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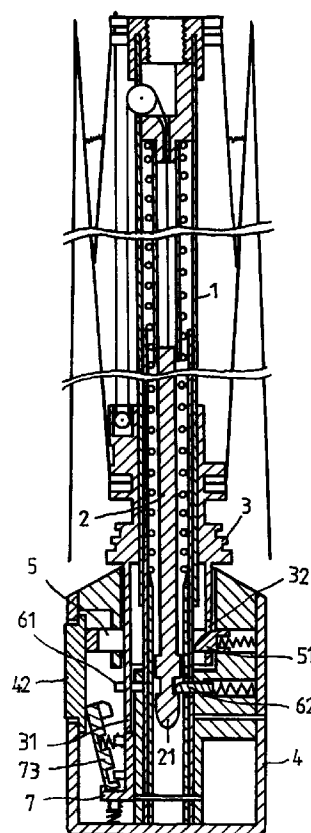
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**(54) Improved controlling apparatus of an umbrella**

(57) This invention relates to an improved controlling apparatus of an umbrella which includes an opening slice 5, a closing slice 6, and an L-shape slice 7 in a handle of the umbrella. A button 42 on the handle can be pressed to control the opening slice 5 or the closing slice 6 moved inward to open or close the umbrella. The L-shaped slice is pushed downward when the umbrella is closed and in this position cannot operate the closing slice. Thus when pressing the button to open the umbrella no mistake can be made.



**FIG. 3**

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## Description

### BACKGROUND OF THE INVENTION

[0001] An umbrella, which is capable of being opened or closed automatically has been widely used. One of the known umbrellas includes two buttons to control an opening means and a closing means in a handle of the umbrella for operating the umbrella to be opened or to be closed automatically. Different control apparatus has different effect when being used. It is known that most prior umbrellas are usually with a possibility in missing contact with the closing button when a user is going to open the umbrella. Under this mistake, the control apparatus would be damaged and broken and the umbrella can not be used anymore.

### OBJECT OF THE INVENTION

[0002] The main object of the present invention is to provide an improved control apparatus of an umbrella, which can control the opening or closing of the umbrella without any possibility for any user to operate in mistake.

[0003] The detailed structure, features, and other advantages of this invention will become apparent from the following detailed description of a preferred embodiment when read with reference to the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

#### [0004]

Figure 1 is a perspective view showing a control apparatus of the umbrella according to the present invention.

Figure 2 is a cross sectional view showing the umbrella including the controlling apparatus of the present invention.

Figure 3 is a cross sectional view of figure 2 showing the umbrella after being compressed.

Figure 4 is a cross sectional view of figure 3 showing the umbrella being to be going to be opened.

Figure 5 is a cross sectional view of figure 4 showing the umbrella being opened completely.

Figure 6 is a cross-sectional view of figure 5 showing the umbrella being closed.

### DETAILED DESCRIPTION OF THE EMBODIMENT

[0005] Referring to figures 1 and 2, the present invention includes a shaft (1), a frame set (11) with inner

springs (12) and a control rod (2) having a lower head (21) with a neck (22), and a runner (3) around the shaft (1) and connected with the frame set (11), that can be used for opening and closing as a known one and will not be described here in detail.

[0006] It is a main characteristic of this invention that a controlling apparatus is provided in a handle (4) of the umbrella. The apparatus includes an opening slice (5) and a closing slice (6). A receiver (41) is formed in the handle (4) for engaging with a lower end of the shaft (1). The opening slice (5) being ring shape is provided in the receiver (41) and has a tongue (51) extending toward the shaft (1) and a spring (52) provided beside for pushing the slice (5) to contact an inner surface of a button (42) being engaged with the handle (4). The closing slice (6) is provided in the receiver (41) and is parallel to the opening slice (5). The closing slice (6) includes a pair of side pieces (61) extending toward the button (42), a middle tongue (62) being capable of engaging with the shaft (1), and a spring (63) provided on a side to provide an elastic force. An L-shape slice (7) with a lower spring (71) is provided in the handle (4) beside the receiver (41). Another spring (72) is placed on the L-shape slice (7) to connect with a control means (73), bottom of which is hooked in the slice (7) and top of which is capable of contacting with the two pieces (61) of the closing slice (6) one side and contacting with the inner surface of the button (42) the other side.

[0007] As a prior known umbrella, it is to be compressed of the shaft (1) before to use. Referring to figure 3, a groove (32) formed on the runner (3) is engaged with the tongue (51) of the opening slice (5). At the same time, the control rod (2) is moved downward while the neck (22) on the head (21) is engaged with the tongue (61) of the closing slice (6). Moreover, an extending slice (31) formed on another side of the runner (3) will push the L-shape slice (7) moved downward and left from the closing slice (6).

[0008] Referring to figures 4 and 5, when to open the umbrella, a user can press the button (42). The opening slice (5) is moved sideward and the tongue (51) left from the groove (32). The runner (3) is then elastically moved upward for opening the umbrella. In this matter, the L-shape slice (7) being moved downward will not be possible to contact with the closing slice (6) and any mistake will not happen. After the umbrella is completely opened, as shown in figure 5, the extending slice (31) of the runner (3) has been moved upward. The L-shape slice (7) will be moved upward automatically to an original position between the button (42) and the closing slice (6). If the button (42) is repressed at this time, the control means (73) of the L-shape slice (7) will be moved to push the two pieces (61) of the closing slice (6) moved in the same direction. It will be understood that the tongue (62) of the closing slice (6) will be left from the neck (22) of the control rod (2), which can be moved upward to close the umbrella as in Figure 2.

[0009] In conclusion, the present invention bases on

the special controlling apparatus which uses improved slices to open and to close the umbrella and is capable of preventing from a mistaken operation. Thus, this invention should be allowed for patent.

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## Claims

1. An improved controlling apparatus of an umbrella, including a shaft, a frame set with inner springs and a control rod having a lower head with a neck, and a runner around the shaft and connected with the frame set, and is characterized in that: 10

a controlling apparatus provided in a handle of the umbrella which includes an opening slice, 15 and a closing slice, and a L-shape slice, while a receiver formed in the handle for engaging with a lower end of the shaft; the opening slice being ring shape and to be provided in the receiver and having a tongue extending toward 20 the shaft and a spring provided beside for pushing the slice to contact an inner surface of a button being engaged with the handle; the closing slice provided in the receiver and being parallel to the opening slice, which includes a 25 pair of side pieces extending toward the button a middle tongue being capable of engaging with the shaft and a spring provided on a side to provide an elastic force, and a L-shape slice 30 with a lower spring provided in the handle beside the receiver while another spring is placed on the L-shape slice to connect with a control means, bottom of which is hooked in the slice and top of which is capable of contact- 35 ing with the two pieces of the closing slice one side, and contacting with the inner surface of the button the other side.

2. The controlling apparatus of an umbrella as claimed in claim 1, as the button being pressed, the 40 opening slice will be moved sideward and the tongue left from the groove, and the runner is elastically moved upward for opening the umbrella, while the L-shape slice being moved downward for not to contact with the closing slice. 45

3. The controlling apparatus of an umbrella as claimed in claim 1, as the button is repressed, the control means of the L-shape slice will be moved to 50 push the two pieces of the closing slice moved in the same direction and the tongue of the closing slice will be left from the neck of the control rod, which can be moved upward to close the umbrella.

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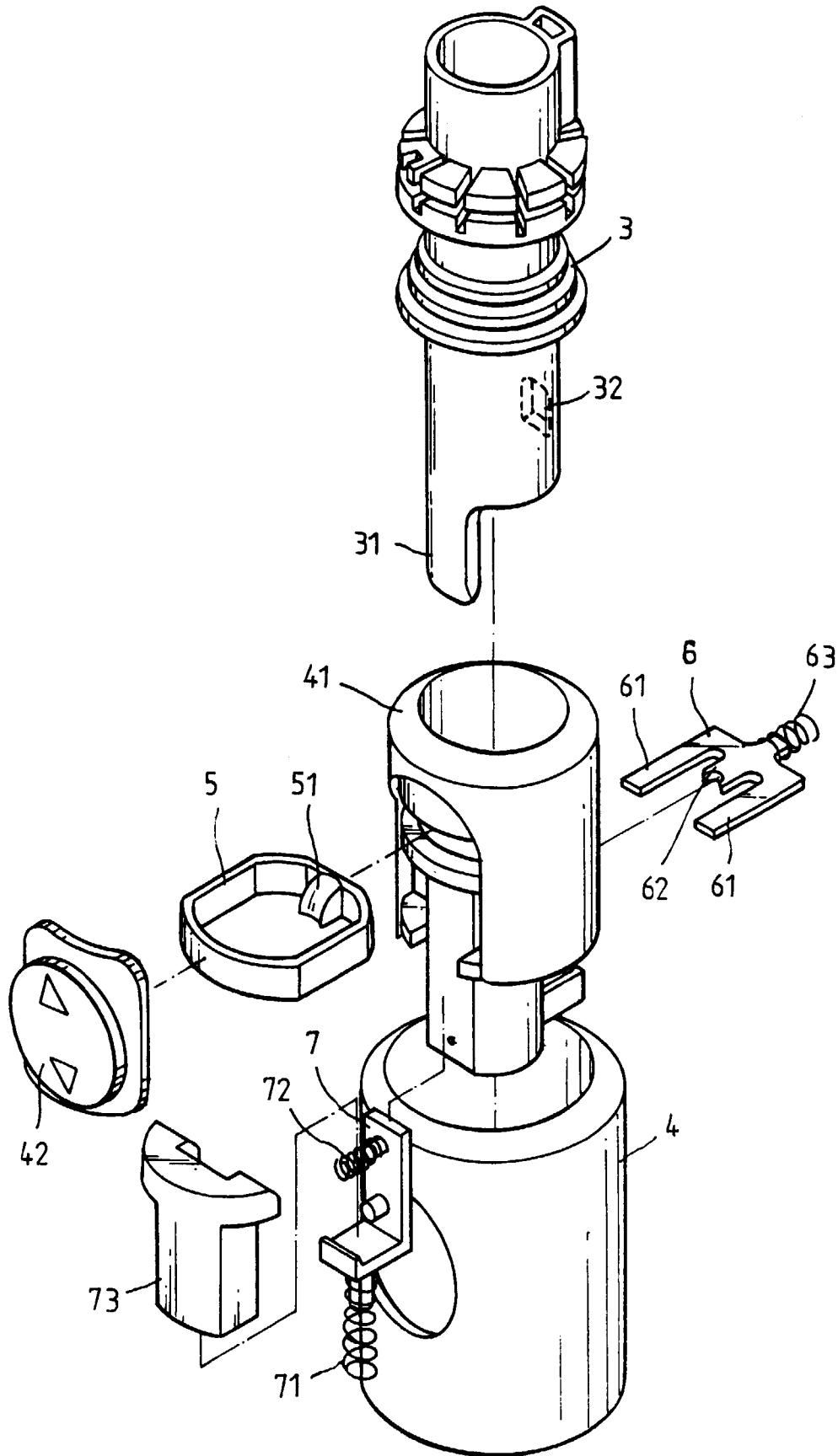


FIG. 1

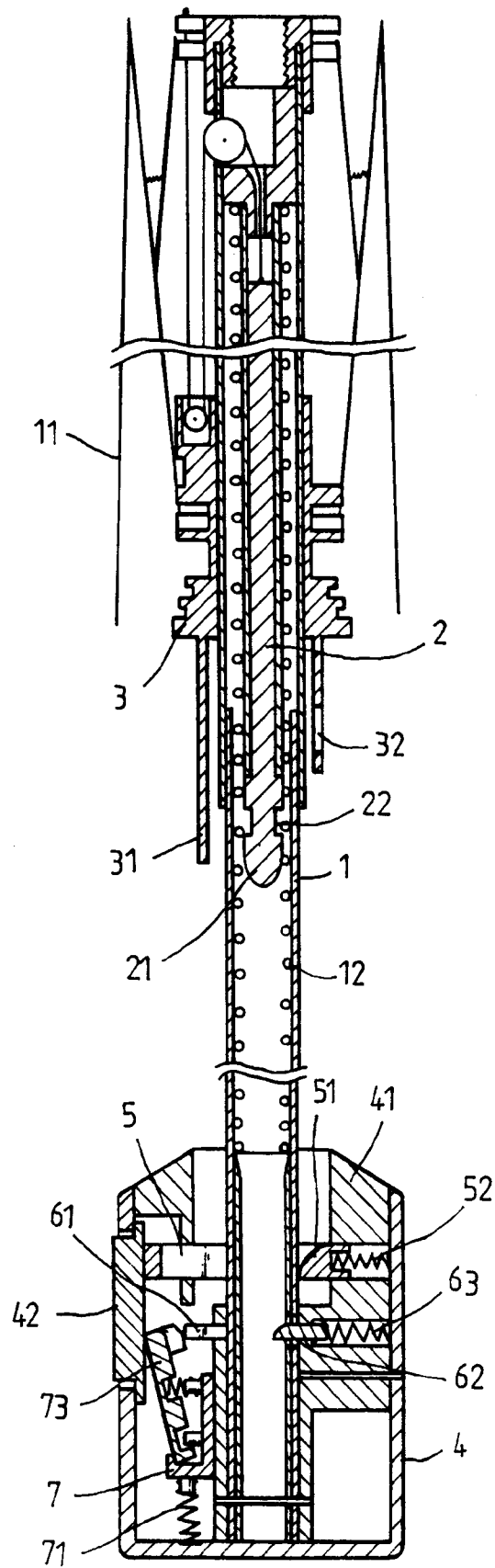


FIG. 2

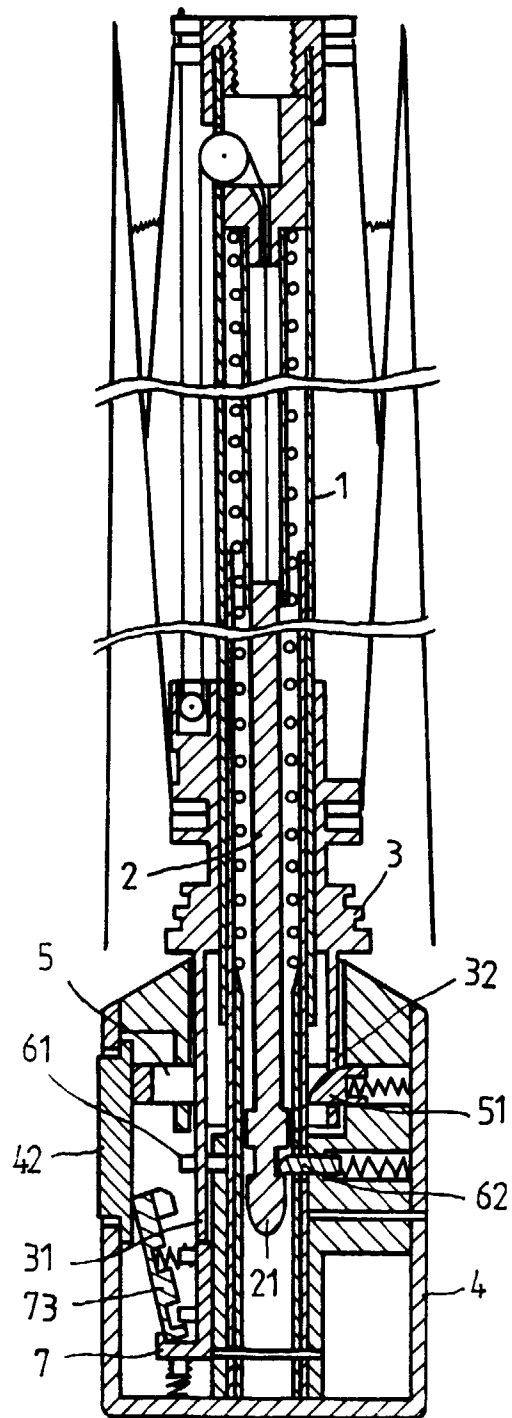
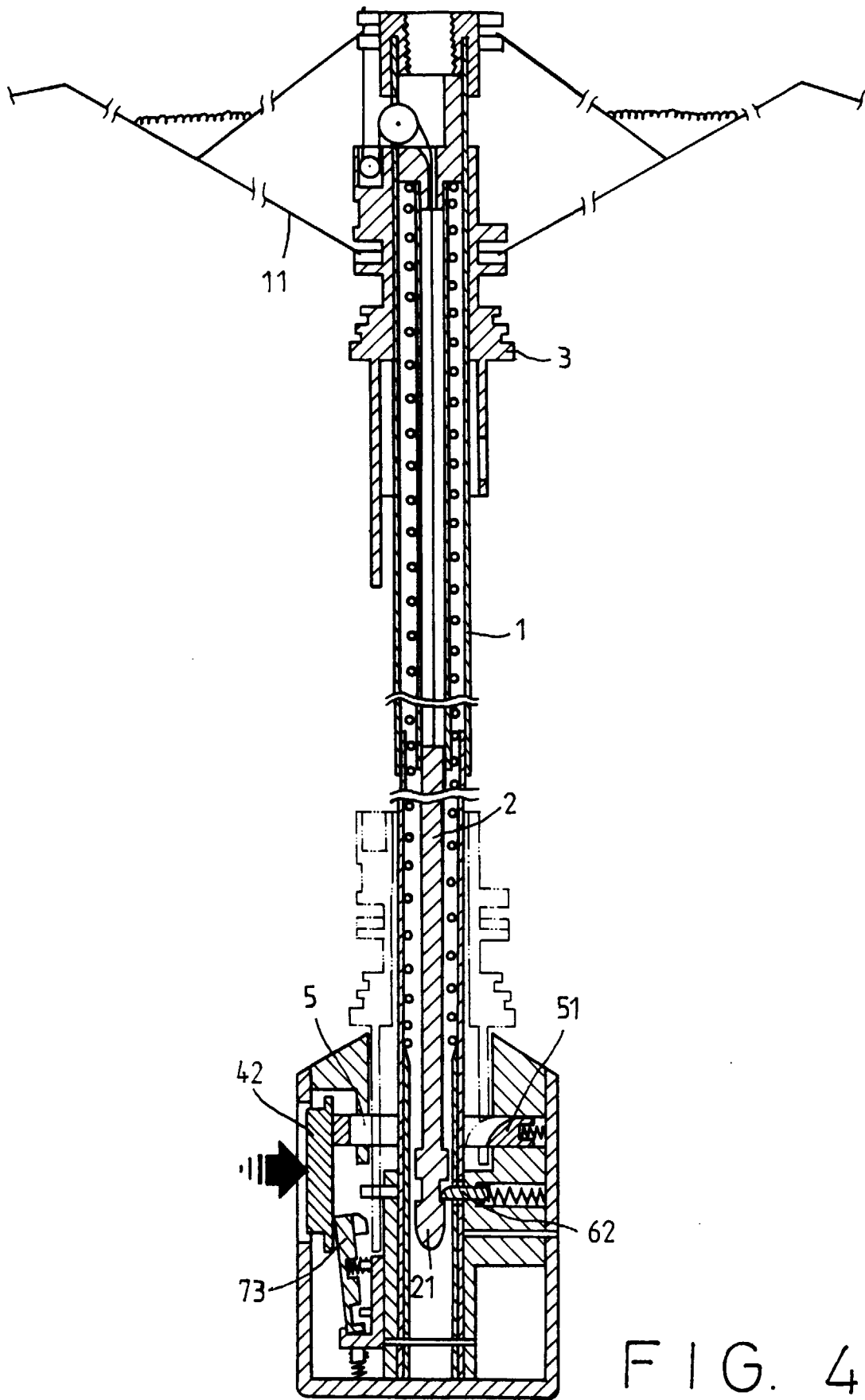
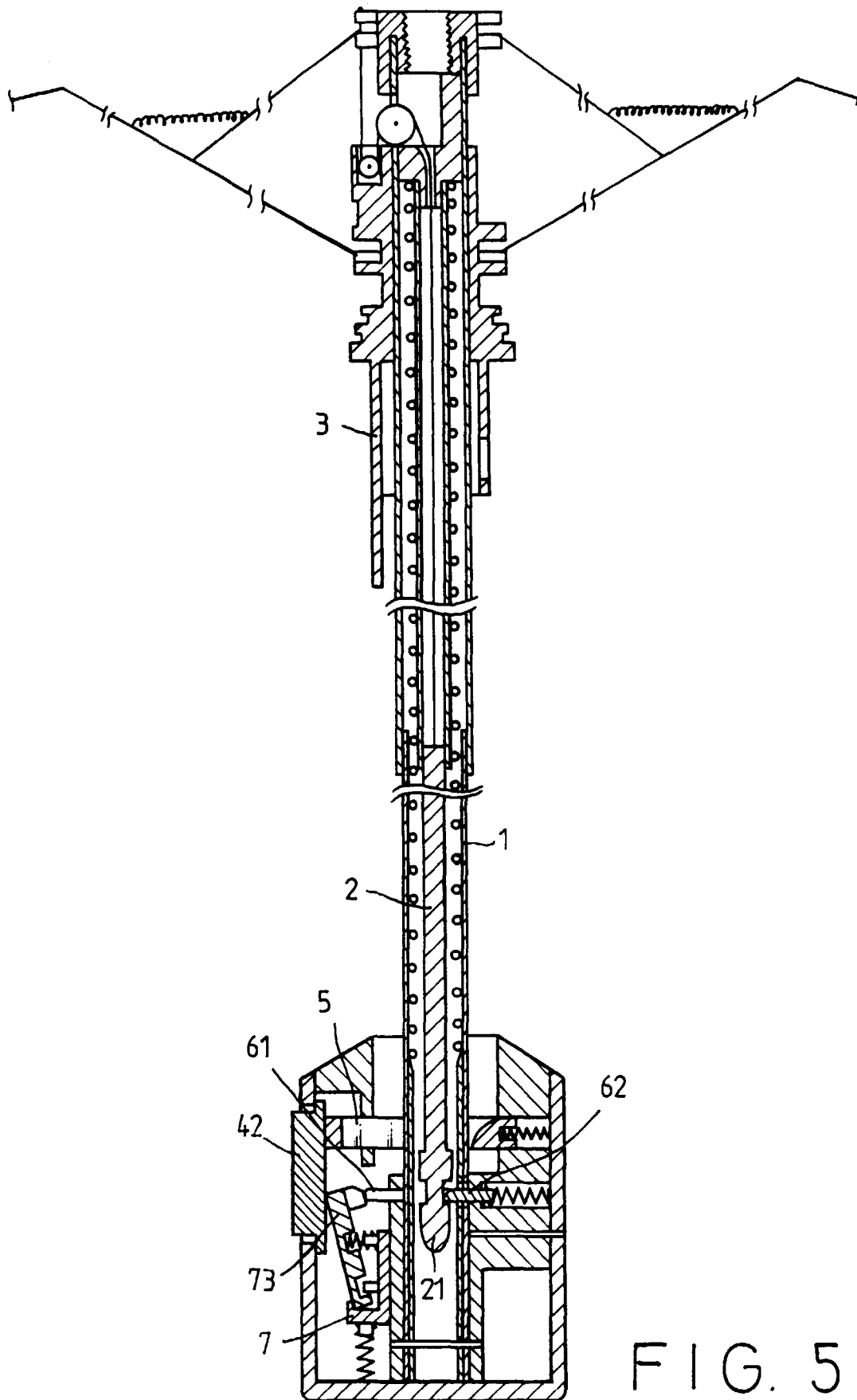


FIG. 3







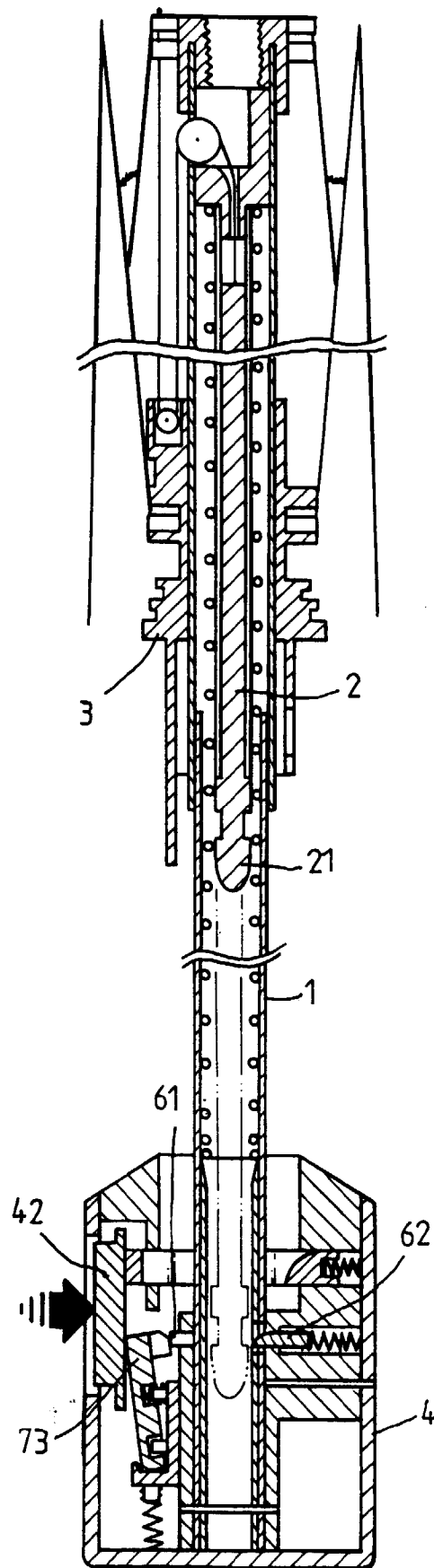


FIG. 6