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

(11) **EP 2 204 116 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
07.07.2010 Bulletin 2010/27

(51) Int Cl.:
A47L 13/256 *(2006.01)* ***A47L 13/44*** *(2006.01)*

(21) Application number: **09176633.7**

(22) Date of filing: **20.11.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(30) Priority: **30.12.2008 FI 20086251**

(71) Applicant: **Rekola, Petri**
00840 Helsinki (FI)

(72) Inventor: **Rekola, Petri**
00840 Helsinki (FI)

(74) Representative: **Salonen, Esko Tapani et al**
Forssén & Salomaa Oy
Lautatarhankatu 8 B
00580 Helsinki (FI)

(54) **Cleaning implement**

(57) The invention concerns a cleaning implement (10), which comprises a mop body (11), to which is articulated an arm (12), with which the mop body (11) can be moved when cleaning. The mop body (11) comprises a rocking body (14), which is articulated to it and which is articulated to turn around a geometric axis (X_1). The rocking body (14) comprises a first rocking body-half (A_1) and attaching means ($16a_1$, $16a_2$). The rocking body (14) also comprises a second rocking body-half (A_2) and attaching means ($17a_1$, $17a_2$), whereby the rocking body (14) can be placed in such a position, where a gap (K) is formed in between the rocking body (14) and the mop body (11), into which gap the cleaning device (M) can be placed. The rocking body (14) can be turned to an end position, in which the gap (K) is either closed or open. The attaching means ($16a_1$, $16a_2$) bring about the gap's (K) open position and the second attaching means ($17a_1$, $17a_2$) bring about the gap's (K) closed position, in which the rocking body (14) with its body-half (A_2) will press the cleaning device (M) against the mop body (11).

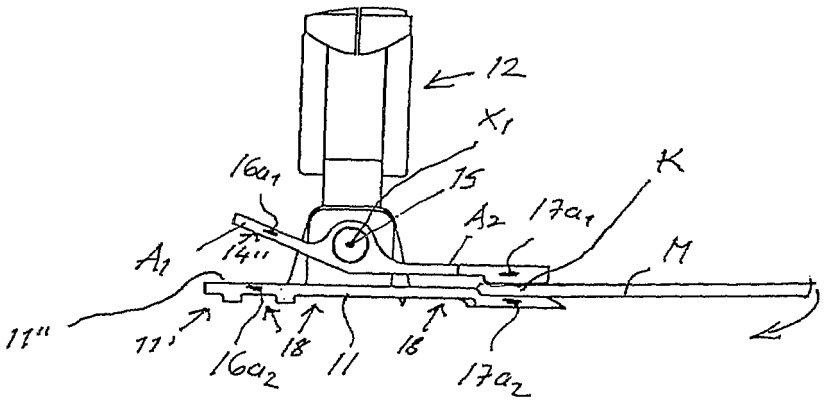


FIG 5

EP 2 204 116 A2

Description

[0001] The invention concerns a cleaning implement.

[0002] Known in the state of the art is the use of a mop body as a cleaning device and a cleaning implement, which mop body comprises an arm articulated to it. A cleaning rag or a cleaning cloth or other such is usually joined to the mop body by a sticker attachment or mechanically.

[0003] The present invention presents quite a new type of mop body solution, in which the mop body comprises an articulation in between the mop body and the arm. In addition, there is a rocking body, which comprises first attaching means, preferably magnetic attaching means, and second attaching means, preferably also magnetic attaching means, with the aid of which the rocking body can be turned into a position, in which into a gap between the rocking body and the mop body a cleaning means, such as a cleaning cloth, can be placed, and into a second position, where said gap is closed. Locking of the first position is carried out by first attaching/locking means, preferably magnetic locking means, in the rocking body's first half-arm, and second attaching/locking means, preferably also magnetic attaching means, carry out the locking and make the gap remain closed in the rocking body's second position. Thus, the rocking body is always turned into either locked end position.

[0004] The rocking body is preferably shaft-mounted on the same shaft as the mop body's arm.

[0005] The mop body is preferably of plastic materials and it is preferably formed in such a way that the attaching means, preferably magnetic attaching means, are fitted inside the mop body, whereby they will not be dirtied and will not fall out of the structure. The attaching means are also locking means. They are used to lock the rocking arm in either end position. The attaching means may be cast inside the mop body or they may be covered in the mop body's cavity, on top of which a protecting plate is welded.

[0006] In accordance with the invention, cleaning means, such as a cleaning rag, can be placed in a gap K between the rocking body and the mop body K, so that it is entered into said gap by moving the mop body forward. The gap can be closed by pressing with the foot on the rocking body's second body part. Said gap can be opened and the mop rag released by pressing with the foot on the rocking body's first half-body. One set of magnetic means becomes locked as the other magnetic means are opening.

[0007] A magnet-magnet combination or a magnet-iron combination can be used as the magnetic locking means or attaching means.

[0008] The mop body's bottom may be smooth and even. In the mop body's bottom grooves may also be used, which will promote the rag's effect and cleaning action. When a shaft is used in the rocking body's and the arm's bearing, it is preferable to use a shaft, which is made of a plastic or composite material and which can be locked in its position by using a locking pin or plugs or other such shouldered structures in the shaft ends. In the mop body and in its parts it is preferable to use such raw materials, which will not rust; preferably plastic, nylon or composites.

[0009] In the invention an excellent novel mop body structure is thus formed, in which a cleaning device can be attached in the mop body without using hands and in which the dirty rag need not be touched during the entire cleaning activity. In accordance with the invention, by forming the rocking body structure and the attaching means preferably of magnetic devices, it is possible to use such a cleaning device, for which no sticker attachment or pocket attachment need to be used, and which is thus advantageous as a whole both for the manufacturer and for the user.

[0010] This invention thus presents a novel device solution; a new type of cleaning implement.

[0011] The cleaning implement according to the invention is characterized by the features presented in the claims.

[0012] The invention will be described in the following by referring to some advantageous embodiments of the invention, which are shown in the figures of the appended drawings, but there is no intention to restrict the invention to these embodiments alone.

[0013] Figure 1 is an axonometric view of the mop body.

[0014] Figure 2 shows a side view of the mop body from the direction k_1 in Figure 1.

[0015] Figure 3 shows a rag M placed in the mop body's gap.

[0016] Figure 4 shows the new type of equipment according to the invention in action and with the rag folded under the mop body.

[0017] Figure 5 is a cross-sectional view of the step shown in Figure 3, and Figure 6 is a cross-sectional view of the step shown in Figure 4, in which the cleaning rag M is folded under the mop body 11.

[0018] Figure 7 is an axonometric view and line illustration of the mop according to the invention, and Figure 8 shows a detail B of Figure 7 on an enlarged scale.

[0019] Figure 9 shows the mop from the direction of arrow k_2 in Figure 7, that is, from the front, and Figure 10 shows the area C of Figure 9 on an enlarged scale.

[0020] Figure 11A illustrates how an attaching/locking means, such as a magnet, is placed in a cavity in the body inside the body and covered with a protecting cover.

[0021] Figure 11B illustrates the structure after covering.

[0022] Figure 1 is an axonometric view of the cleaning implement 10 according to the invention and Figure 2 shows the mop from the direction of arrow k_1 of Figure 1. The cleaning implement is used to clean floors in particular. The cleaning implement 10 comprises a mop body 11, to which an articulated arm 12 is connected. To the mop body 11 is connected through its lugs $13a_1$, $13a_2$ a rocking body 14, which is articulated to turn around the

geometric axis x_1 carried by a shaft 15. The rocking body 14 comprises a first rocking body-half A_1 on one side of the axis x_1 and a second rocking body-half A_2 on the other side of axis x_1, preferably in the mid-area of the rocking body's 14 width. The first rocking body-half A_1 and the mop body 11 matching it comprise first attaching means $16a_1$, $16a_2$, preferably magnetic attaching means, and the second rocking body-half A_2 and the mop body 11 matching it comprise second attaching means $17a_1$, $17a_2$, preferably also magnetic attaching means. The attaching means $16a_1$, $16a_2$; $17a_1$, $17a_2$ may also be called locking means for the rocking body's turning motion. In cross-section, the rocking body's 14 half-arm A_1 has its axis Y_1 at an acute angle α in relation to the half-arm's A_2 axis Y_2. The angle α is preferably approximately 45°.

[0023] The first attaching means $16a_1$, $16a_2$ are located on the side of the rocking body's 14 rocking body-half A_1, so that the attaching means $16a_1$ are located in the rocking body 14 and so that the attaching means $16a_2$ are located at a corresponding place in the mop body 11, whereby they are matched together in the closed situation. Correspondingly, the second attaching means $17a_1$, $17a_2$ are located in such a way in the structure, that the attaching means $17a_1$ are located in the rocking body's 14 rocking body-half A_2, and the attaching means $17a_2$, which are matched together with them in the locking situation, are located in mop body 11.

[0024] The attaching means $16a_1$, $16a_2$ and the attaching means $17a_1$, $17a_2$ are preferably magnetic attaching means and thus they comprise magnets $16a_1$, $16a_2$; $17a_1$, $17a_2$ or a magnet and a piece of iron as the opposite attaching mean.

[0025] The attaching means $16a_1$, $16a_2$; $17a_1$, $17a_2$ are preferably inside the body's 11, 14 body material, and they are preferably placed and constructed inside the body material, such as plastic. Thus, the attaching means $16a_1$, $16a_2$; $17a_1$, $17a_2$ are in a protected space and they will not be damaged, dropped out or be dirtied. The shaft 15 preferably functions both as the rocking body's 14 shaft and as one shaft for the arm's 12 articulation. The arm 12 is articulated to turn around axis x_1 and also around axis x_2, which is at right angles to the former, whereby the arm 12 is cardan-jointed.

[0026] A cleaning device M, such as, for example, a rag is placed in a gap K in between the rocking body's 14 second rocking body-half A_2 and the mop body 11, and then by affecting the rocking body 14 with the foot the second attaching means $17a_1$, $17a_2$ are pressed close together, whereby the magnet will keep them pressed together and the rag M is locked in between the rocking body's 14 half A_2 and the mop body 11. There are preferably several attaching means $17a_1$, $17a_2$ over the length of the mop body. When the rocking body 14 is pressed with the foot at the rocking body-half A_1, the first attaching means $16a_1$, $16a_2$, preferably magnetic attaching means, are pressed against each other and they are snapped close, whereby the gap K opens and the cleaning device, such as a cleaning rag M, is released. Thus, the rocking body 14 is always locked in either end position of the rocking motion by either attaching/locking means $16a_1$, $16a_2$ or $17a_1$, $17a_2$.

[0027] With the aid of attaching means $17a_1$ and $17a_2$, preferably magnetic attaching means, the cleaning rag M is kept in gap K and locked in connection with the mop body 11, whereby the mop body 11 can be lifted without making the rag M drop off. Thus, the rag M need not be moved by hand.

[0028] All materials of the mop body 11 are preferably of plastic. It is also advantageous to make the components by casting.

[0029] In the attachment situation, the cleaning device M, such as a rag, is located pressed under the effect of magnetic means $17a_1$, $17a_2$ in between the rocking arm's 14 half A_2 and the mop body 11. There may preferably be two or preferably more second magnetic attaching means $17a_1$, $17a_2$ over the length of the rocking body 14 and the mop body. Correspondingly, there are preferably two or preferably more first attaching means $16a_1$, $16a_2$, whereby it is possible to boost the attaching/locking effect of said attaching means.

[0030] The second attaching means $17a_1$ are located in connection with the rocking body's 14 body part A_2 and the attaching means $17a_2$ are located co-operatively with said attaching means $17a_1$ in the mop body 11. Correspondingly, the first attaching means $16a_1$ are located in rocking body's 14 rocking body-half A_1 and co-operatively with these the attaching means $16a_2$ are located in the mop body 11. The attaching means $16a_1$ and $16a_2$ can be placed co-operatively and matching each other and, correspondingly, the attaching means $17a_1$ and $17a_2$ can be placed to match each other in the locking situation. On the bottom surface 11' of mop body there may be grooves 18 or other such, which will boost the cleaning ability of rag M.

[0031] Figure 3 shows a cleaning device, such as rag M, placed in between part A_2 of rocking body 14 and the mop body 11, whereby the gap K is closed and it is kept closed with the aid of the attaching means $17a_1$, $17a_2$. The attaching means $17a_1$ and $17a_2$ thus bring about that the gap is kept closed and the rag M is locked in gap K in between the rocking body-half A_2 and the mop body 11. In Figure 4, the rag M is folded under the mop body 11.

[0032] Figure 5 shows a step similar to Figure 3, in which the rag is placed in between rocking body's 14 half A_2 and the mop body 11 and the locking means $17a_1$ and $17a_2$ bring about locking and lock the rag M in gap K.

[0033] Figure 6 shows a step similar to Figure 4, in which the rag M is folded under the mop body 11, in which position cleaning with the mop is performed.

[0034] Figure 7 shows a line drawing of the cleaning implement 10 according to the invention. It can be seen in the figure, that by pressing with the foot on area A_1 the rocking body 14 is made to rotate carried by shaft 15 around the geometric axis X_1, whereby the gap K opens in between the rocking body's 14 area A_2 and the mop body 11, into which gap K a cleaning device such as rag

M can be introduced.

[0035] Figure 8 shows the area B of Figure 7 on a larger scale. As is shown in Figure 8, the shaft 15 is placed through the entire structure in the lengthwise direction of mop 11 and through the through-holes of lugs $13a_1$, $13a_2$, whereby the shaft 15 will form a rocking shaft for the rocking body 14. By pressing on the area A_1 with the foot the area A_2 is lifted up and a gap K is formed in between the rocking body's 14 area A_2 and the mop body 11. Correspondingly, by pressing on the area A_2 with the foot the locking means/attaching means $17a_1$, $17a_2$, preferably magnetic means, are placed to match each other and the mop, its rocking body 14 is locked in a position, where the rag M is located in between the area A_2 and the rocking body 11.

[0036] Figure 9 shows the mop body in the direction of arrow k_2 of Figure 7, that is, directly from the front. The shaft 15 is placed in the lengthwise direction of the mop body 11, and the rocking body 14 is bearing-mounted on said shaft. The shaft 15 is placed through the through-holes of lugs $13a_1$, $13a_2$. The lugs $13a_1$, $13a_2$ are preferably of the same cast structure as the mop body 11.

[0037] Figure 10 shows the area C of Figure 9 on a larger scale.

[0038] Figure 11A illustrates how the attaching means/locking means $16a_1$, $16a_2$; $17a_1$, $17a_2$ are placed in a cavity t_1 in the body 11 or 14 and how the cavity t_1 is then covered by a protecting cover t_2, which is welded to the body 11 or 14. The surface 11" or 14" thus becomes uniform and even, as is shown in Figure 11B. The attaching part $16a_1$, $16a_2$; $17a_1$, $17a_2$, such as a magnet, is protected inside the body 11, 14. The cover t_2 is preferably of the same material as the body part 11, 14, preferably of plastic.

Claims

1. Cleaning implement (10), which comprises a mop body (11), to which is articulated an arm (12), with which the mop body (11) can be moved when cleaning, and which mop body (11) comprises a rocking body (14), **characterized in that** the mop body (11) comprises a rocking body (14), which is articulated to it and which is articulated to turn around a geometric axis (X_1), and which rocking body (14) comprises a first rocking body-half (A_1), and that there are first attaching means ($16a_1$, $16a_2$) and that the rocking body (14) comprises a second rocking body-half (A_2) and that there are second attaching means ($17a_1$, $17a_2$), whereby the rocking body (14) can be placed in such a position, where a gap (K) is formed in between the rocking body (14) and the mop body (11), into which gap a cleaning device (M) can be placed, and which rocking body (14) can be turned into a second position, in which the gap (K) is closed, and that the first attaching means ($16a_1$, $16a_2$) bring about the open position of the gap (K) and the second attaching means ($17a_1$, $17a_2$) bring about the closed position of the gap (K), whereby the rocking body (14) at its body-half (A_2) will press the cleaning device (M) against the mop body (11).

2. Cleaning implement (10) according to claim 1, **characterized in that** on the geometric axis (X_1) a shaft (15) is located, with which the rocking body (14) is articulated to turn carried by end positions, and which shaft (15) at the same time functions as the cardan shaft for the turning motion of the arm (12).

3. Cleaning implement (10) according to some preceding claim, **characterized in that** the first attaching means ($16a_1$, $16a_2$) are located on the side of the rocking body's (14) rocking body-half (A_1) in such a way that the attaching means ($16a_1$) are located in the rocking body (14) and that the attaching means ($16a_2$) are located at a matching point in the mop body (11), whereby in the closed situation they will match each other and, correspondingly, the second attaching means ($17a_1$, $17a_2$) are located in such a way in the structure, that the attaching means ($17a_1$) are located in the rocking body's (14) rocking body-half (A_2), and the attaching means ($17a_2$) matching them in the locked situation are located in the mop body (11).

4. Cleaning implement (10) according to some preceding claim, **characterized in that** the rocking body (14) is fitted to turn around a geometric axis (X_1) carried by the shaft (15), which is placed through the lugs ($13a_1$, $13a_2$).

5. Cleaning implement (10) according to some preceding claim, **characterized in that** both attaching means ($16a_1$, $16a_2$) are preferably magnetic attaching means, and that both attaching means ($17a_1$, $17a_2$) are preferably also magnetic attaching means.

6. Cleaning implement (10) according to some preceding claim 1 - 4, **characterized in that** in the locked situation the attaching means ($16a_1$, $16a_2$) are placed to match each other in the attachment, and some of them are magnetic attaching means and the others are iron parts, and that the attaching means ($17a_1$, $17a_2$), will match each other when locked, and some of them are magnetic attaching means and the others are iron parts.

7. Cleaning implement (10) according to some preceding claim, **characterized in that** the attaching means ($16a_1$, $16a_2$) are located in a protected space inside the material of the mop body (11) and the rocking body (14), and that, correspondingly, the attaching means ($17a_1$, $17a_2$) are located in a protected space inside the material of the mop body (11) and the rocking body (14).

8. Cleaning implement (10) according to some preceding claim, **characterized in that** the attaching means ($16a_1$, $16a_2$; $17a_1$, $17a_2$) are cast inside the body structures (11, 14) or they are placed in a cavity (t_1) of the body structure (11, 14) and covered with a protecting part (t_2), whereby they remain inside a protected space, and that the protecting part (t_2) is attached to the body structure (11, 14).

9. Cleaning implement (10) according to some preceding claim, **characterized in that** the material of the mop body (11) is plastic, and that the rocking body (14) and the shaft (15) are of plastic.

10. Cleaning implement (10) according to some preceding claim, **characterized in that** at least at one end of the shaft (15) there is a bushing (h), which will snap into attachment with the end of the shaft (15) in a snapping connection, whereby the shaft (15) and the bushing (h) are of a plastic material.

11. Cleaning implement (10) according to some preceding claim, **characterized in that** the arm (12) is connected to the mop body (11) with a cardan joint, whereby the arm (12) will turn both around the axis (X_1) and around an axis (X_2), which is perpendicular to the former.

12. Cleaning implement (10) according to some preceding claim, **characterized in that** the mop body (11) comprises an even surface (11') or a surface provided with grooves (18) on the side to be placed against the floor.

13. Cleaning implement (10) according to some preceding claim, **characterized in that** the mop body's (11) surface (11') to be placed against the floor has protrusions (f) and grooves (18), which extend over the length of the mop body (11), whereby this will boost the cleaning effect of the cleaning implement (M), which is placed in the gap (K).

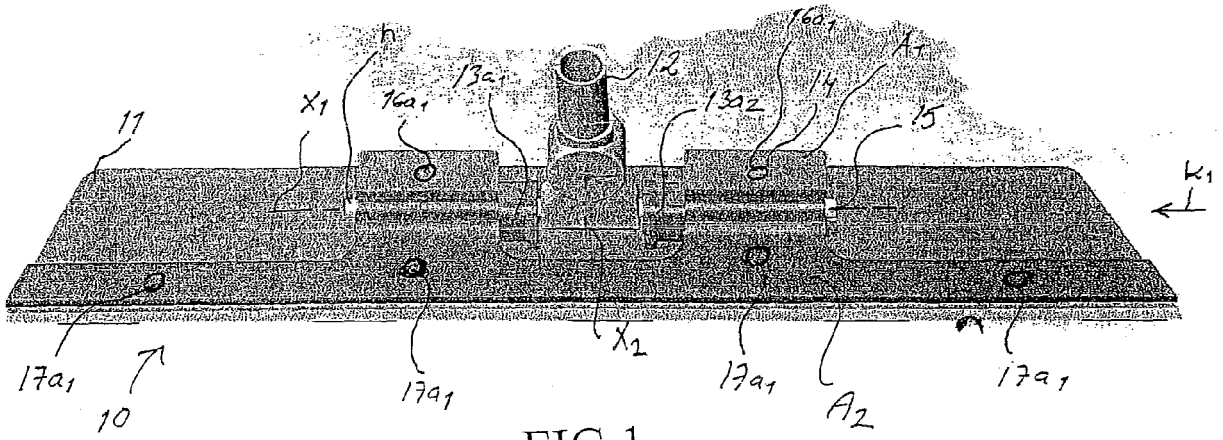

h
X1
11
16a1
13a1
12
13a2
16a1
14
A1
15
K1
17a1
10
17a1
X1
17a1
A2
17a1

FIG 1

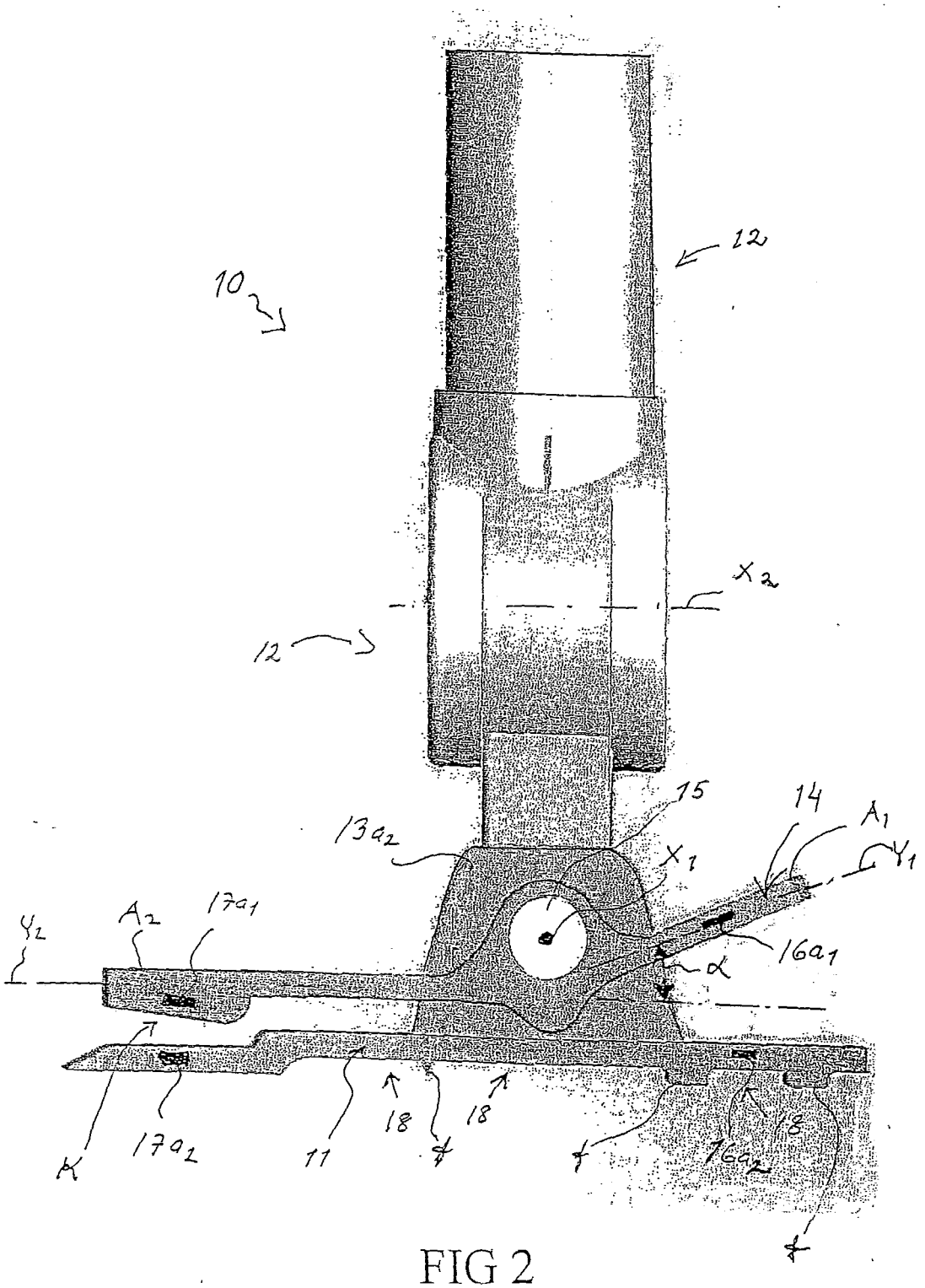

10
12
12
X_2
$13a_2$
15
14
A_1
X_1
Y_1
Y_2
A_2
$17a_1$
$16a_1$
α
K
$17a_2$
11
18
18
18
$16a_2$

FIG 2

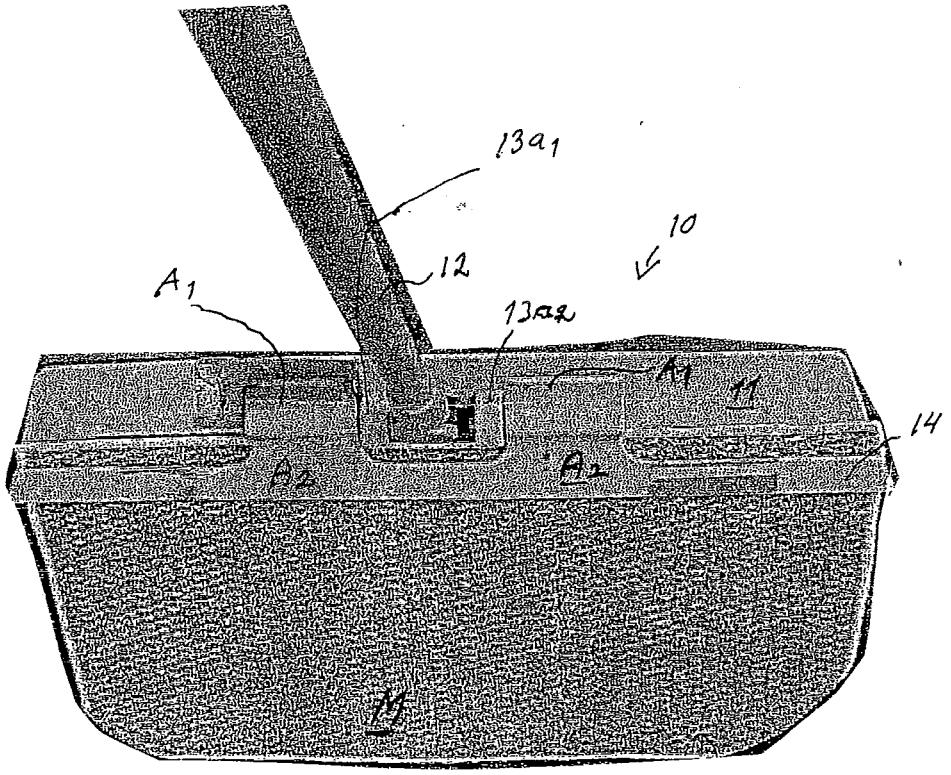


FIG 3

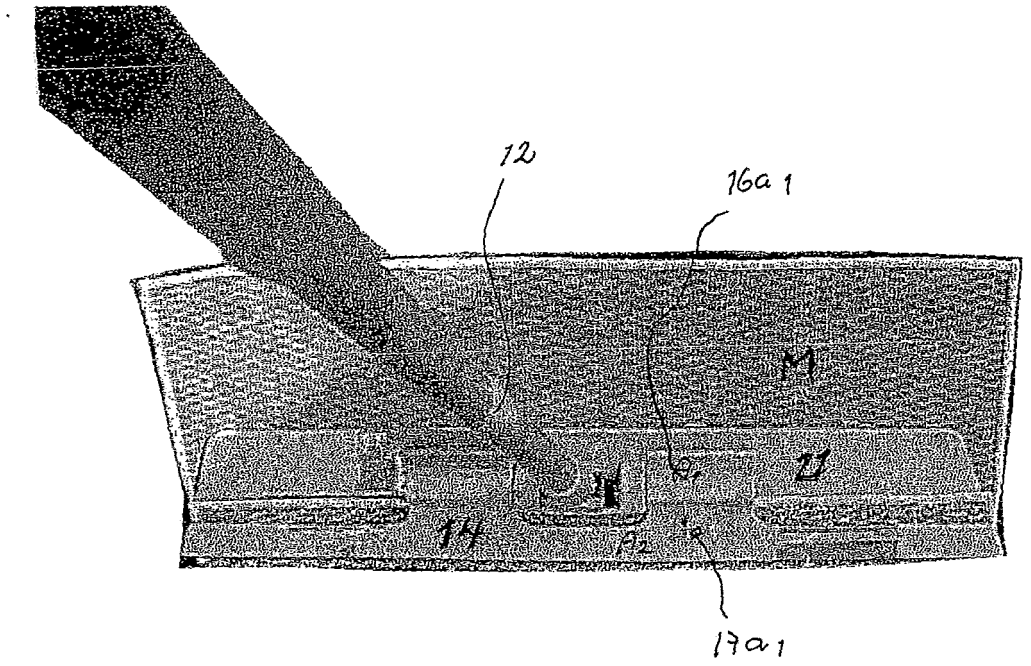


FIG 4

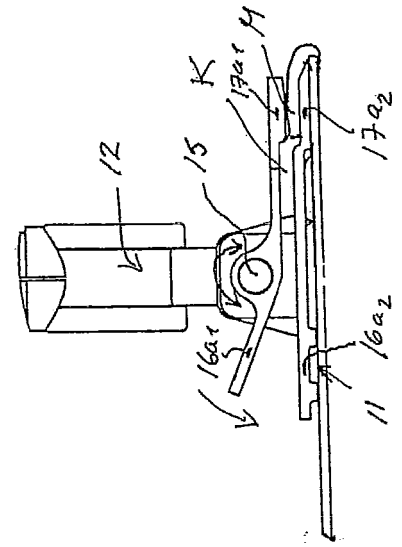

12
15
K
M
17a1
17a2
16a1
16a2
11

FIG 6

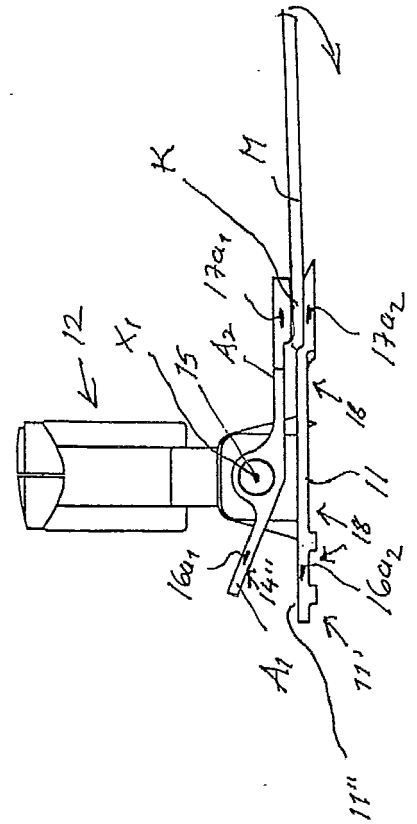

12
X1
15
A2
K
M
17a1
17a2
16a1
14''
A1
11'
16a2
18
11
11''

FIG 5

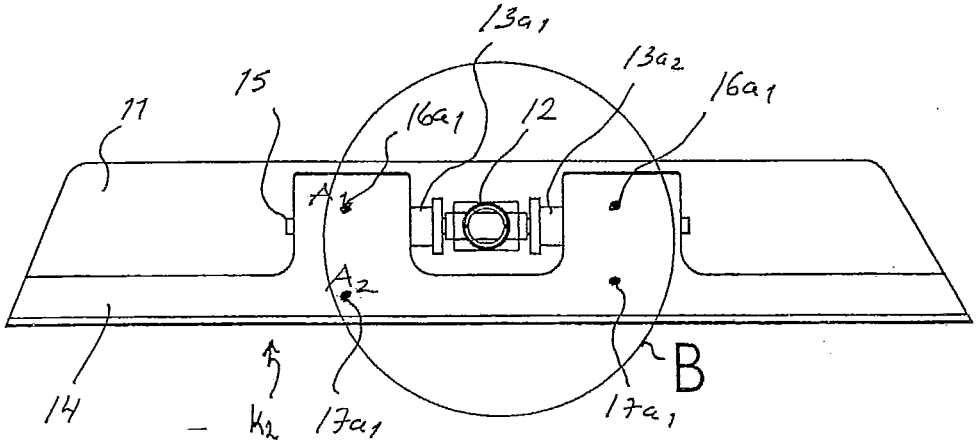


FIG 7

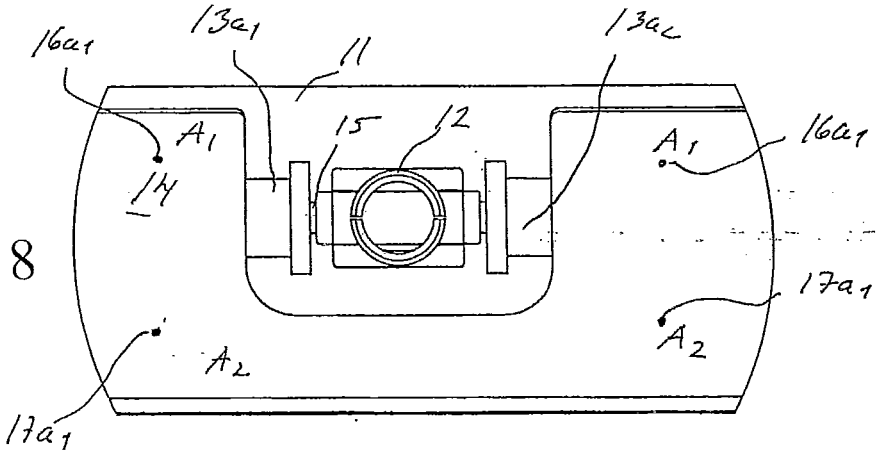
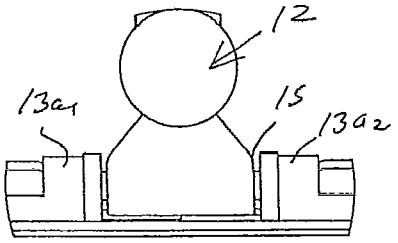


FIG 8

DETAIL B



DETAIL C

FIG 10

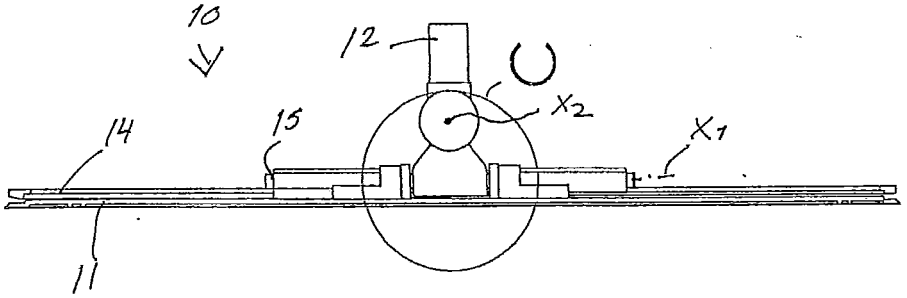


FIG 9

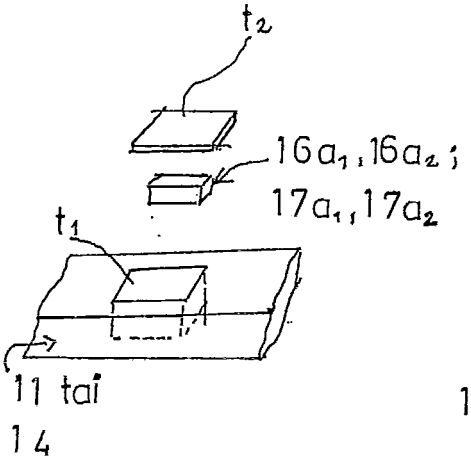


FIG 11A

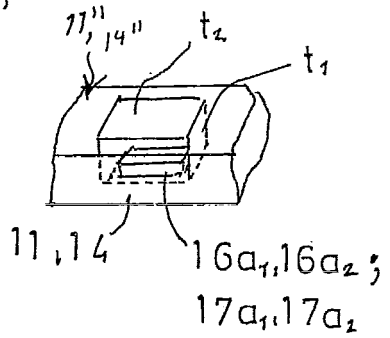


FIG 11 B