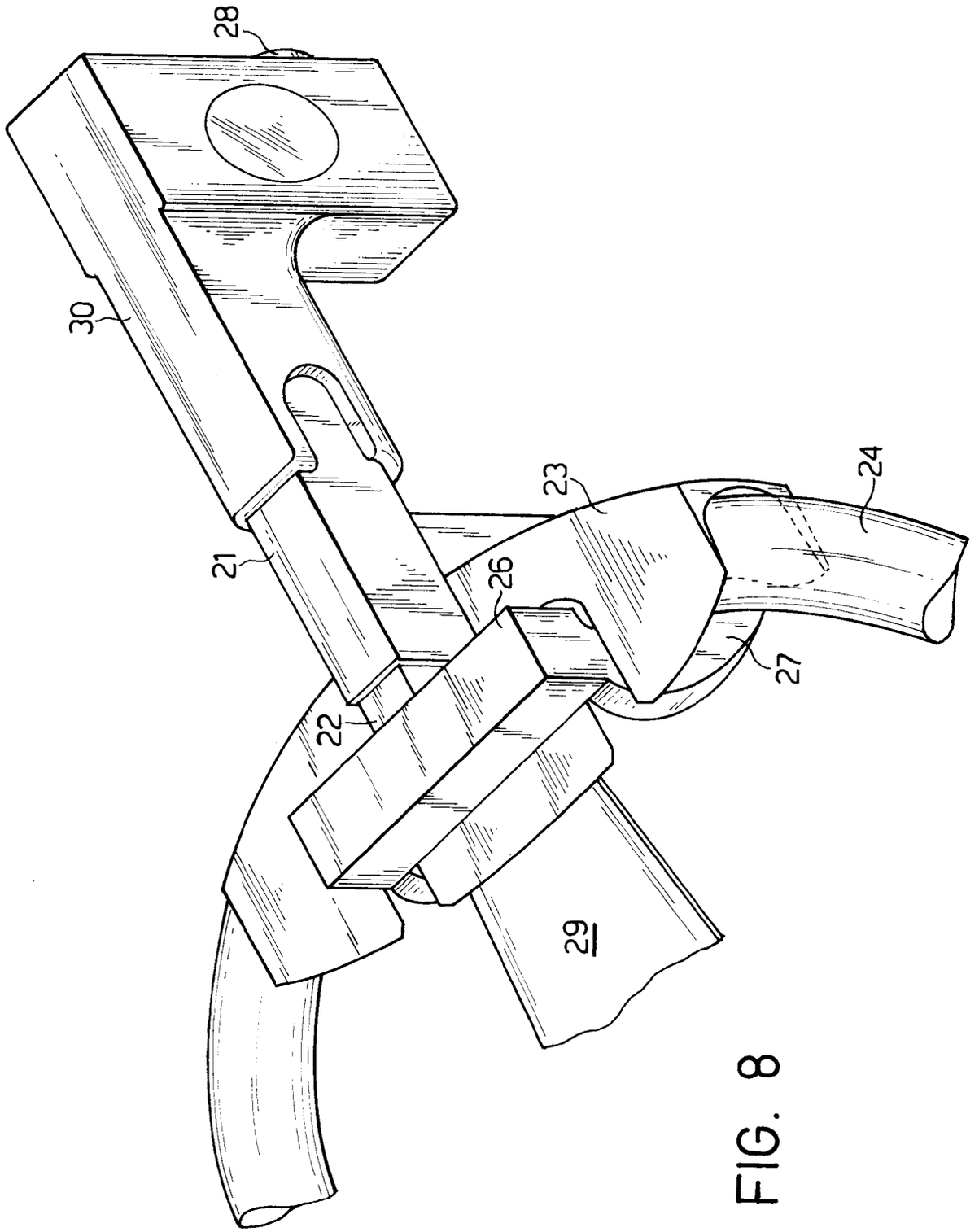

FIG. 8

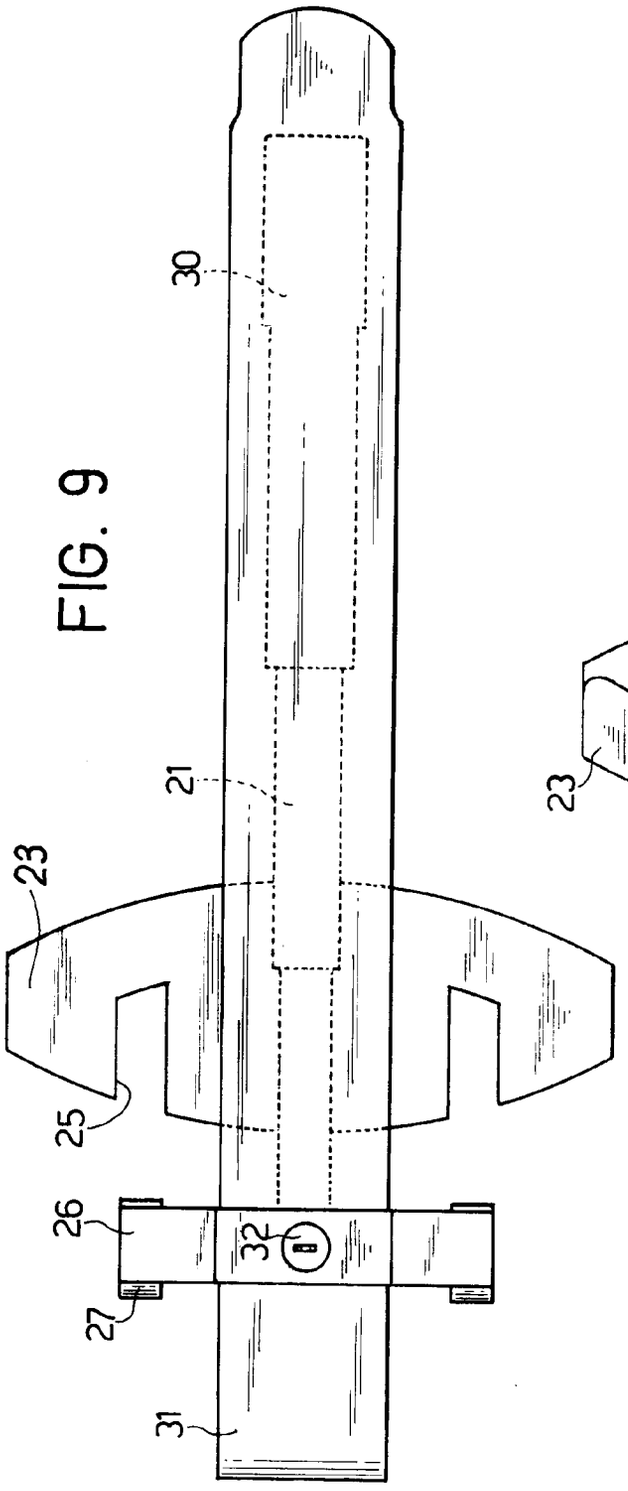

FIG. 9

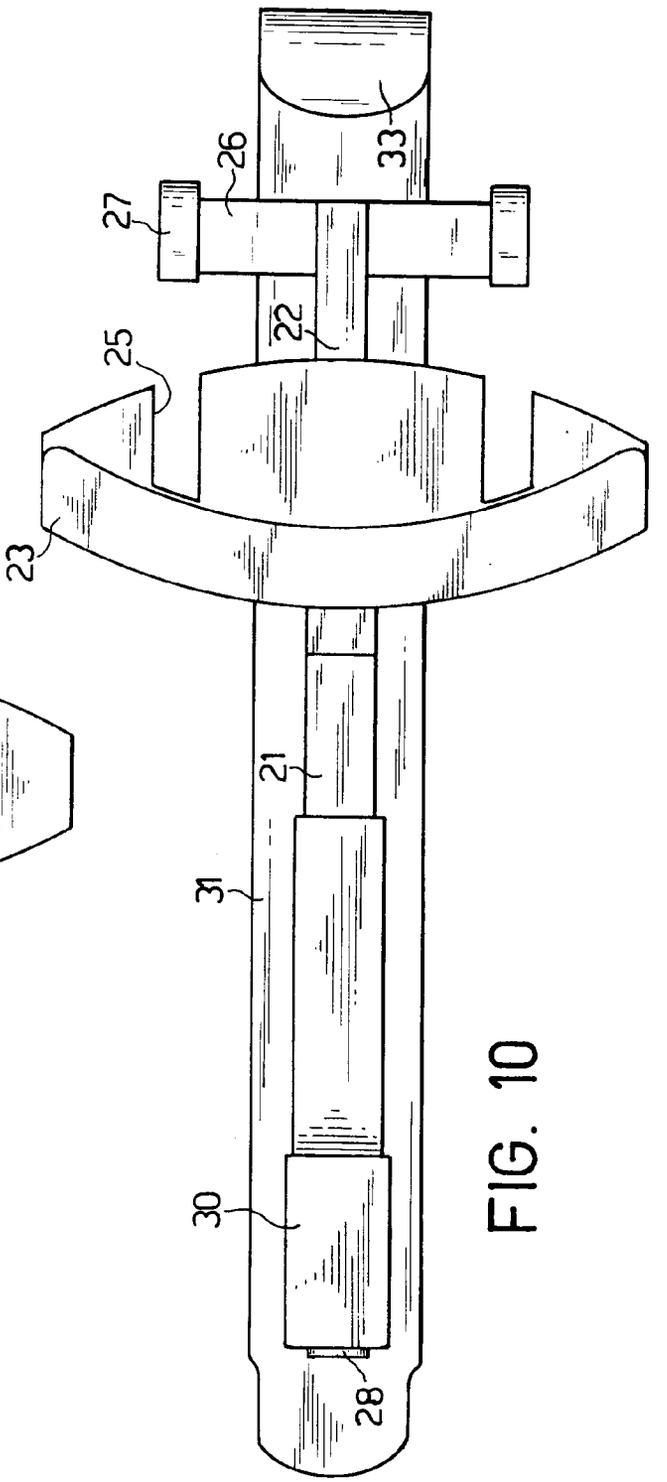

FIG. 10

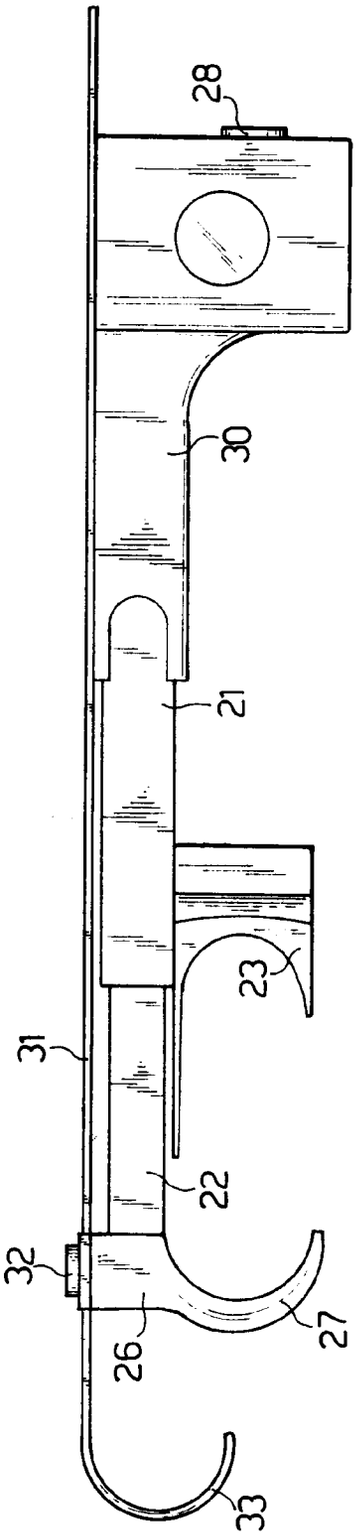

FIG. 11

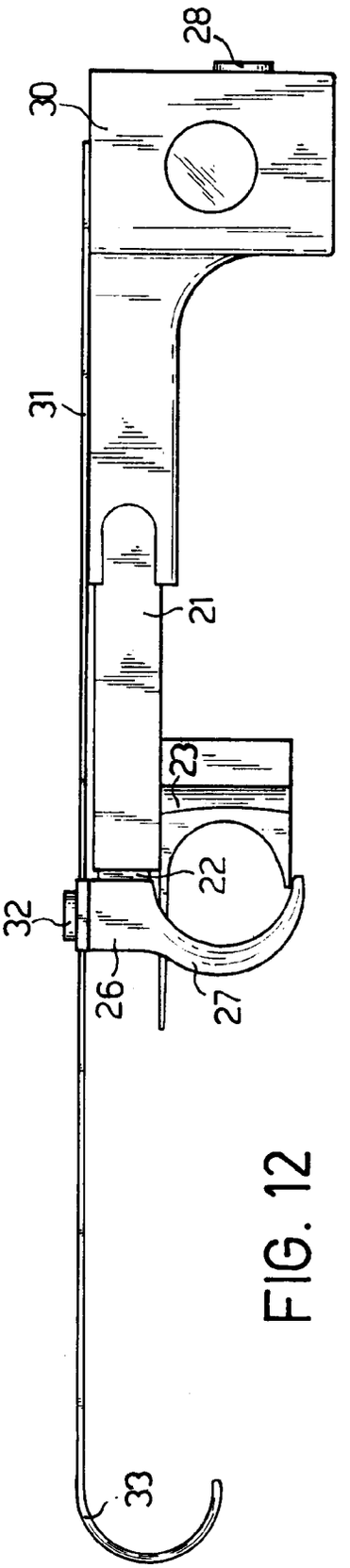

FIG. 12

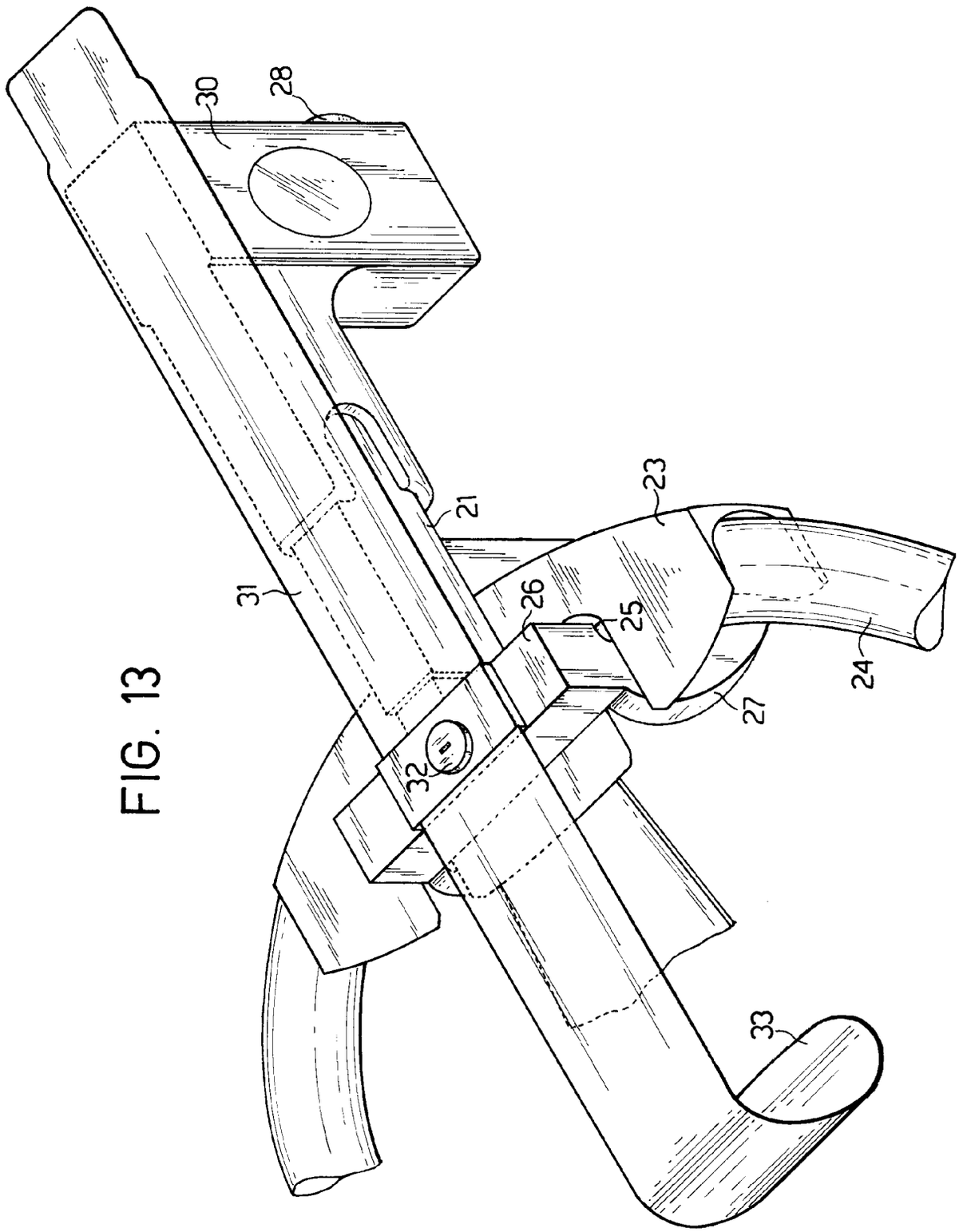

FIG. 13

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 83 0376

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.6)
X Y	FR-A-2 178 620 (BOLTON) * the whole document *	1,6-8 2,4,5	B60R25/02
Y	US-A-5 129 245 (CHANG) * the whole document *	2,4,5	
A	EP-A-0 068 335 (DAUCH)		
A	DE-U-93 09 555 (LINBRUNNER)		
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A	US-A-5 052 201 (LIOU)		
A	US-A-5 024 069 (HULL)		
A	US-A-4 882 920 (WU)		
A	US-A-4 829 797 (WU)		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
B60R

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 December 1995	Knops, J

CATEGORY OF CITED DOCUMENTS

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