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(54) **Crutch with telescoping parts**

(57) A crutch 1 comprises an external tube 3 with a handgrip 5 mounted thereon and an internal tube 9 telescoping into the external tube. A strip 23 is slidably present on the internal tube and can be locked relative to the internal tube by square-nosed locking element 31 which is pressed by a spring 30 into one of the apertures 29.

In the handgrip 5 there is a pin 25 which in extracted

position of the internal tube 9 is pressed by a spring 26 into a recess 27 present in the strip 23 and blocks the internal tube relative to the external tube.

The position of the second strip 23 relative to the upper internal tube 9 and thus the distance by which the upper internal tube 9 can be extracted from the external tube 3 can be adjusted by manually depressing the square-nosed locking element 31 after which the upper internal tube 9 can be moved relative to the strip 23.

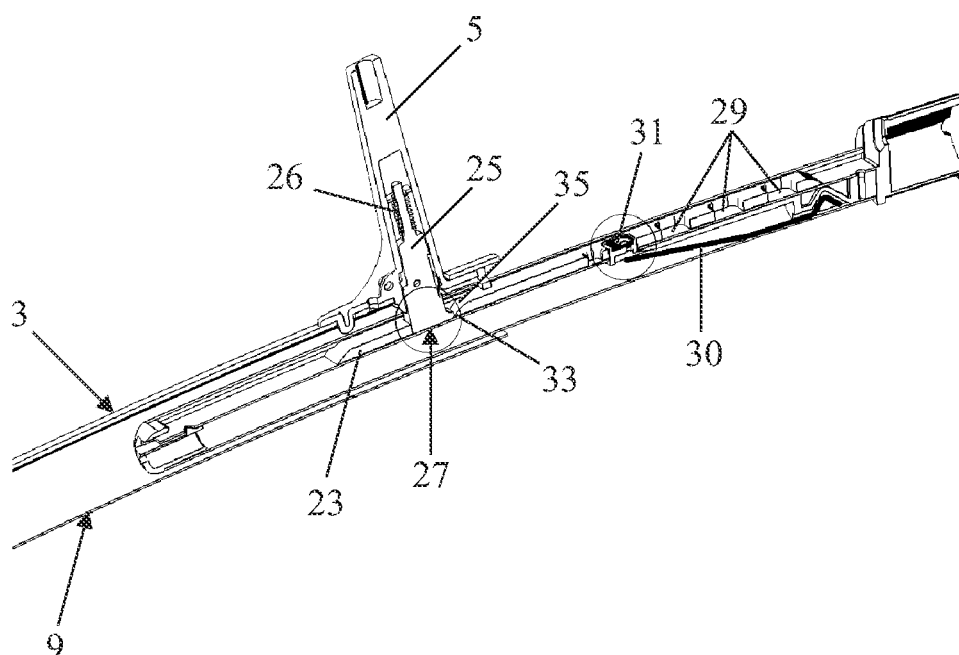


FIG. 6

Description

Field of the invention.

[0001] The present invention relates to a crutch comprising an external tube with a handgrip mounted thereon, and an internal tube telescoping into the external tube. The internal tube can form a shaft that is telescopable into and out of the external tube or a tube that is telescopable into and out of the external tube and has a lower arm rest mounted thereon.

State of the art.

[0002] A crutch of this type is known from US-A-3,748,495. This known crutch comprises an external tube, a first internal tube telescopically slidable therein which forms the shaft of the crutch, and a second internal tube in which a support is mounted and which is slidable in the external tube. In an extracted position the internal tubes can be blocked relative to the external tube. To this end the desired positions of the internal tubes relative to the external tube are to be determined each time and the internal tubes are to be locked in these positions.

Summary of the invention.

[0003] It is an object of the invention to provide a crutch of the type defined in the opening paragraph with which in a simpler and faster way the desired position of the internal tube relative to the external tube can be set and locked. For this purpose the crutch according to the invention is **characterised in that** the crutch comprises a strip which longitudinally of the internal tube is slidable relative to the internal tube and which is lockable relative to the internal tube, which strip includes blocking means which cooperate with further blocking means present in the external tube. By setting the position of the strip relative to the internal tube only once one only needs to extract the internal tube until it has reached the blocking position to obtain the desired length of the crutch.

An embodiment of the crutch according to the invention is **characterised in that** the blocking means and further blocking means comprise a spring-loaded depressible locking pin and also include an aperture which can receive the pin. The pin may then be present in the external tube or in the strip.

A further embodiment of the crutch according to the invention is **characterised in that** the internal tube and the strip form two component parts which are lockable relative to each other, one component part of which being provided with a plurality of apertures which are present in longitudinal direction of the component part spaced from each other and the other component part being provided with at least a single spring-loaded displaceable square-nosed locking element which can optionally be positioned in one of the apertures. So the apertures may be present in the internal tube or in the strip.

Brief description of the drawings.

[0004] The following description relating to the appended drawings, the whole given by way of non-limiting example of the crutch according to the invention, will provide better understanding of how the invention can be realised, in which:

Fig. 1 shows in a side elevational view an embodiment of the crutch according to the invention in extracted state;

Fig. 2 shows a detail of the crutch in the place of the lower end of the external tube in retracted position of the lower internal tube;

Fig. 3 shows the detail shown in Fig. 2 in extracted position of the lower internal tube;

Fig. 4 shows the detail shown in Fig. 2 during the setting of the distance by which the lower internal tube can be extracted;

Fig. 5 shows a detail of the crutch in the place of the upper end of the external tube in partially retracted position of the upper internal tube; and

Fig. 6 shows the detail shown in Fig. 5 in extracted position of the upper internal tube.

Detailed description of the drawings

[0005] Fig. 1 shows an embodiment of the crutch according to the invention in extracted state. The crutch 1 comprises external tube 3 with a handgrip 5 mounted thereon and a lower internal tube 7 telescopically slidable therein, which lower internal tube forms a shaft. The crutch 1 further includes an upper internal tube 9 slidable in the external tube with a lower arm rest 11 mounted on the external tube.

The crutch 1 further has a first strip 13, see Figures 2, 3 and 4, which is slidable in longitudinal direction relative to the lower internal tube 5 and which is lockable relative to the lower internal tube. This strip 13 is provided with a spring-loaded depressible locking pin 15 which locks into an aperture 17 in the external tube 3 when the lower internal tube is extracted, so that the lower internal tube blocks relative to the external tube. In Fig. 2 is shown a sectional view of a detail of the crutch in the place of this strip 13 in retracted position of the lower internal tube. In Fig. 3 is shown the lower internal tube in extracted position while the pin is locked into the aperture and the lower internal tube blocks relative to the external tube. The locking of the strip 13 relative to the lower internal tube 7 is effected by means of a plurality of square-nosed locking elements 21 present at the bottom of the strip which protrude through the apertures 19 present in the lower internal tube 7.

The position of the strip 13 relative to the lower internal tube 7 is adjustable. This is elucidated with reference to Fig. 4. By manually depressing the pin 15 in the blocking position, the lower internal tube 7 as well as the strip 13 connected thereto can be extracted further from the ex-

ternal tube 3. The strip 13 is then pushed upwards by a leaf spring 20. The square-nosed locking elements 21 at the bottom of the strip 13 are then pushed outwards through the apertures 19 present in the internal tube. Now the lower internal tube 7 can be shifted relative to the strip 13 while the strip 13 is to be stopped manually. In this way the distance by which the lower internal tube 7 can be extracted from the external tube 3 can be adjusted.

The lower internal tube 7 can again be pushed into the external tube 3 by depressing the square-nosed locking element 15 while in extracted position (Fig. 3).

The crutch 1 further has a second strip 23, see Figs. 5 and 6, which is slidable longitudinally of the upper internal tube 9 and which is lockable relative to the upper internal tube. Inside the handgrip 5 there is a further pin 25 which is pressed against the strip 23 by means of a spring. The strip 23 has a recess 27 which receives the pin 25 when the upper internal tube 9 is extracted, see Fig. 6, so that the upper internal tube blocks relative to the external tube. The locking of this second strip 23 relative to the upper internal tube 9 is effected by means of a plurality of apertures 29 present in the strip and a square-nosed locking element 31 present in the upper internal tube 9 which square-nosed locking element is pressed into one of the apertures by a spring 30.

Also the position of the second strip 23 relative to the upper internal tube 9 is adjustable. By manually depressing the knob 31 in the blocking position until it leaves the aperture (see Fig. 6), the upper internal tube 9 can be moved relative to the strip 23 while the strip is stopped by the pin 25. This enables the user to adjust the distance by which the upper internal tube 9 can be extracted from the external tube 3.

The upper internal tube 9 can be pushed back into the external tube 3 by sufficiently forcefully pushing the upper internal tube 9 into the external tube 3. For this purpose the pin 25 has a bevelled top 33 and the recess 27 in the strip 23 has a side that is bounded by a gradually inclining wall 35, so that when the internal tube 9 is pushed inwards, the wall 35 slides underneath the pin 25 and pushes it away in consequence.

Albeit the invention has been described in the foregoing based on the drawings, it should be observed that the invention is not by any manner or means restricted to the embodiment shown in the drawings. The invention also extends to all embodiments deviating from the embodiment shown in the drawings within the spirit and scope defined by the claims.

Claims

1. A crutch (1) comprising an external tube (3) with a handgrip (5) mounted thereon and an internal tube (7, 9) telescoping into the external tube, **characterised in that** the crutch (1) comprises a strip (13, 23) which longitudinally of the internal tube is slidable

relative to the internal tube (7, 9) and which is lockable relative to the internal tube, which strip (13, 23) includes blocking means which cooperate with further blocking means present in the external tube (3).

2. A crutch (1) as claimed in claim 1, **characterised in that** the blocking means and further blocking means comprise a spring-loaded depressible locking pin (15, 25), and also include an aperture (17, 27) which can receive the pin.
3. A crutch (1) as claimed in claim 1, **characterised in that** the internal tube (7, 9) and the strip (13, 23) form two component parts which are lockable relative to each other, one component part of which being provided with a plurality of apertures (19, 29) which are present in longitudinal direction of the component part spaced from each other and the other component part being provided with at least a single spring-loaded displaceable square-nosed locking element (21, 31) which can optionally be positioned in one of the apertures.

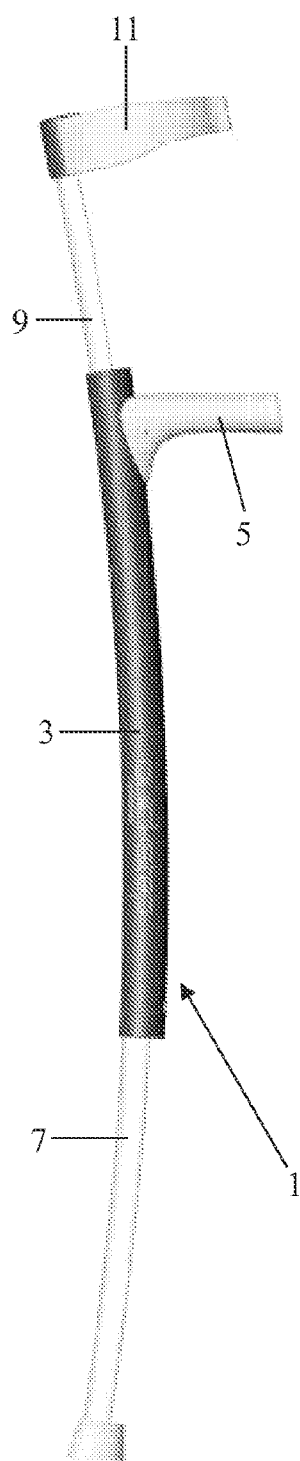


FIG. 1

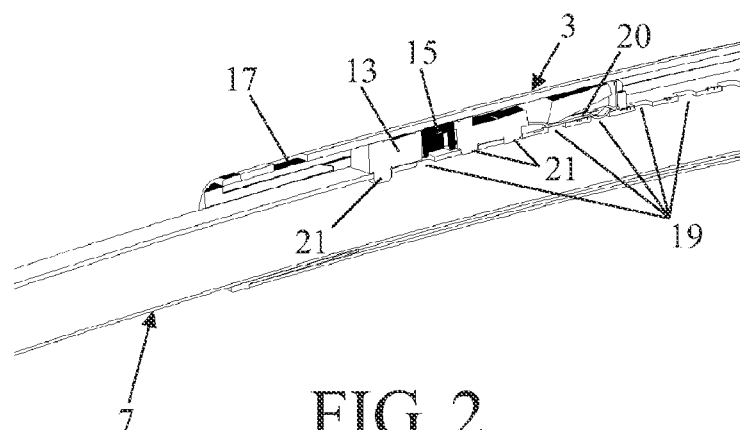


FIG. 2

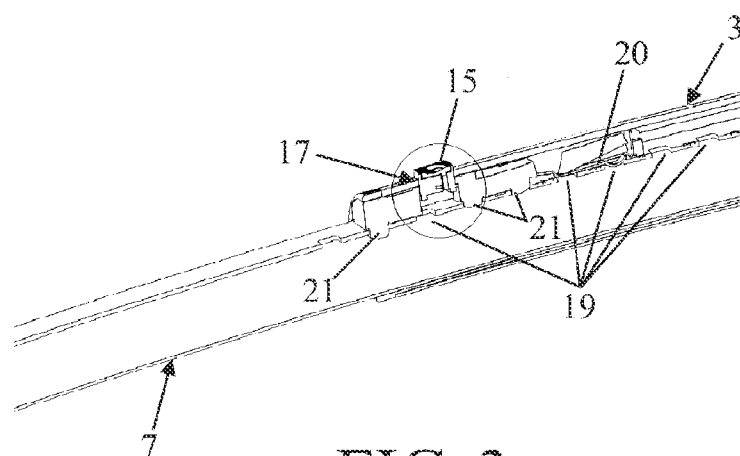


FIG. 3

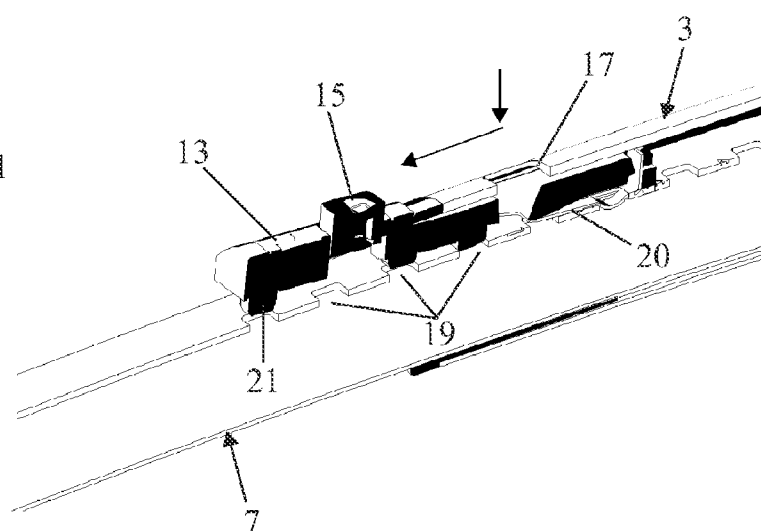


FIG. 4

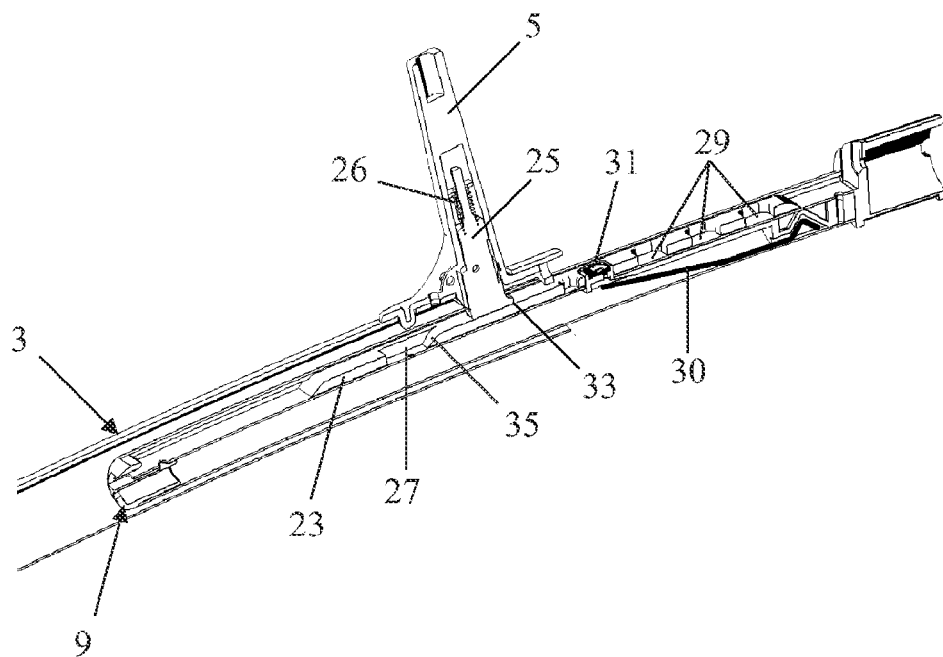


FIG. 5

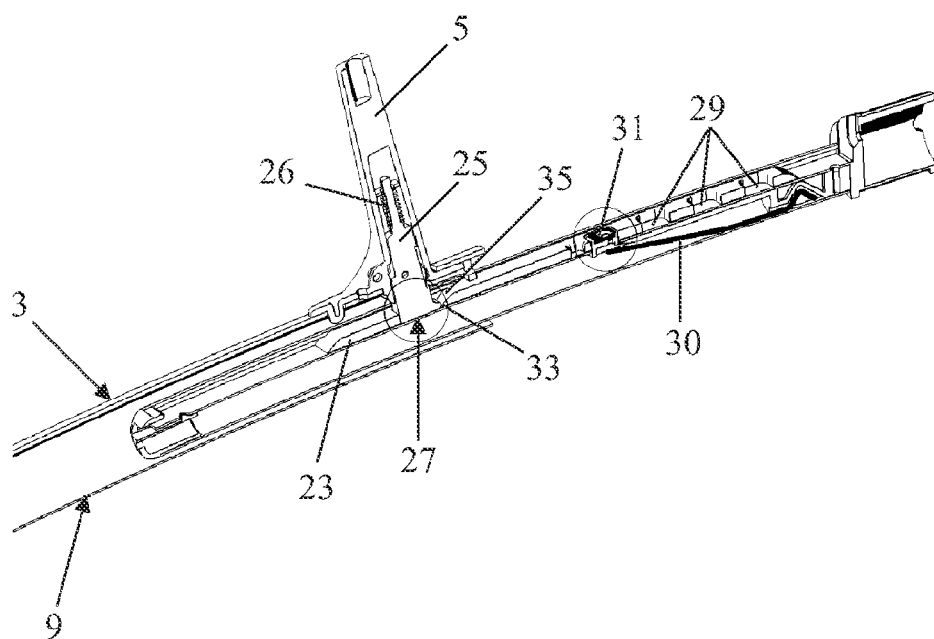


FIG. 6



EUROPEAN SEARCH REPORT

Application Number
EP 09 16 4919

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2002/020438 A1 (BEST AARON R [US]) 21 February 2002 (2002-02-21)	1	INV. A61H3/02
Y	* paragraphs [0047] - [0055] *	3	
X	US 6 273 112 B1 (SUMIDA YUJI [JP]) 14 August 2001 (2001-08-14) * column 2, lines 32-63 - column 5, lines 35-56; figures *	1,2	
D,Y	US 3 768 495 A (SMITH A) 30 October 1973 (1973-10-30)	3	
A	* column 5, lines 15-67 - column 6, lines 1-24; figures *	1,2	
			TECHNICAL FIELDS SEARCHED (IPC)
			A61H A45B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 November 2009	Examiner Teissier, Sara
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EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 16 4919

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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13-11-2009

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US 2002020438 A1	21-02-2002	NONE	
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REFERENCES CITED IN THE DESCRIPTION

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