



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.01.2004 Bulletin 2004/05

(51) Int Cl.7: **E05B 13/10, E05B 73/00**

(21) Application number: **03253802.7**

(22) Date of filing: **17.06.2003**

(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

(71) Applicant: **Acco Brands Inc.**
Lincolnshire, Illinois 60069 (US)

(72) Inventor: **Kuo, Lambert**
Tainan (TW)

(30) Priority: **26.06.2002 CN 02241626**
24.07.2002 US 201281
05.12.2002 JP 2002353997

(74) Representative: **Browne, Robin Forsythe, Dr.**
Urquhart-Dykes & Lord
Tower North Central
Merrion Way
Leeds LS2 8PA (GB)

(54) **Lock for securing an article on display**

(57) A lock for securing an article on display includes a casing (30) having a front opening (32) and a hook (33) contiguous to the front opening (32), with a locking body (1) received in the casing (30). The locking body (1) is formed with a bolt (26) having a front lip (263) that

is movable out of the casing (30) through the front opening (32). In addition, the locking body (1) is designed so that the front lip (263) of the bolt (26) may be extended out of the casing (30) and securely kept alongside the hook (33) until the lock is opened.

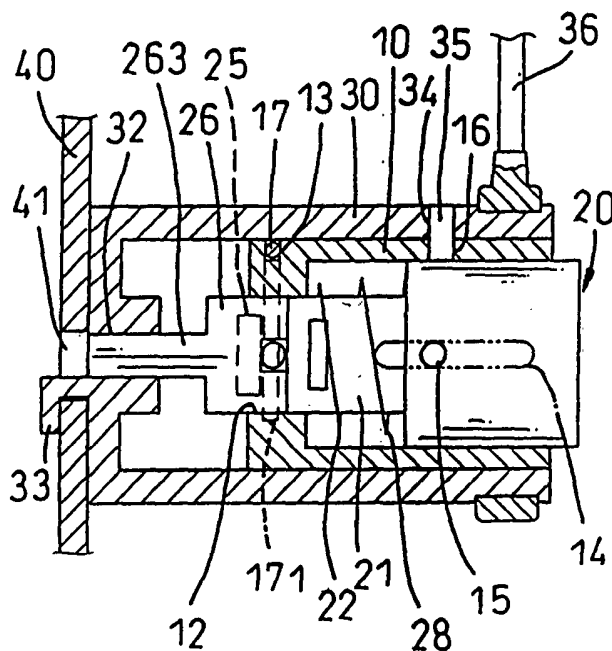


FIG. 3

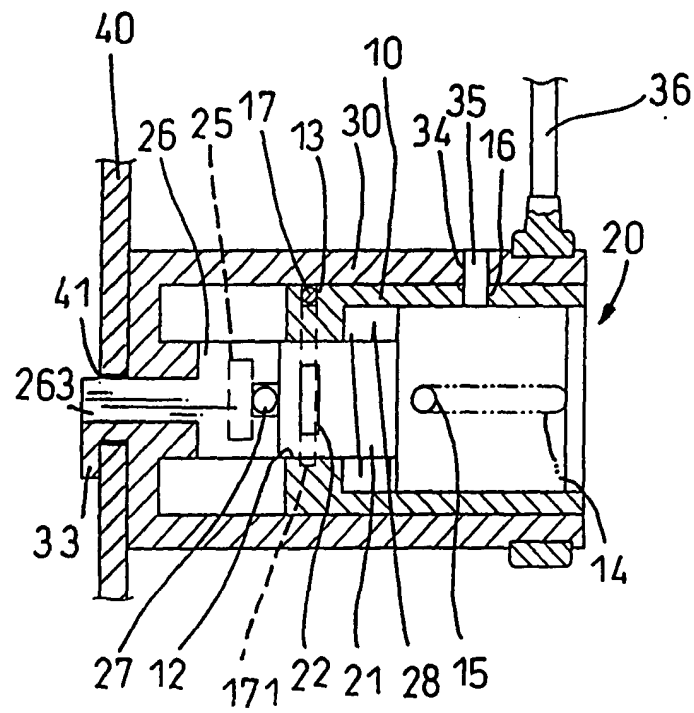


FIG.4

Description**BACKGROUND OF THE INVENTION**

1. Field of the Invention

[0001] The present invention relates to a lock for securing an article on display and, more particularly, to such a lock which is easy to be operated and convenient to be well kept.

2. Description of Related Art

[0002] There is often a need to secure an article on display, especially on public display. This is usually accomplished by a lock that has a wire cable looped through something immovable.

[0003] As shown in Fig. 5, a lock for this purpose generally includes a main body (50) having a plurality of dials (51) and a socket (52) for detachably receiving a separate hitching part (60). After or before a front hook of the hitching part (60) passes through a port in an article, the dials (51) are required to be turned into the preset combination to allow the rear disk-like end of the part (60) to be placed into the socket (52) and fixedly attached to the main body (50).

[0004] The lock is opened by turning the dials (51) into the present combination again before moving a slider (53) of the main body (50). It is at this time that the hitching part (60) can be detached from the main body (50).

[0005] In this conventional lock, it is clear that the dials (51) must be turned either for the attachment of the hitching part (60) to or the detachment of the hitching part (60) from the main body (50), which is a difficult operation for a user.

[0006] Additionally, the conventional lock is not convenient to be well kept because the separate hitching part (50) is often lost and the remaining main body (50) becomes useless:

Therefore, it is an objective of the invention to provide a lock for securing an article on display to mitigate and/or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0007] The object of the present invention is to provide a lock which is easy to be operated.

[0008] Another object of the present invention is to provide a lock which is convenient to be well kept.

[0009] Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS**[0010]**

Fig. 1 is an exploded perspective view of a preferred embodiment of a lock in accordance with the present invention for securing an article on display; Fig. 2 is a transverse sectional view showing the article ready to be secured to the lock of Fig. 1; Fig. 3 is a transverse sectional view showing the article hitch to the lock of Fig. 1; Fig. 4 is a transverse sectional view showing the article securely attached to the lock of Fig. 1; and Fig. 5 is a side view of a prior art lock.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0011] Referring to Fig. 1, a lock in accordance with the present invention includes a casing (30) having a front opening (32) and a hook (33) contiguous to the opening (32), with a wire cable (36) attached to a periphery of the casing (30). The casing (30) is further formed with a rear opening (31) for receiving a locking body (1).

[0012] The locking body (1) includes a hollow body (10) received in the casing (30). The hollow body (10) has a rear chamber (11), a front through-hole (12) in alignment with the front opening (32) of the casing (30), and preferably a longitudinal groove (14) defined therein.

[0013] A cylinder (20) is movably fitted in the rear chamber (11) of the hollow body (10). The cylinder (20) has a hole (23) for receiving a stud (15) that extends into and is movable along the longitudinal groove (14), thus ensuring the correct movement of the cylinder (20) between a front position, as shown in Fig. 4, and a rear position, as shown in Figs. 2 and 3, with respect to the hollow body (10) and hence to the casing (30).

[0014] The cylinder (20) further has a forwardly extending stem (21) that has a rear end rotatably connected to the cylinder (20) and a front end rotatably connected to a bolt (26). In the illustrated embodiment, the front end of the stem (21) is received in a rear blind hole (261) of the bolt (26) and is formed with a neck (24) defined by a frontmost disk (25), with a pin (27) extending into the neck (24) through an aperture (262) of the bolt (26), thereby allowing the front end of the stem (21) to be rotatably connecting to the bolt (26).

[0015] The bolt (26) has a front lip (263) movable out of the casing (30) through the front opening (32), as best shown in Fig. 4. That is, the front lip (263) may be extended out of the casing (30) and securely held alongside the hook (33) when the cylinder (20) is moved to the front position. The front lip (263) may also be retracted into the casing (30) when the cylinder (20) is moved to the rear position by the action of a spring (28), which is accommodated in the rear chamber (11) of the hollow

body (10) and is mounted around the stem (21) of the cylinder (20).

[0016] In the inventive lock, there are further provided means for releasably keeping said lip (263) of said bolt (26) out of said casing (30) as soon as said cylinder (20) is moved to said front position.

[0017] In a highly preferred embodiment, the means for releasably keeping the lip include a pair of opposed cutouts (22) defined in a periphery of the stem (21) and a clip (17) received in a channel (13) of the hollow body (10). In detail, the channel (13) has a pair of straight portions (131) that communicate the front through-hole (12) substantially at two opposed tangential points, while the clip (17) is made into a U-shaped configuration and has a pair of shanks (171) resiliently flexible in the straight portions (131) of the channel (13).

[0018] These shanks (31) normally abut the periphery of the stem (21) but may snap into the cutouts (22) and catch the stem (21) as soon as the cylinder (20) is moved to its front position, thus keeping the lip (263) of the bolt (26) alongside the hook (33) of the casing (30).

[0019] Referring to Figs. 1 and 2, the inventive lock can be assembled simply by placing the locking body (1) into the rear opening (31) before the body (1) is fastened to the casing (30), such as by means of a pintle (35) which extends into aligned orifices (34, 16) of the casing (30) and the hollow body (10).

[0020] This means that the locking body (1) may be selected from any individual lock, known or not, which has a bolt adapted to be partially and retractably extended out, particularly one in which a bolt can be partially and retractably extended out by depressing a cylinder. In other words, the inventive lock is provided with a lot of choices of the locking body, as well as easiness in its assembly.

[0021] Referring to Figs. 2 and 3, the inventive lock is specially provided for securing an article (40) on display. As can be seen, the article (40) has a port (41) through which the hook (33) of the casing (30) can extend so as to hitch the article (40).

[0022] Referring to Fig. 4, the article (40) can be locked by depressing the cylinder (20), i.e. by moving it from the rear position to the front position. It is in the front position that the resilient shanks (171) of the U-shaped clip (17) snap into the cutouts (22) of the cylinder (20), thereby catching the stem (21) and hence keeping the lip (263) of the bolt (26) alongside the hook (33) of the casing (30).

[0023] Now that the lip (263) is kept in the port (41) and blocks the way the hook (33) may otherwise exit from the port (41). So the article on display is secured until the lock is opened.

[0024] The lock can be opened only by turning the stem (21) relative to the cylinder (20), such as by means of a correct key (not shown) that is inserted into a keyslot defined in the cylinder (20). Now the shanks (171) are both pushed outward by the turning stem (21). When the shanks (171) fully slide out of the cutouts (22) and

abut the periphery of the stem (21) again, the cylinder (20) will be moved quickly from its front position (Fig. 4) back to its rear position (Fig. 3) by the action of the compressed spring (28).

[0025] As a result, the lip (263) of the bolt (26) is retracted into the casing (30) and the hook (33) may exit from the port (41) to allow the article (40) to be separated from the inventive lock.

[0026] It is to be noted that the clip (17) may be made in other configurations rather than the U-shaped one. For example, an alternative clip made in an L-shaped configuration with one single shank can also be used.

[0027] In this case, the channel (13) may be formed with only one straight portion which communicates the front through-hole (12) substantially at one tangential point, and the stem (21) may have only one cutout (22) defined therein. The L-shaped clip is received in the channel (13) with the single shank being resiliently flexible in the straight portion. Similar to the embodiment of the U-shaped configuration, the single shank normally abuts the periphery of the stem (21) but snaps into the cutout (22) and catches the stem (21) as soon as the cylinder (20) is moved to the front position.

[0028] From the above description, it is apparent that the invention has the following advantages:

1. being easy to be operated:

[0029] Because the article (40) can be locked only by depressing the cylinder (20), the inventive lock is easy to be operated.

2. being convenient to be well kept:

[0030] Because the hook (33) is formed integrally with the casing (33) and will not be lost in any way, the inventive lock is convenient to be well kept.

3. having choices of the locking body:

[0031] Because the locking body may be selected from any individual lock which has a bolt adapted to be partially and retractably extended out, the inventive lock has choices of its locking body.

4. being easy to be assembled:

[0032] Because the locking body (1) can be fastened to the casing (30) simply by inserting the pintle (35) into the aligned orifices (34, 16), the inventive lock is easy to be assembled.

[0033] It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within

the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

Claims

1. A lock for securing an article on display, comprising:

a casing (30) having a front opening (32) and a hook (33) contiguous to said front opening (32); a locking body (1) received in said casing (30), said locking body (1) being formed with a bolt (26) having a front lip (263) movable out of said casing (30) through said front opening (32); and

wherein said locking body (1) is designed so that said front lip (263) of said bolt (26) may be extended out of said casing (30) and securely kept alongside said hook (33) until said lock is opened.

2. The lock as claimed in claim 1, wherein said locking body (1) comprises:

a hollow body (10) having a rear chamber (11) and a front through-hole (12) in alignment with said front opening (32) of said casing (30); a cylinder (20) movable in said rear chamber (11) of said hollow body (10) between a front position and a rear position, said cylinder (20) having a stem (21) extending forward therefrom; said stem (21) having a rear end rotatably connected to said cylinder (20) and a front end rotatably connected to said bolt (26); a spring (28) for moving said cylinder (20) to said rear position; and means for releasably keeping said lip (263) of said bolt (26) out of said casing (30) as soon as said cylinder (20) is moved to said front position.

3. The lock as claimed in claim 2, wherein said means for releasably keeping said lip comprises:

at least one cutout (22, 22a) defined in a periphery of said stem (21); a channel (13) formed in said hollow body (10), said channel (13) having at least one straight portion (131) communicating said front through-hole (12) substantially at a tangential point; a clip (17) received in said channel (13) of said body (10) and having at least one shank (171) resiliently flexible in said straight portion (131) of said channel (13); and said shank (171) normally abutting said periphery of said stem (21) but snapping into said cut-

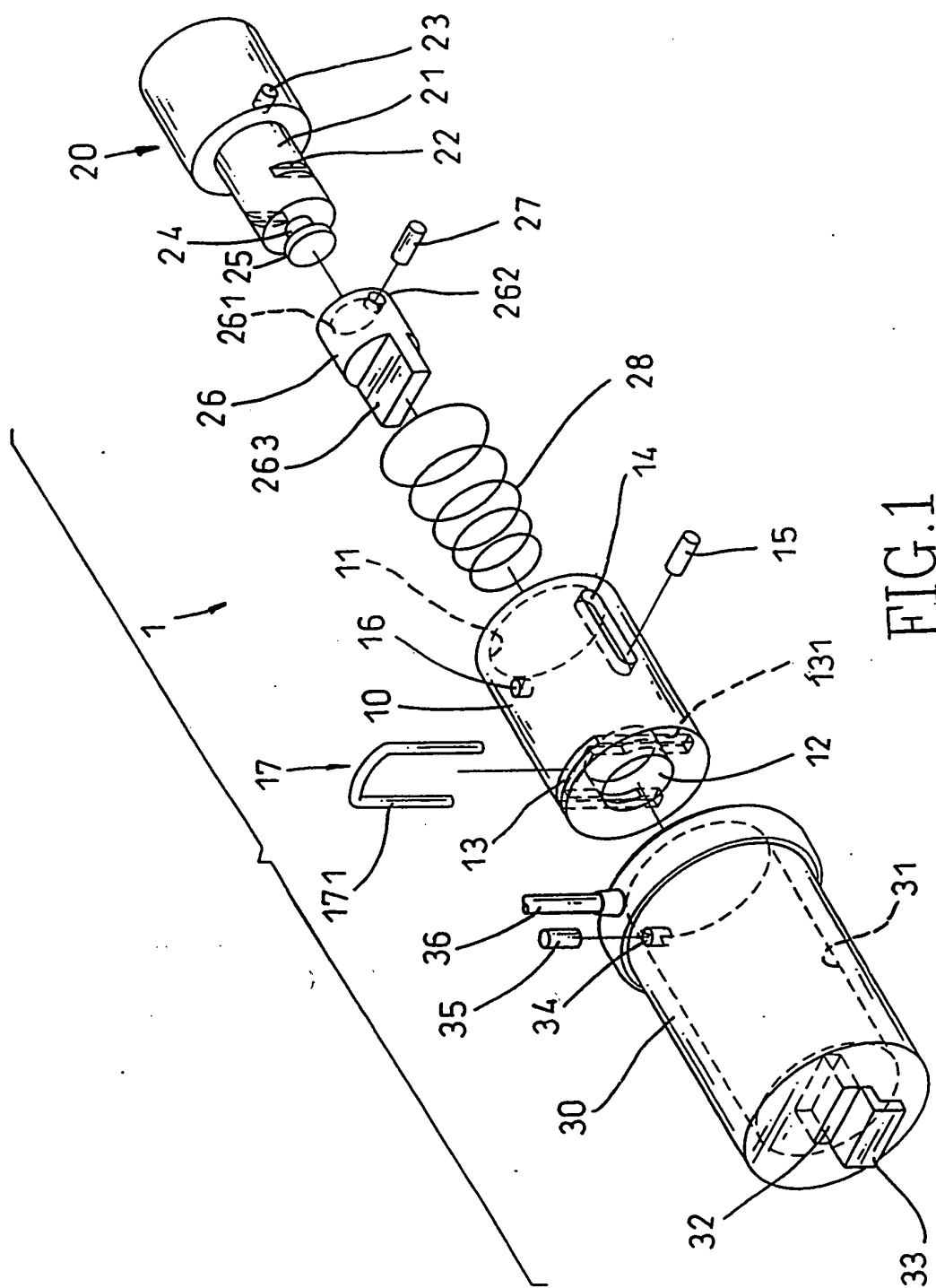
out (22) and catching said stem (21) when said cylinder (20) is moved to said front position.

4. The lock as claimed in claim 2, wherein said hollow body (10) has a longitudinal groove (14) defined therein, and wherein said cylinder (20) has a stud (15) extending into and movable along said longitudinal groove (14) of said body (10), thereby ensuring the correct movement of said cylinder (20) between said front position and said rear position.

5. The lock as claimed in claim 2, wherein said stem (21) has a neck (24) formed near said front end thereof and said bolt (26) has a rear blind hole (261) for receiving said front end of said stem (21), and wherein a pin (27) extends through said bolt (26) into said neck (24) of said stem (21), thereby allowing said front end of said stem (21) to be rotatably connecting to said bolt (26).

6. The lock as claimed in claim 2, wherein said casing (30) is formed with a wire cable (36) attached to a periphery thereof.

7. The lock as claimed in claim 2, wherein said casing (30) and said hollow body (10) have respective orifices (34, 16) aligned with each other, and wherein a pintle (35) extends into said orifices (34, 16), thereby fastening said locking body (1) to said casing (30).



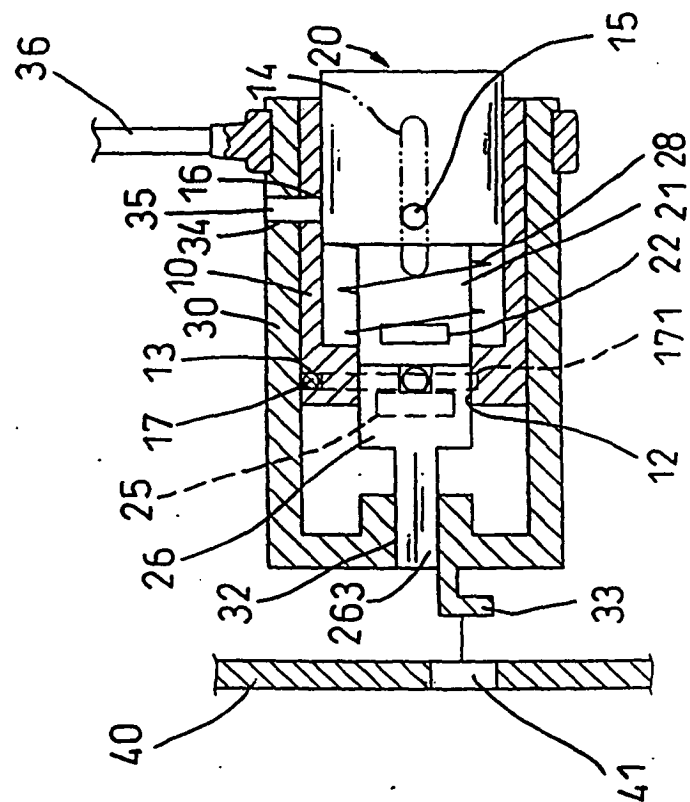
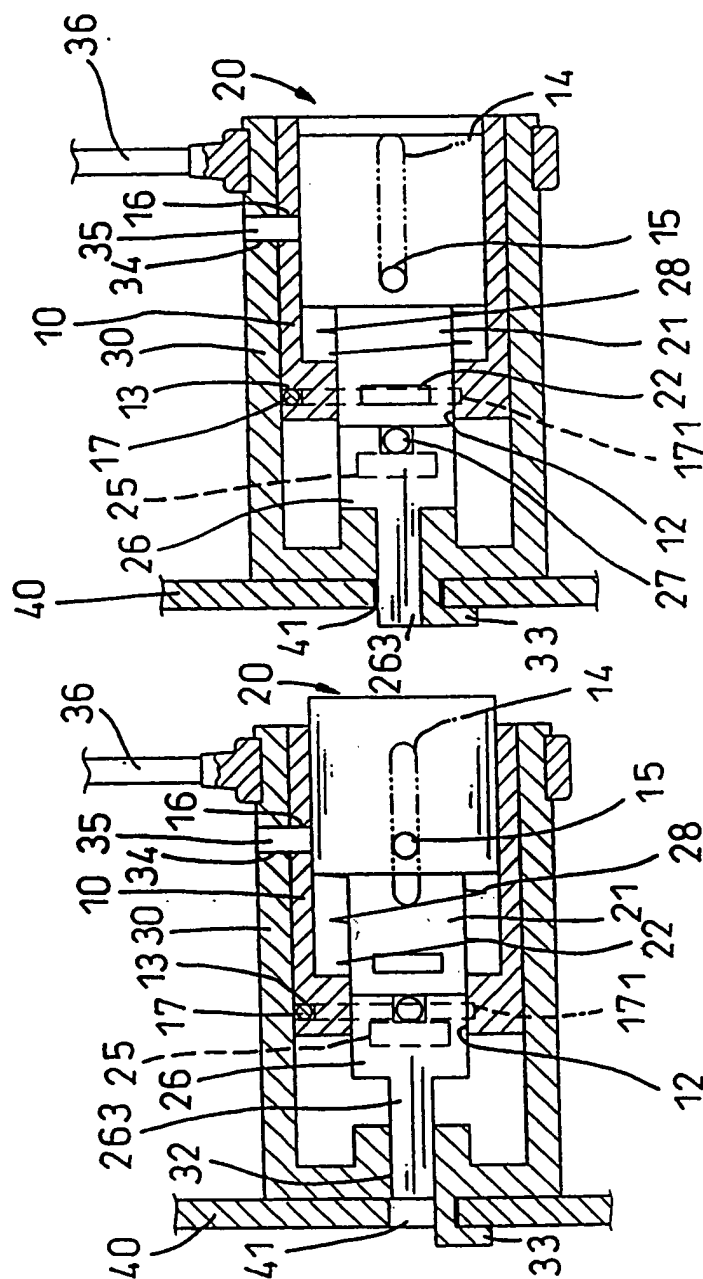


FIG.2



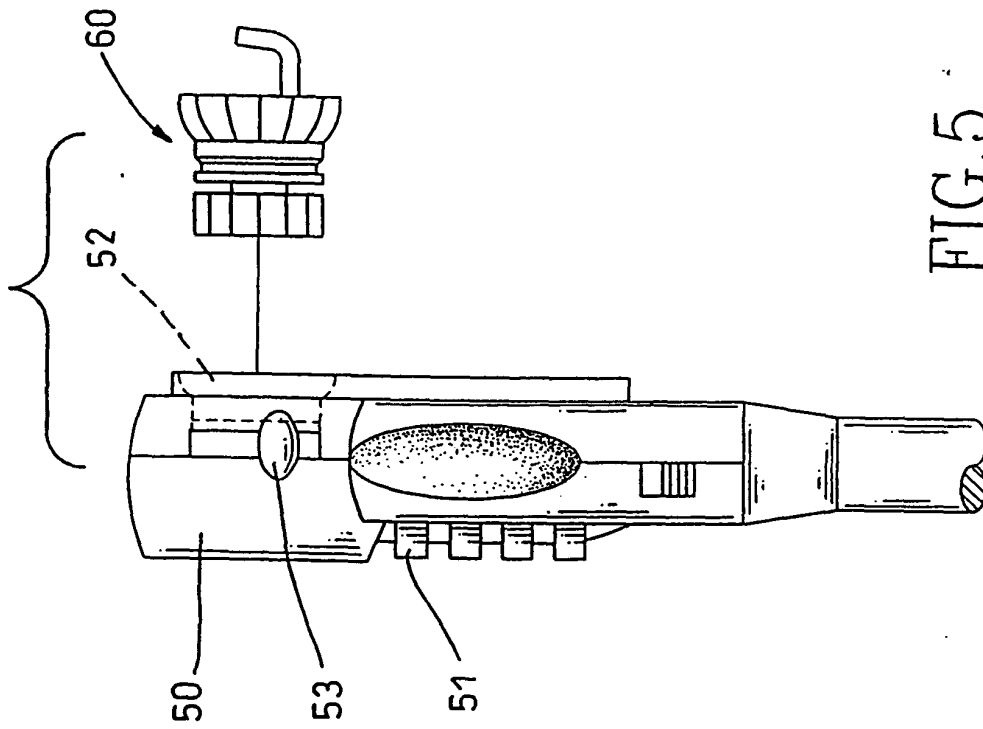


FIG. 5
PRIOR ART



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 25 3802

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)
X	US 5 913 907 A (LEE MIKO) 22 June 1999 (1999-06-22) * column 2, line 20 - line 50 * * figures 1,2A,3A,3B,6 * ---	1,2,4,6, 7	E05B13/10 E05B73/00
X	US 6 244 082 B1 (AVGANIM MEIR) 12 June 2001 (2001-06-12) * column 2, line 58 - column 3, line 6 * * figures 3-5 * ---	1	
A	US 5 799 520 A (CROCCO JOHN J ET AL) 1 September 1998 (1998-09-01) * column 4, line 2 - line 7 * * figures 1,2 * ---	1	
A	US 5 447 049 A (SHIEH JIN-REN) 5 September 1995 (1995-09-05) * the whole document * ---	1	
A	FR 2 741 375 A (RONIS SA) 23 May 1997 (1997-05-23) * page 3, line 1 - page 3, line 14 * * figures 1-3 * -----	3	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		19 November 2003	Bitton, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04C01)

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

EP 03 25 3802

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-11-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5913907	A	22-06-1999	NONE	
US 6244082	B1	12-06-2001	IL 120090 A	28-10-1999
			AU 5777898 A	18-08-1998
			WO 9832939 A1	30-07-1998
US 5799520	A	01-09-1998	NONE	
US 5447049	A	05-09-1995	NONE	
FR 2741375	A	23-05-1997	FR 2741375 A1	23-05-1997

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82