(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 510 146 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
02.03.2005 Bulletin 2005/09

(51) Int Cl.[7]: **A45C 13/20**

(21) Application number: **03019461.7**

(22) Date of filing: **28.08.2003**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR
Designated Extension States:
AL LT LV MK

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(54) Luggage having a built-in shackle lock assembly

(57) A luggage comprises a shell (1A,1B) and a shackle lock assembly (K). The shackle lock assembly (K) is mounted in a compartment (H) of the shell and is formed of a shackle (12), a spring housing capable of turning to wind or unwind the shackle (12), a control lever (16) for controlling the turning of the spring housing, a start knob (17) for keeping the shackle (12) in the locking or unlocking state, and a combination lock (11) for controlling the start knob (17) in such a manner that the start knob (17) can not be actuated by an external force at the time when the combination lock (11) is in the locking state, and that the start knob (17) can be actuated by the external force at the time when the combination lock (11) is in the unlocking state.

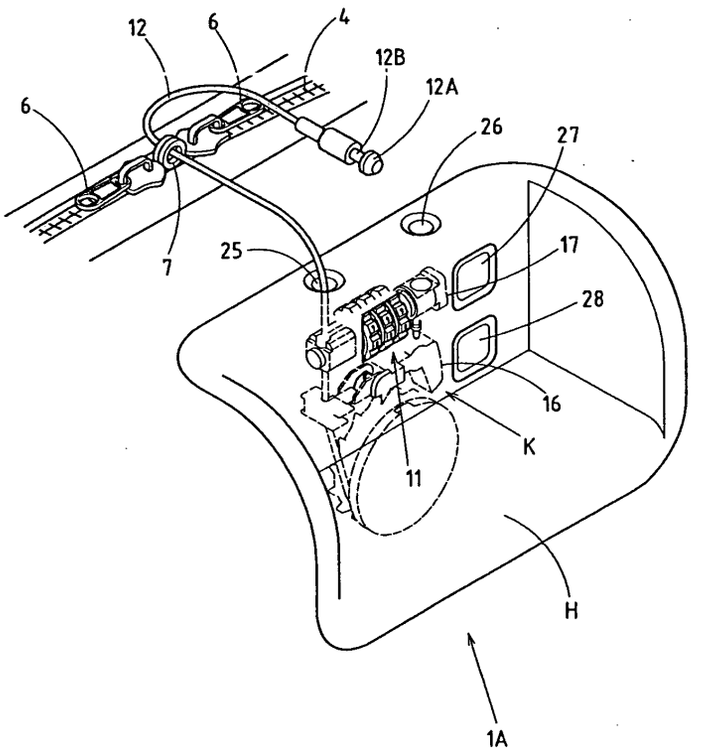

FIG.3

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates generally to a luggage lock, and more particularly to a built-in shackle lock assembly of the luggage.

2. Description of Related Art

[0002] The conventional luggages of all sizes are generally provided with a lock, which may be a key lock, electronic lock, noncontact lock, combination lock, etc. These conventional locks may be able to prevent the contents of the luggage from being taken out by an unauthorized person; nevertheless they can not prevent the luggage from being moved away from a designated area. In addition, the conventional luggage locks call for the use of a key, or ID card to work the lock mechanism. In the event that the key or ID card is lost or misplaced, the luggage locks can not be operated. The combination lock is an exception by virtue of the fact that it is operated by a dial that is turned to a set series of numbers or letters to work the lock mechanism.

SUMMARY OF THE INVENTION

[0003] The primary objective of the present invention is to provide a luggage having a built-in shackle lock assembly which is free of the deficiencies of the conventional luggage locks described above.

[0004] In keeping with the principle of the present invention, the foregoing objective of the present invention is attained by a luggage comprising a shell, and a shackle lock assembly which is disposed in a compartment of the shell. The shackle lock assembly comprises a shackle, a spring housing, a control lever, a start knob, and a combination lock. The shackle has a fastening end which is fixed at a shaft of the spring housing. The spring housing is capable of turning forward and backward so as to unwind and wind the shackle. The spring housing is provided with a ratchet wheel. The control lever is provided with a pawl engageable with the ratchet wheel of the spring housing. The start knob serves to keep the shackle in a locking or unlocking state. The combination lock is used to controi the start knob.

[0005] The features and the advantages of the present invention will be more readily understood upon a thoughtful deliberation of the following detailed description of the preferred embodiments of the present invention with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006]

FIG. 1 shows a perspective view of a first preferred embodiment of the present invention.

FIG. 2 shows a schematic view of a shackle lock assembly of the present invention.

FIG. 3 shows a schematic view of the mounting of the shackle lock assembly of the present invention.

FIG. 4 shows a perspective view of a luggage of a second preferred embodiment of the present invention.

FIG. 5 is a schematic plan view showing that the shackle of the shackle lock assembly of the present invention can not be pulled out of the assembly.

FIG. 6 is a schematic plan view showing that the shackle of the shackle lock assembly of the present invention can be pulled out of the assembly.

FIG. 7 is a sectional schematic view showing that the shackle head of the shackle lock assembly of the present invention is in the engaging state.

FIG. 8 is a sectional schematic view showing that the shackle head of the shackle lock assembly of the present invention is in the disengaging state.

DETAILED DESCRIPTION OF THE INVENTION

[0007] As shown in FIGS. 1-3, a luggage 1 embodied in the present invention has a shell which is made of a resin material reinforced by acrylonitrile butadiene styrene (ABS). The shell is divided into a bottom shell 1A and a top shell 1B, which are fastened together by means of a zipper 4. The bottom shell 1A is provided at an upper portion with a hand grip 2, and a compartment H in which an expandable hand grip 3 is disposed. A shackle lock assembly K is also disposed in the compartment H. The bottom shell 1A is provided at both ends of a bottom portion with a wheel 5 to facilitate the moving of the luggage 1 on a surface.

[0008] As shown in FIG. 2, the shackle lock assembly K of the present invention is provided with a lock mechanism which is formed of a combination lock 11, a shackle 12 of iron cable, a shaft 13 for mounting a spring 14, and a spring housing 15 for winding the shackle 12. The combination lock 11 is operated by a dial that is turned to a set series of numbers or letters to work the mechanism that opens the luggage 1. The shackle 12 can be used to disable the zipper 4 so as to prevent the luggage 1 from being opened up by an unauthorized person. The shackle 12 is fixed at one end with the shaft 13. The

spring housing 15 is provided with a ratchet wheel 15B. The lock mechanism is further formed of a control lever 16 and a start knob 17. The control lever 16 is provided with a control rod 16B capable of turning on a pivot 16A. The control lever 16 has a front end which is provided with a connection head 18 capable of turning on a pivot 16D. The control lever 16 further has a shackle locking piece 19. The pivot 16D is provided with a torsion spring 16E which is used to keep the control rod 16B and the connection head 18 in alignment at the time when they are not exerted on by an external force. The control rod 16B is provided in proximity of the pivot 16D with a pawl 16C capable of engaging the ratchet wheel 15B of the spring housing 15.

[0009] As illustrated in FIGS. 2 and 5, when the control rod 16B and the connection head 18 are held in alignment by the torsion spring 16E, the pawl 16C is engaged with the ratchet wheel 15B. As a result, the spring housing 15 can not be turned. In the meantime, the shackle 12 is caught by the shackle locking piece 19. The shackle 12 can not be thus pulled.

[0010] As shown in FIG. 6, when the control lever 16 is pressed downward, the control rod 16B is caused to swivel upward on the pivot 16A. As a result, the pawl 16C is caused to disengage the ratchet wheel 15B of the spring housing 15, thereby enabling the spring housing 15 to be turned. In the meantime, the curvature of the shackle locking piece 19 is changed so as to release the shackle 12, which can be thus pulled out via a through hole of a guide portion 20. The shackle 12 can be retracted by pressing the control lever 16 so as to cause the ratchet wheel 15B to become disengaged with the pawl 16C. The spring housing 15 is caused by the recovery force of the spring 14 to turn in reverse to effect the retraction of the shackle 12.

[0011] As the shackle 12 is pulled out, a shackle head 12A of the shackle 12 can be inserted into an engagement port 22. The shackle head 12A is removably held in the engagement port 22 and can be thus disengaged with the engagement port 22 by activating the start knob 17, as illustrated in FIGS. 7 and 8. The shackle head 12A is provided with an annular groove 12B, while the engagement port 22 is provided with a retaining edge 23. The start knob 17 has an inner end, which is urged by a spring 17A. When the shackle head 12A is inserted into the engagement port 22, the retaining edge 23 is retained in the annular groove 12B of the shackle head 12A. The inward displacement of the start knob 17 is controlled by the combination lock 11. In another words, when the combination lock 11 remains in the locking state, the start knob 17 can not be actuated to move inward. As a shackle head 12A is in the engagement state, a link pin 30 is pushed downward such that the link pin 30 is stopped by a projecting part 16F of the control lever 16. As a result, the control lever 16 remains in the fixed state.

[0012] As shown in FIG. 8, the combination lock 11 is in the unlocking state to enable the start knob 17 to be actuated to move inward to effect the disengagement of the retaining edge 23 with the annular groove 12B. As a result, the shackle head 12A can be pulled out of the engagement port 22. In the meantime, the link pin 30 is caused by the spring force of the spring 31 to move away from the projecting part 16F of the control lever 16, thereby enabling the control lever 16 to remain in the standby state.

[0013] The compartment H of the luggage shell is provided with a start port 27 and a shackle operating port 28. The control lever 16 can be actuated by a finger which is put through the shackle operating port 28. The compartment H is further provided with an exit port 25 via which the shackle 12 is pulled out. The compartment H is still further provided with a start-up port 27 via which the start knob 17 can be reached by a finger, so as to remove the shackle head 12A.

[0014] The zipper 4 is provided with two pull tabs 6, each having a ring 7 dimensioned to allow passage of the shackle head 12A. As the shackle head 12A is engaged with the engagement port 22 via a through hole 26 of the compartment H, the zipper 4 is disabled.

[0015] The luggage 1 of the present invention can be thus fastened to a fixed object so as to prevent it from being taken away by an unauthorized person. In addition, a plurality of luggages or the like can be securely held together by means of the shackle 12 of the present invention.

[0016] As shown in FIG. 4, a luggage 1 of a second embodiment of the present invention has a shell which is made of a polyester material. The shell is different in form from that of the luggage of the first preferred embodiment as shown in FIG. 1. However, the luggage of the second embodiment of the present invention is provided with a shackle lock assembly identical in structure and function with that of the luggage of the first embodiment of the present invention. In short, the shackle lock assembly is the subject matter of the present invention.

[0017] The embodiments of the present invention described above are to be regarded in all respects as being illustrative and nonrestrictive. Accordingly, the present invention may be embodied in other specific forms without deviating from the spirit thereof. The present invention is therefore to be limited only by the scope of the following claim.

Claims

1. A luggage comprising:

a shell provided with a compartment; and

a shackle lock assembly mounted in said compartment of said shell;

wherein said shackle lock assembly comprises:

a shackle of a length and having an engagement end and a fastening end;

a spring housing in which said fastening end of said shackle is fastened with a shaft of said spring housing such that said shackle can be pulled out of and back into said spring housing whereby said spring housing is provided with a ratchet wheel;

a control lever provided with a pawl engageable with said ratchet wheel of said spring housing to prevent said spring housing from turning whereby said pawl is engaged with said ratchet wheel at the time when said control lever is exerted on by an external force;

a start knob provided with an engagement port engageable and disengageable with said engagement end of said shackle, said start knob further provided with a link pin and a spring fitted over said link pin whereby said link pin serves to link said start knob with said control lever at the time when said shackle end of said shackled is engaged with said engagement port of said start knob; and

a combination lock for controlling said start knob in such a way that said start knob can not be actuated by an external force to move at a time when said combination lock remains in a locking state, and that said start knob can be actuated by the external force to move so as to effect a disengagement of said shackle with said engagement port of said start knob at the time when said combination lock remains in an unlocking state.

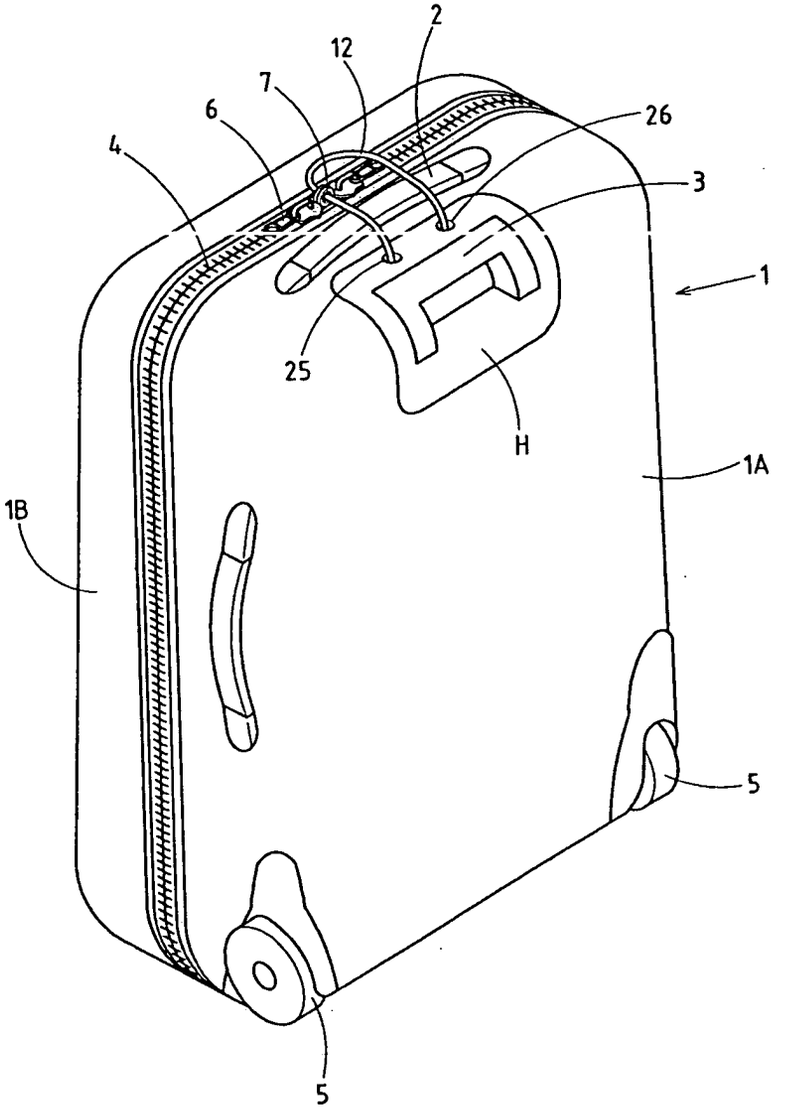
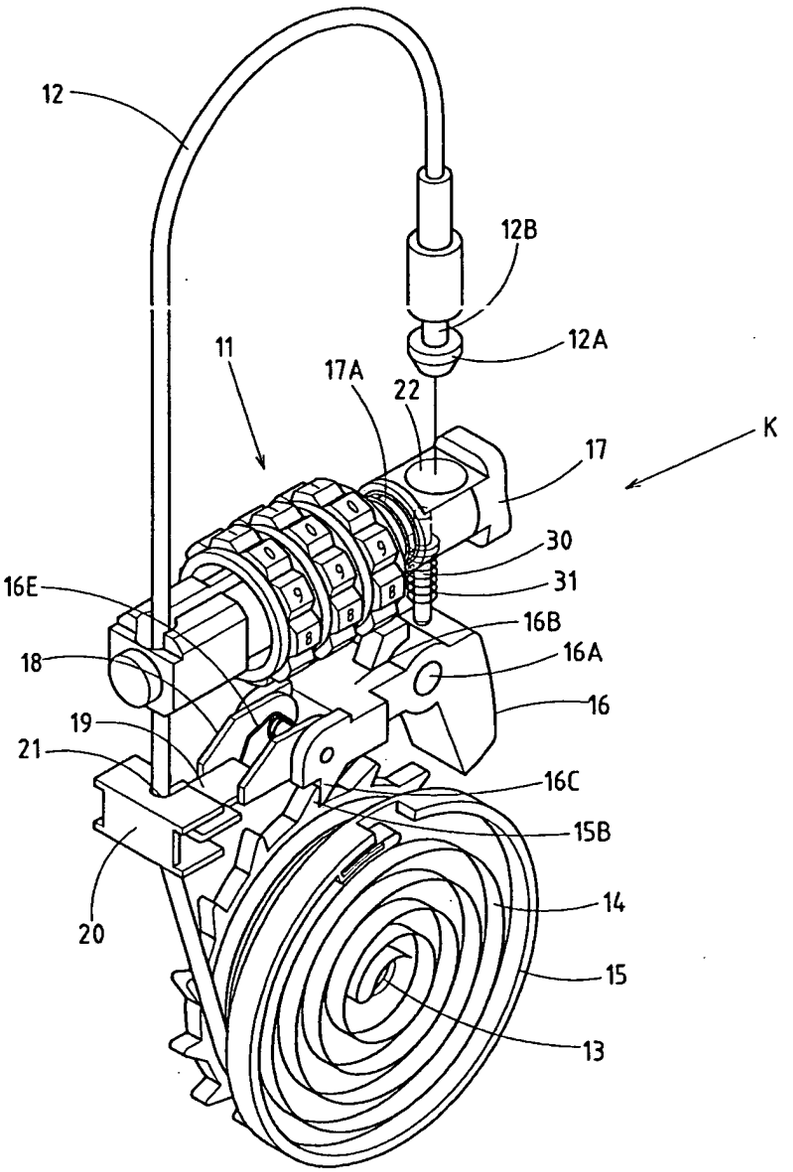


FIG.1


12
12B
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11
17A
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K
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16E
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16C
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FIG.2

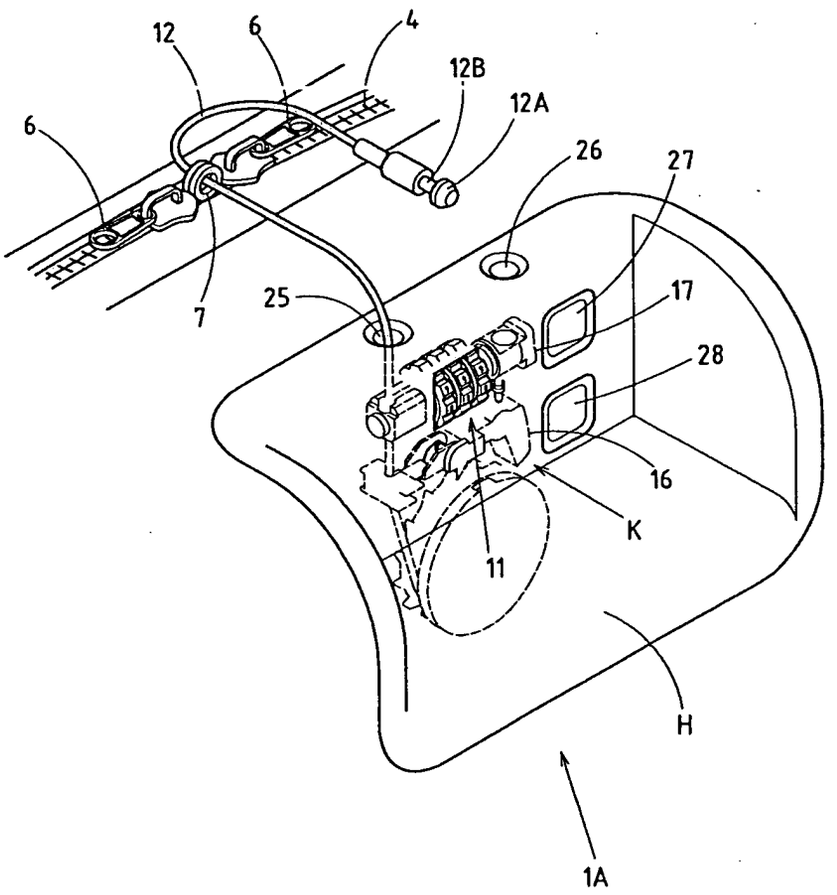


FIG.3

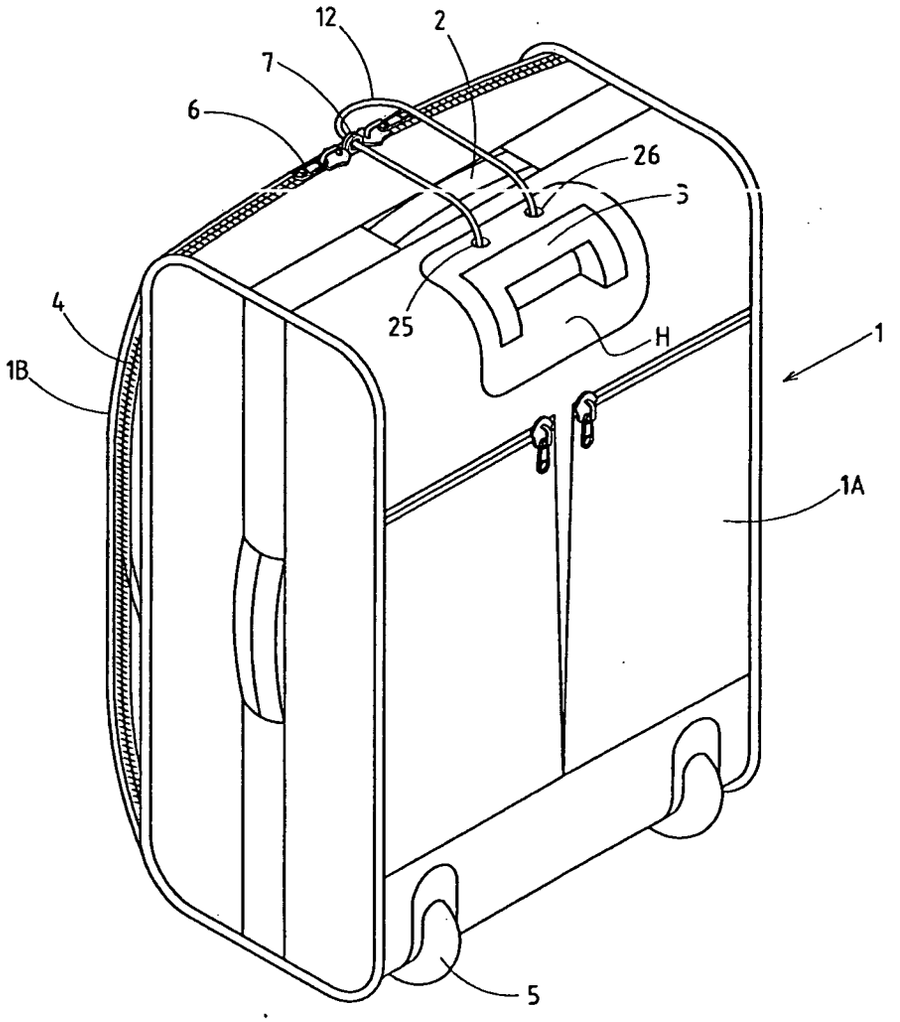


FIG.4

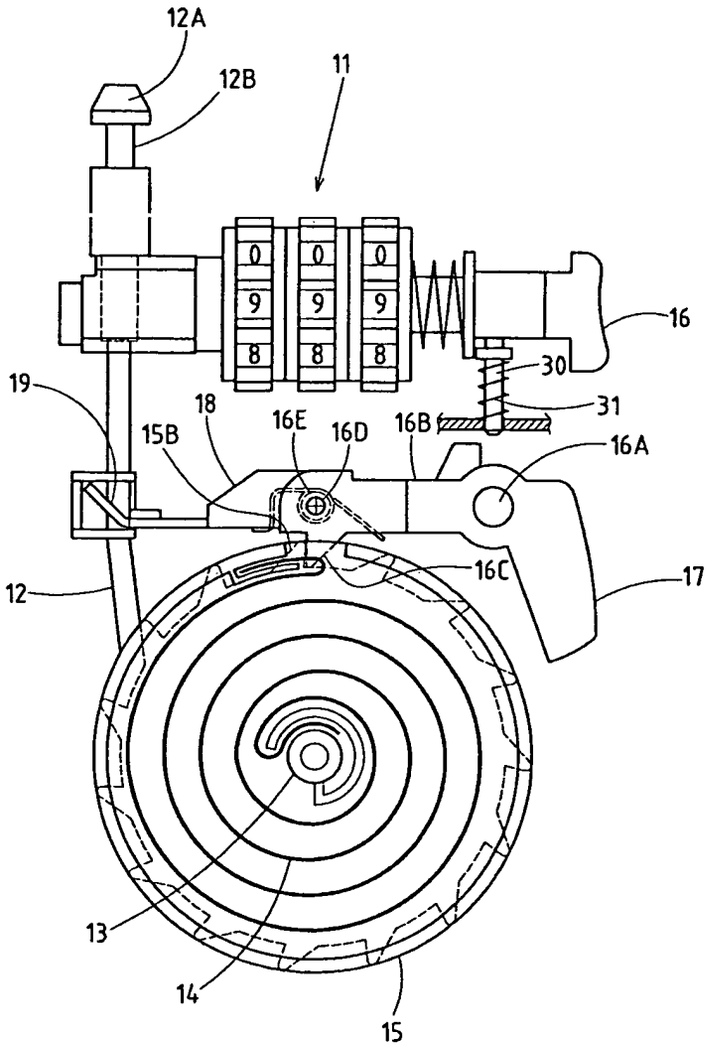


FIG.5

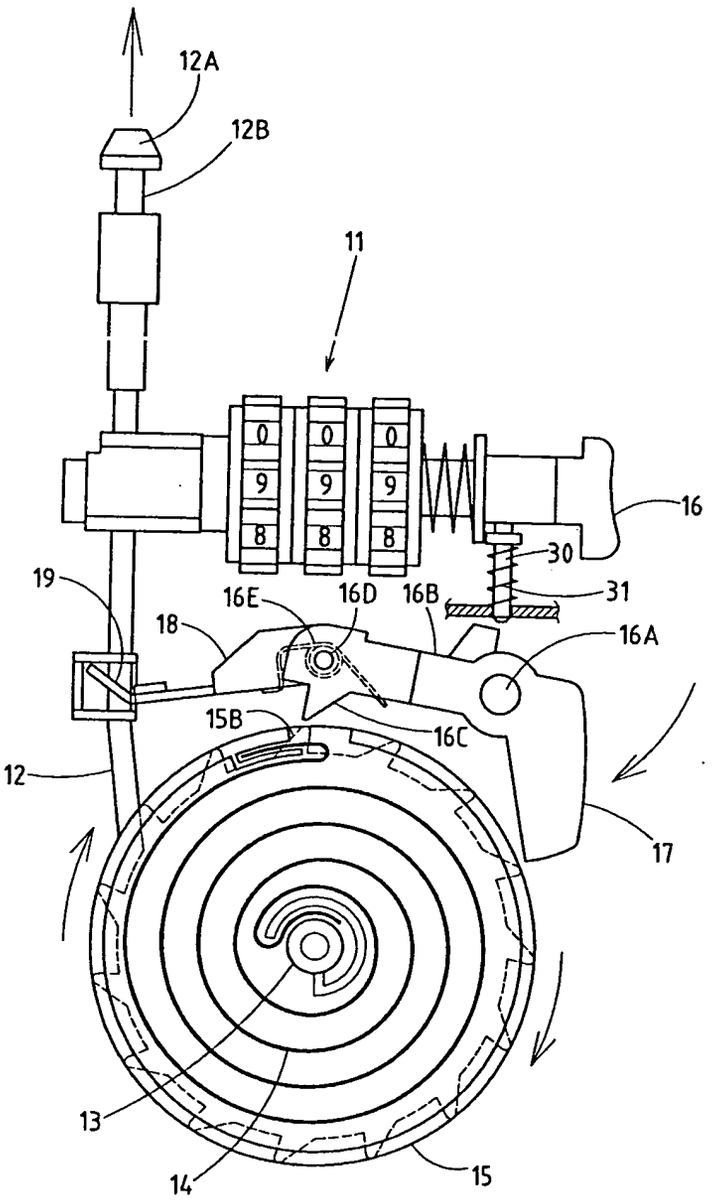
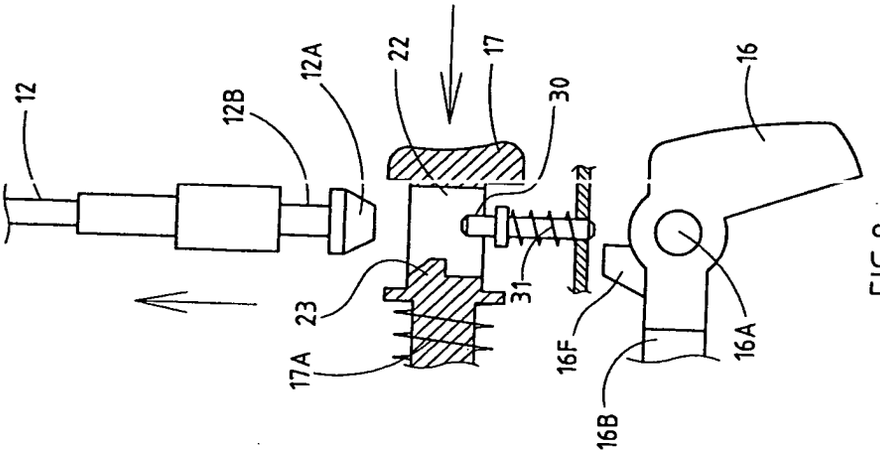


FIG.6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12B
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31
17A
16F
16A
16B

FIG.8

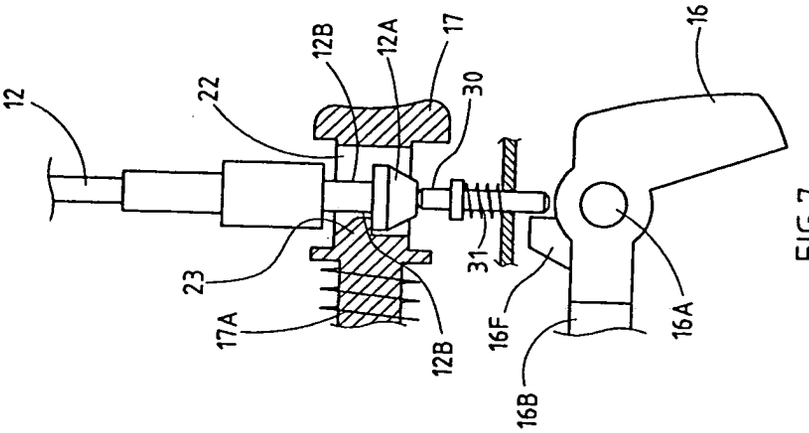
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FIG.7

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EUROPEAN SEARCH REPORT

Application Number
EP 03 01 9461

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.7)
Y	US 4 573 332 A (MA HANSAN) 4 March 1986 (1986-03-04) * figures 1-3 * ---	1	A45C13/20
Y	US 4 896 517 A (LING CHONG-KUAN) 30 January 1990 (1990-01-30) * figures 1-3 * -----	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A45C
E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	5 December 2003	Dinescu, D

CATEGORY OF CITED DOCUMENTS

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05-12-2003

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US 4573332 A	04-03-1986	GB 2158417 A	13-11-1985
US 4896517 A	30-01-1990	NONE	

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