

(19)



(11)

EP 2 204 528 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
06.01.2016 Bulletin 2016/01

(51) Int Cl.:
E06B 9/324^(2006.01)

(21) Application number: **09003766.4**

(22) Date of filing: **16.03.2009**

(54) Cord lock of window coverings

Kordelarretierung von Fensterabdeckungen

Dispositif d'arrêt de cordon de recouvrements de fenêtre

(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 TR**

(30) Priority: **30.12.2008 TW 97223704 U**

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

(73) Proprietor: **Nien Made Enterprise Co., Ltd.
Taichung 408 (TW)**

(72) Inventors:
• **Cheng, Ju-Sheng
Situn District
Taichung City 407 (TW)**

• **Wen, Yu-Che
Gueishan Town
Taoyuan County 333 (TW)**

(74) Representative: **Straus, Alexander
Patentanwälte
Becker, Kurig, Straus
Bavariastrasse 7
80336 München (DE)**

(56) References cited:
**WO-A1-01/42612 JP-U- S61 133 698
US-A- 4 463 791 US-A- 4 488 588
US-A- 4 945 970 US-A1- 2005 224 192
US-A1- 2007 102 125**

EP 2 204 528 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a window-covering product and more particularly, to a cord lock of a window blinds or shades.

2. Description of the Related Art

[0002] Traditionally, a conventional cord lock of a window blinds or shade includes a box mounted on the top rail of the window blinds or shade, a fixed pulley provided in the box, and a movable driving wheel provided in the box to lock or release a cord that operating of the cord may control moving up, down and stop of window blinds (or a shade).

[0003] The conventional box, however, is fixed to a recess on the top rail that a L-shaped iron plate and screws are incorporated to fix the box on the top rail. This is a complex fixing way that the consumers are hard to do the assembly and disassembly work by himself/herself. To fix the above drawback, U.S. patents 4,945,970 and 7,117,920 taught the box is provided with two retractable locking blocks on opposite sides to be engage with the recess. The locking blocks are pressed inwards while put the box onto the top rail, and then while the box is completely placed in the recess of the top rail that the locking blocks will jump out automatically to secure the box to the top rail. However, it is very hard for the removable box, the fixed pulley, and the movable driving wheel to resist the force that user exerts on the cord and the weight of the cord and the window blinds or shade. As a result, the box may get loosed over time, or even disengaged with the recess.

[0004] US-2005/0224192 discloses a pull cord control device for Venetian blind comprising a mounting body made up of an engagement piece having symmetrical registration posts for positioning rollers to be mounted thereto, and a limiting piece equipped with a pair of teeth racks symmetrically extending at both sides thereon in mesh with a control gear disposed at one side thereof to define a confinement space there-between for a coupling post with an embossed mounted thereto to be located in the middle thereof. A U-shaped groove is vertically indented at the inner side of the limiting piece therein for a U-shaped and metallic protection rod to be located therein and abutted against the upper edge of the confinement space thereof. A decoration lid of an oval shape with a pull-cord passage slot disposed thereon is integrally formed at one end of the limiting piece thereof with the protection rod exposed precisely at the inner lower edge of the pull-cord passage slot thereof. A cover having coupling holes to be registered with the limiting body thereof is provided with a plane abutting facet to be precisely abutted against the inner upper edge of the deco-

ration lid thereby.; Thus, a pull cord guided through the upper edge of the protection rod before suspended downwards through the pull-cord passage slot of the decoration lid is refrained from directly rubbing against the frame edges of the pull-cord passage slot when drawn to any sides therein to fold/unfold the Venetian blind thereof. WO01/42612 relates to a cord lock assembly for a blind arrangement, which comprises comprises a housing including a guide roller located adjacent a first opening in a first side of the housing for passage of at least one cord around the guide roller and out of the first opening. Also provided is a traveling roller retained in the housing for movement between a first position immediately adjacent the guide roller and a second position disposed a distance from and below the guide roller. The second guide roller is secured in the housing above and offset from the first guide roller and located adjacent a second opening in a second side wall of the housing opposite the first side wall for passage of at least one cord around the second guide roller and out of the second opening.

[0005] US 2007/0102125 discloses a sliding wheel unit for a blind, which comprises a base member, provided with an exit hole in a rear wall and a friction member, provided with a circumferential wall defining a center hole for a pull rope to extend out, a position edge formed at one side and a bottom wall at the other side. After the friction member is inserted in the exit hole of the base member, the position edge and the bottom wall of the friction member contacts respectively the outer side and the inner side of the wall of the center hole of the base member to keep the friction member stable in place.

[0006] Besides, when the cord is pulled downward or swung right and left, it could move the movable driving wheel between a release position, in which the movable driving wheel keeps a distance from the fixed pulley, and a lock position, in which the movable driving wheel touches the fixed pulley. In the release position, the blinds (or the shade) are free to move, and in the lock position, the blinds (or the shade) are secured.

[0007] However, while in a lock position, the movable driving wheel only has one point touching the fixed pulley that it provides insufficient force to secure the cord. As a result, the cord may get loosed or slipped from the fixed wheel because of the weight of the blinds or the shade.

SUMMARY OF THE INVENTION

[0008] The primary objective of the present invention is to provide a cord lock of a window covering (window blinds or shade), which has an easier way to assembly and disassembly, and the cord lock is firmly mounted on the window covering.

[0009] The secondary objective of the present invention is to provide a cord lock of a window blinds or shade, which can provide a firm cord lock while controlling the window covering.

[0010] To achieve these objectives of the present invention, a cord lock of a window covering according to

claim 1 is presented.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

FIG. 1 is an exploded view of a first preferred embodiment of the present invention;
 FIG. 2 is a perspective view of the first preferred embodiment of the present invention;
 FIG. 3 is another perspective view of the first preferred embodiment of the present invention;
 FIG. 4 is the third perspective view of first the preferred embodiment of the present invention;
 FIG. 5 is a perspective view of the first preferred embodiment of the present invention, showing the cord lock mounted on the top rail;
 FIG. 6 is the fourth perspective view of the first preferred embodiment of the present invention before installation;
 FIG. 7 is a perspective view of a window blinds or shade, on which the cord lock of the present invention is mounted;
 FIG. 8 and FIG. 9 are sectional views of the first preferred embodiment of the present invention, showing the actions of the cord lock;
 FIG. 10 is a perspective view of a window blinds or shade, on which the cord lock of the present invention is mounted;
 FIG. 11 is a perspective view of a second preferred embodiment of the present invention;
 FIG. 12 is another perspective view of the second preferred embodiment of the present invention; and
 FIG. 13 is a perspective view of the second preferred embodiment of the present invention, showing the cord lock mounted on the top rail.

DETAILED DESCRIPTION OF THE INVENTION

[0012] Referring to FIGS. 1 to 10, a cord lock 100 of a window covering (window blinds or shade) of the first preferred embodiment of the present invention includes a box 10, a wear-resisted member 20, a movable driving wheel 30, and a plurality of poles 40.

[0013] The box 10 has a chamber 11 therein, a first opening 12 on a front side communicated with the chamber 11, and second opening 13 on a back side thereof communicated with the chamber 11. The box 10 further is provided with a guide portion 14 on a sidewall of the second opening 13. The guide portion 14 has a convex portion 142 and two slots 141. The convex portion 142 has a curvature smaller than that of the movable driving wheel 30. The box 10 further has a first curved portion 19A and a second curved portion 19b on opposite sides of the guide portion 14 (as shown in FIG. 4) that may reduce a friction when a cord enter the box 10 via the opposite sides without touching the guide portion 14. The box 10 is provided with a plurality of through holes 15 on

opposite sidewalls of the first opening 12, and a first toothed portion 16 on a sidewall of the chamber 11. The first toothed portion 16 is opposite the guide portion 14. The box 10 has a fixed locking portion 17 on an outer side with the guide portion 14. The fixed locking portion 17 includes two first fixed blocks 172 and a first slot 171 between the first fixed blocks 172. The first fixed blocks 172 and the first slot 171 are L-shaped (as shown in FIG. 3) in association with a recess 91 of a top rail 90. (The recess 91 is open at both a bottom and a lateral side of the top rail 90.) The box 10 has a flexible locking portion 18 on a side opposite the fixed locking portion 17. The flexible locking portion 18 has two second blocks 182, a second slot 181 between the second blocks 182, and a flexible block 183. The second slot 181 is a L-shaped slot. One of the second blocks 182 is adjacent to the front side of the box 10 (The front side has the first opening 12 thereon.) the flexible block 183 is opposite the second slot 181 and distal to the front side of the box 10 than the second fixed block 182. (The front side has the first opening 12 thereon.) The flexible block 183 has a shape complementary to an inner space of the top rail 90. The flexible block 183 has a hollow portion that the flexible block 183 may be compressed by an external pressure and tends to eject out when the pressure is out (as shown in FIG. 4).

[0014] The wear-resisted member 20 is a metal piece or a hard plastic piece having a high wear-resisting property. Opposite ends of the wear-resisted member 20 are engaged with the slots 141 of the box 10 that the wear-resisted member 20 covers the guide portion 14 to let the cord leaning thereon. A surface of the wear-resisted member 20 where the cord leans includes a first curved surface 21, a flat surface 22, a second curved surface 23, and a slope 24 (as shown in FIG. 8). The first curved surface 21 and the second curved surface 23 may reduce the friction when the cord moves on the wear-resisted member 20. The first toothed portion 16 of the box 10 co-acts with the slope 24 of the wear-resisted member 20 to form a self-lock angle. The self lock angle works according to a wedge principle for a self-lock action. An angle of the self-lock angle is between 32 degrees and 5 degrees.

[0015] The movable driving wheel 30, which is made of a wear-resisting material, has a second toothed portion 31 on an outer side. The movable driving wheel 30 is received in the chamber 11 of the box 10 with the second toothed portion 31 engaged with the first toothed portion 16 of the box 10 (as shown in FIG. 2) that the movable driving wheel 30 moves along the first toothed portion 16 between a lock position and a release position.

[0016] The poles 40, which are made of a wear-resisting material, are inserted into the through holes 15 with a constant interval that the poles 40 divides the first opening 12 into several sub-openings 121 and restricts the movable driving wheel 30 in the chamber 11 of the box 10 (as shown in FIG. 2).

[0017] Above are the elements of the cord lock 100 of

the first embodiment of the present invention, and we will describe the way of assembling the elements and the function of the present invention as follows.

[0018] First, the assembled cord lock 100 is mounted on the recess 91 of the top rail 90, and the assembling way includes: putting the box 10 in a tilting position into the recess 91 with the first slot 171 engaged with a side-wall of the recess 91 that the first fixed blocks 172 are engaged with an inner side and an outer side of the side-wall of the recess 91 (as shown in FIG. 5), and then pushing the box 10 to have the other side thereof entering the recess 91 that the flexible block 183 is compressed by the sidewall of the recess 91 first to let the flexible block 183 entering the recess 91, and then the flexible block 183 will eject out to be stopped by the sidewall when the second slot 181 is engaged with the sidewall. Because the second fixed block 182 is complementary to the space inside the top rail 90, it could help the box 10 fixed in the recess 91 of the top rail 90 firmly. With the fixed locking portion 17 and the guide portion 14 on the same side, the fixed locking portion 17 has a greater strength to sustain the force of the cord.

[0019] Next, inserting a cord 80 connecting a window covering (window blinds or shade) into the box 10 via the second opening 13 and through a space between the wear-resisted device 20 and the movable driving wheel 30, and then going out of the box 10 via the first opening 12 (as shown in FIG. 6) for manipulation.

[0020] To move the window covering up and down, one may hold the cord 80 left out of the box 10 to the left (as shown in FIG. 7 and FIG. 8) to move the cord 80 will toward the wear-resisted device 20 and away from the movable driving wheel 30 that the movable driving wheel 30 will roll downward because of the weight of itself to the release position (as shown in FIG. 9). In the release position, the movable driving wheel 30 moves off the wear-resisted device 20 that the cord 80 is no longer locked by the movable driving wheel 30, and the cord 80 is free to pull or release to move the window covering 70.

[0021] To fix the window covering 70, one may hold the cord 80 straight (as shown in FIG. 9) and release the cord 80 that the cord 80 moves the movable driving wheel 30 upward to the lock position (as shown in FIG. 8), in which the slope 24 of the wear-resisted device 20 and the movable driving wheel 30 clip the cord 80 therebetween to secure the cords 80. Because both of the wear-resisted device 20 and the movable driving wheel 30 have hard smooth surfaces to touch each other, it could reduce the wear of the cord 80 to prolong the life of the cord 80.

[0022] The present invention provides the box 10 with the fixed locking portion 17 and the flexible locking portion 18 to provide a fixed side for fixed engagement and a flexible side for flexible engagement that would provide an easier way to assemble the box 10 on the top rail 90. (The fixed locking portions are engaged with the top rail first, and then the flexible locking portion is pushed into the recess to complete the assembling work.) Besides, the fixed locking portion 17 has a greater hardness and

is on the same side with the wear-resisted device 20 that could sustain more pressure of the cord 80 exerting on the box 10 and help the box 10 fixed on the top rail 90 firmly.

[0023] Besides, the wear-resisted device 20 of the present invention is a plate-like member, and the curvature of the convex portion 42 of the guide portion 14 is smaller than that of the movable driving wheel 30 (which means the driving device has a curvature diameter greater than that of the movable driving wheel) that the slope 24 of the wear-resisted device 20 may provide a greater-area support to the cord 80 when the cord 80 is clipped. To compare with the conventional device that the cord is clipped by point, the present invention provides a greater clipping force to prevent the cord from losing.

[0024] As shown in FIGS. 11 to FIG. 13, a cord lock of the second preferred embodiment of the present invention, which is similar to the first preferred embodiment, except that a first slot 171 A and two first fixed blocks 172 are straight to match the sidewall of a recess 91 of an top rail 90 (the recess 91 only opens on a bottom of the top rail 90). There are two flexible blocks 183 in the second preferred embodiment. It could achieve the same function.

[0025] Although particular embodiments of the invention have been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the scope of the invention, as defined by the appended claims.

Claims

1. A cord lock of a window covering (100), comprising:

a box (10) having a chamber (11) therein, an guide portion (14) on an outer side, a first opening (12) communicated with the chamber (11) for a cord (80) exiting the box (10), a second opening (13) opposite the first opening (12) for the cord (80) entering the box (10), a fixed locking portion (17) on the outer side, and a flexible locking portion (18) opposite the fixed locking portion (17); and

a movable driving wheel (30), which is received in the chamber (11) of the box (10), to be moved between a lock position, in which the movable driving wheel (30) is moved toward the guide portion (14) to clip the cord (80) therebetween, and a release position, in which the movable driving wheel (30) is moved away from the guide portion (14) to release the cord (80)

characterized in that further comprising, a wear-resisted member (20), which is is a plate made of a wear-resisting material, provided on the guide portion (14) to rest the cord (80) thereon, to cover the guide portion (14), and wherein the guide portion (14) further includes

a convex portion (142) having a curvature smaller than that of the movable driving wheel (30).

2. The cord lock of the window covering (100) as claimed in claim 1, wherein the fixed locking portion (17) includes two first fixed blocks (172) and a first slot (171) between the first fixed blocks (172), and the flexible locking portion (18) includes a second fixed block (182), a flexible block (183), and a second slot (181) between the second fixed block (182) and flexible block (183), further wherein the flexible block (183) has a hollow portion that the flexible block (183) is compressed by an external pressure.
3. The cord lock of the window covering (100) as claimed in claim 2, wherein the second fixed block (182) is received in the second slot (181) and proximal to the first opening (12), and the flexible block (18) is received in the second slot (181) and distal to the first opening (12).
4. The cord lock of the window covering (100) as claimed in claim 1, further comprising a plurality of poles (40), wherein the box (10) has a plurality of through holes (15) on opposite sidewalls of the first opening (12), and the poles (40) have opposite ends inserted into the through holes (15) to divide first opening (12) into several sub-openings.
5. The cord lock of the window covering (100) as claimed in claim 4, wherein the poles (40) are made of a wear-resisting hard material.
6. The cord lock of the window covering (100) as claimed in claim 1, wherein the box (10) has a first toothed portion (16) on a sidewall of the chamber (11), and the movable driving wheel (30) has a second toothed portion (31) touching the first toothed portion (16), further wherein the second toothed portion (31) is moved on the first toothed portion (16) when the movable driving wheel (30) is moved between the lock position and the release position.
7. The cord lock of the window covering (100) as claimed in claim 1, wherein the guide portion (14) has two slots (141) to engage the wear-resisted member (20), and a surface of the wear-resisted member where the cord (80) leans thereon includes a first curved surface (21), a flat surface (22), a second curved surface (23), and a slope (24).
8. The cord lock of the window covering (100) as claimed in claim 7, wherein the box (10) has a first toothed portion (16) on an inner side, and a self-lock angle is formed between the first toothed portion (16) and the slope (24) of the wear-resisted member (20) to generate a self-lock action according to a wedge principle.

9. The cord lock of the window covering (100) as claimed in claim 8, wherein the self-lock angle is between 32 degrees and 5 degrees.

10. The cord lock of the window covering (100) as claimed in claim 1, wherein the box (10) has a first curved portion (19a) and a second curved portion (19b) at opposite sides of the guide portion (14) to support the cord (80) when the cord (80) does not pass the driving device (14).

11. The cord lock of the window covering (100) as claimed in claim 2, wherein the first slot (171) and the first fixed blocks (172) are L-shaped members.

12. The cord lock of the window covering (100) as claimed in claim 2, wherein the first slot (171) and the first fixed blocks (172) are straight members.

13. The cord lock of the window covering (100) as claimed in claim 1, wherein the fixed locking portion (17) and the guide portion (14) are on the same side of the box (10).

Patentansprüche

1. Kordelarretierung einer Fensterabdeckung (100), umfassend:

Eine Box (10) mit einer Kammer (11) darin, einen Führungsbereich (14) an einer Außenseite, eine erste Öffnung (12) in Verbindung mit der Kammer (11) für eine Kordel (80), die die Box verlässt, eine zweite Öffnung (13) gegenüber der ersten Öffnung (12) für die Kordel (80), die in die Box (10) hineingelangt, ein fester Arretierungsbereich (17) an der Außenseite, sowie ein flexibler Arretierungsbereich (18) gegenüber des festen Arretierungsbereichs (17); und ein bewegliches Antriebsrad (30), das in der Kammer (11) der Box (10) ausgenommen vorliegt, um zwischen einer Arretierungsposition, in der das bewegliche Antriebsrad (30) in Richtung des Führungsbereichs (14) bewegt wird, um dazwischen die Kordel (80) einzuklemmen, und einer gelösten Position bewegt zu werden, in der sich das bewegliche Antriebsrad (30) von dem Führungsbereich (14) weg bewegt, um die Kordel (80) freizugeben,

gekennzeichnet durch ferner umfassend ein verschleißfestes Element (20), das eine Platte aus einem verschleißfesten Material ist und an dem Führungsbereich (14) bereitgestellt ist, damit die Kordel (80) darauf aufliegen kann, um den Führungsbereich (14) abzudecken, und worin der Führungsbereich (14) ferner einen nach außen gewölbten Bereich (142) beinhaltet,

der eine Krümmung aufweist, die geringer als die des beweglichen Antriebsrads (30) ist.

2. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 1, worin der feste Arretierungsbereich (17) zwei erste feste Blöcke (162) und einen ersten Schlitz (171) zwischen den beiden ersten festen Blöcken (172) aufweist, und worin der flexible Arretierungsbereich (18) einen zweiten festen Block (182), einen flexiblen Block (183) und einen zweiten Schlitz (181) zwischen dem zweiten flexiblen Block (182) und dem flexiblen Block (183) aufweist, ferner worin der flexible Block (183) einen hohlen Bereich ausweist und der flexible Block (183) durch einen äußeren Druck zusammengedrückt wird. 5
3. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 2, worin der zweite feste Block (182) in dem zweiten Schlitz (181) nahe der ersten Öffnung (12) aufgenommen vorliegt, und der flexible Block (183) in dem zweiten Schlitz (181) entfernt von der ersten Öffnung (12) aufgenommen vorliegt. 10
4. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 1, ferner umfassend mehrere Stangen (40), wobei die Box (10) mehrere Durchgangslöcher (15) an gegenständigen Seitenwänden der ersten Öffnung (12) aufweist und wobei gegenständige Enden der Stangen (40) in den Durchgangslöchern (15) eingefügt vorliegen, um die erste Öffnung (12) in mehrere Unteröffnungen aufzuteilen. 15
5. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 4, worin die Stangen (40) aus einem verschleißfesten harten Material hergestellt sind. 20
6. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 1, worin die Box (10) einen ersten gezahnten Bereich (16) an einer Seitenwand der Kammer (11) aufweist und das bewegliche Antriebsrad (30) einen zweiten gezahnten Bereich (31), der den ersten gezahnten Bereich (16) berührt, ferner worin der zweite gezahnte Bereich (31) auf dem ersten gezahnten Bereich (16) bewegt wird, wenn das bewegliche Antriebsrad (30) zwischen der Arretierungsposition und der gelösten Position bewegt wird. 25
7. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 1, worin der Führungsbereich (14) zwei Schlitze (141) aufweist, um mit dem verschleißfesten Element (20) in Eingriff zu gelangen, und worin eine Oberfläche des verschleißfesten Elements, an der die Kordel (80) anlehnt, eine erste gekrümmte Oberfläche (21), eine flache Oberfläche (22), eine zweite gekrümmte Oberfläche (23) sowie eine Schräge (24) beinhaltet. 30

8. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 7, worin die Box (10) einen ersten gezahnten Bereich (16) auf einer Innenseite aufweist und worin zwischen dem ersten gezahnten Bereich (16) und der Schräge (24) des verschleißfesten Elements (20) ein Selbstschließwinkel gebildet ist, um eine Selbstschließung nach einem Keilprinzip zu erzeugen. 35
9. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 8, worin der Selbstschließwinkel zwischen 32 und 5 Grad beträgt. 40
10. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 1, worin die Box (10) einen ersten gekrümmten Bereich (19a) und einen zweiten gekrümmten Bereich (19b) an gegenständigen Enden des Führungsbereichs (14) aufweist, um die Kordel (80) zu stützen, wenn die Kordel (80) nicht an dem Führungsbereich (14) vorbeikommt. 45
11. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 2, worin der erste Schlitz (171) und die ersten festen Blöcke (172) L-förmige Elemente sind. 50
12. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 2, worin der erste Schlitz (171) und die ersten festen Blöcke (172) gerade Elemente sind. 55
13. Kordelarretierung einer Fensterabdeckung (100) nach Anspruch 1, worin sich der erste feste Arretierungsbereich (17) und der Führungsbereich (14) auf derselben Seite der Box (10) befinden. 60

Revendications

1. Blocage de cordon d'un couvre-fenêtre (100), comprenant : 65
 - un boîtier (10) possédant une chambre (11) à l'intérieur de celui-ci, une partie de guidage (14) sur un côté externe, une première ouverture (12) en communication avec la chambre (11) pour un cordon (80) sortant du boîtier (10), une seconde ouverture (13) opposée à la première ouverture (12) pour le cordon (80) pénétrant dans le boîtier (10), une partie de blocage fixe (17) sur le côté externe, et une partie de blocage flexible (18) opposée à la partie de blocage fixe (17) ; et 70
 - une roue d'entraînement mobile (30), qui est reçue dans la chambre (11) du boîtier (10), pour être déplacée entre une position de blocage, dans laquelle la roue d'entraînement mobile (30) est déplacée en direction de la partie de guidage 75

- (14) pour attacher le cordon (80) entre elle, et une position de libération, dans laquelle la roue d'entraînement mobile (30) est éloignée de la partie de guidage (14) pour libérer le cordon (80) **caractérisé en ce qu'il** comprend en outre, un élément résistant à l'usure (20), qui est une plaque constituée d'un matériau résistant à l'usure, ménagé sur la partie de guidage (14) pour appuyer le cordon (80) sur celui-ci, afin de couvrir la partie de guidage (14), et dans lequel la partie de guidage (14) comprend en outre une partie convexe (142) possédant une courbure plus petite que celle de la roue d'entraînement mobile (30).
2. Blocage de cordon du couvre-fenêtre (100) selon la revendication 1, dans lequel la partie de blocage fixe (17) comprend deux premiers blocs fixes (172) et une première fente (171) entre les premiers blocs fixes (172), et la partie de blocage flexible (18) comprend un second bloc fixe (182), un bloc flexible (183), et une seconde fente (181) entre le second bloc fixe (182) et le bloc flexible (183), dans lequel en outre le bloc flexible (183) possède une partie creuse qui comprime le bloc flexible (183) par une pression externe.
 3. Blocage de cordon du couvre-fenêtre (100) selon la revendication 2, dans lequel le second bloc fixe (182) est reçu dans la seconde fente (181) et proximal par rapport à la première ouverture (12), et le bloc flexible (183) est reçu dans la seconde fente (181) et distal par rapport à la première ouverture (12).
 4. Blocage de cordon du couvre-fenêtre (100) selon la revendication 1, comprenant en outre une pluralité de barres (40), dans lequel le boîtier (10) possède une pluralité d'orifices passants (15) sur des parois latérales opposées de la première ouverture (12), et les barres (40) possèdent des extrémités opposées insérées dans les orifices passants (15) pour diviser la première ouverture (12) en plusieurs ouvertures secondaires.
 5. Blocage de cordon du couvre-fenêtre (100) selon la revendication 4, dans lequel les barres (40) sont constituées d'un matériau dur résistant à l'usure.
 6. Blocage de cordon du couvre-fenêtre (100) selon la revendication 1, dans lequel le boîtier (10) possède une première partie dentée (16) sur une paroi latérale de la chambre (11), et la roue d'entraînement mobile (30) possède une seconde partie dentée (31) touchant la première partie dentée (16), dans lequel en outre la seconde partie dentée (31) est déplacée sur la première partie dentée (16) lorsque la roue d'entraînement mobile (30) est déplacée entre la position de blocage et la position de libération.
 7. Blocage de cordon du couvre-fenêtre (100) selon la revendication 1, dans lequel la partie de guidage (14) possède deux fentes (141) pour venir en prise avec l'élément résistant à l'usure (20), et une surface de l'élément résistant à l'usure, où le cordon (80) s'appuie dessus, comprend une première surface courbée (21), une surface plate (22), une seconde surface courbée (23), et une pente (24).
 8. Blocage de cordon du couvre-fenêtre (100) selon la revendication 7, dans lequel le boîtier (10) possède une première partie dentée (16) sur un côté interne, et un angle d'autoblocage est formé entre la première partie dentée (16) et la pente (24) de l'élément résistant à l'usure (20) pour générer une action d'autoblocage selon un principe de cale.
 9. Blocage de cordon du couvre-fenêtre (100) selon la revendication 8, dans lequel l'angle d'autoblocage est compris entre 32 degrés et 5 degrés.
 10. Blocage de cordon du couvre-fenêtre (100) selon la revendication 1, dans lequel le boîtier (10) possède une première partie courbée (19a) et une seconde partie courbée (19b) au niveau de côtés opposés de la partie de guidage (14) pour soutenir le cordon (80) lorsque le cordon (80) ne passe pas le dispositif d'entraînement (14).
 11. Blocage de cordon du couvre-fenêtre (100) selon la revendication 2, dans lequel la première fente (171) et les premiers blocs fixes (172) sont des éléments en forme de L.
 12. Blocage de cordon du couvre-fenêtre (100) selon la revendication 2, dans lequel la première fente (171) et les premiers blocs fixes (172) sont des éléments linéaires.
 13. Blocage de cordon du couvre-fenêtre (100) selon la revendication 1, dans lequel la partie de blocage fixe (17) et la partie de guidage (14) sont sur le même côté du boîtier (10).

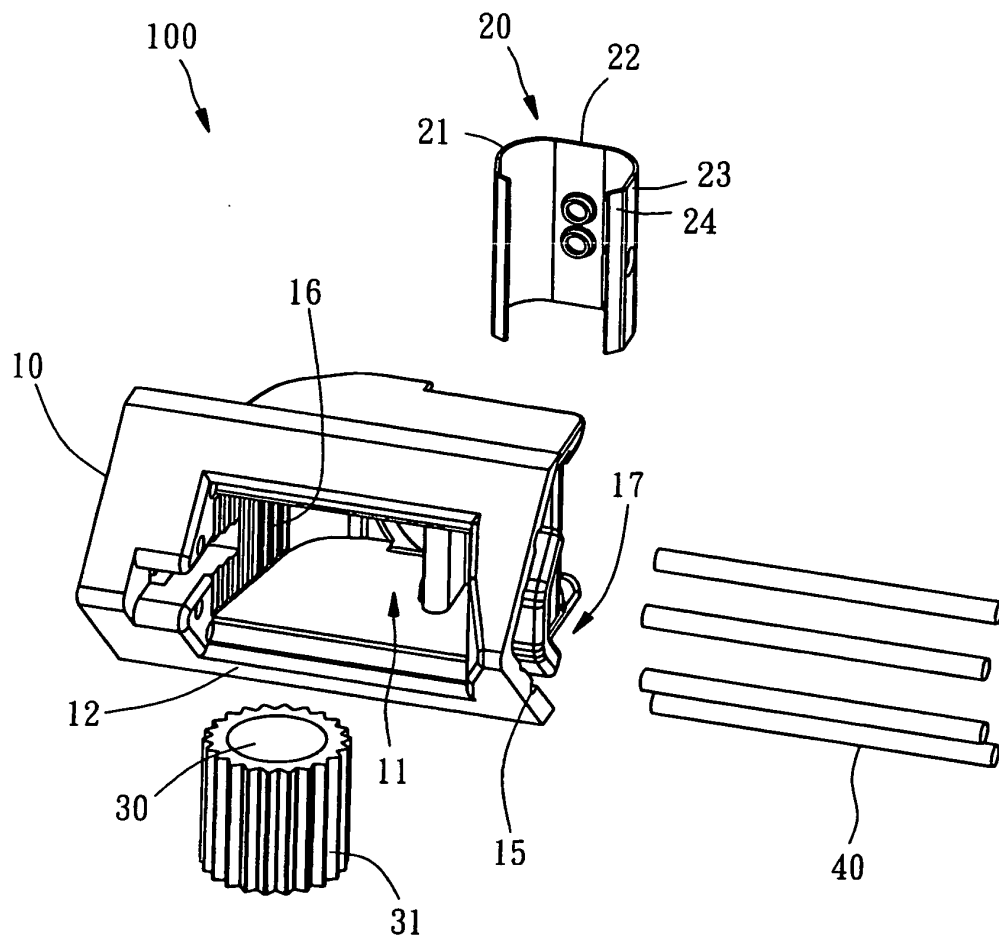


FIG. 1

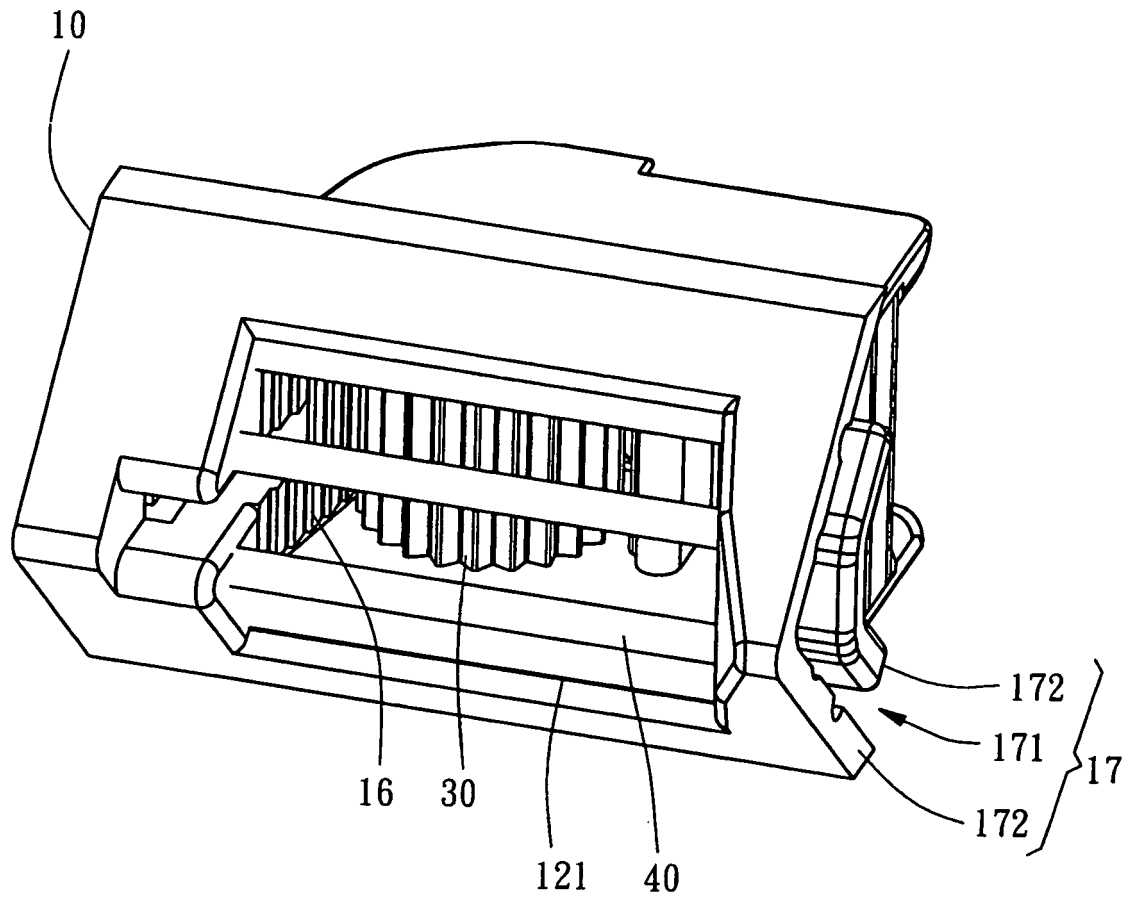


FIG. 2

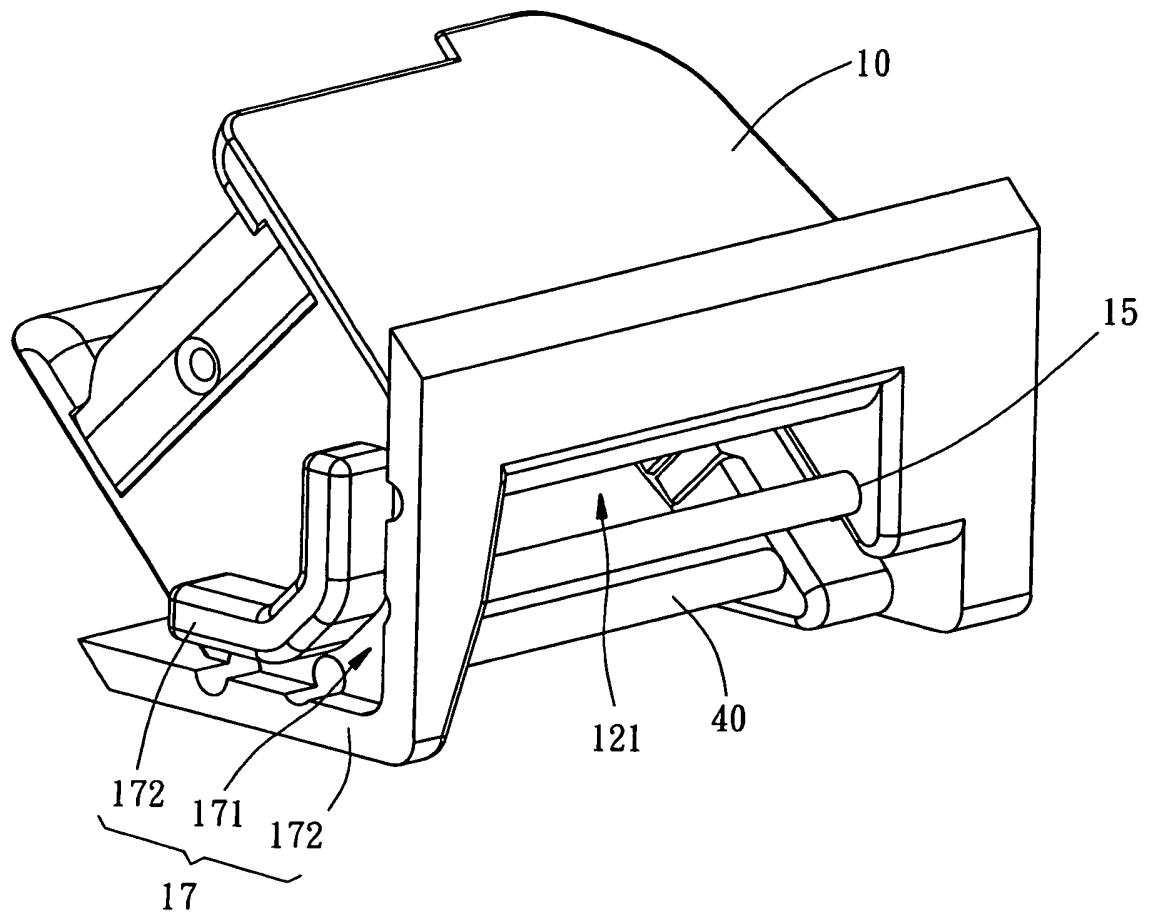


FIG. 3

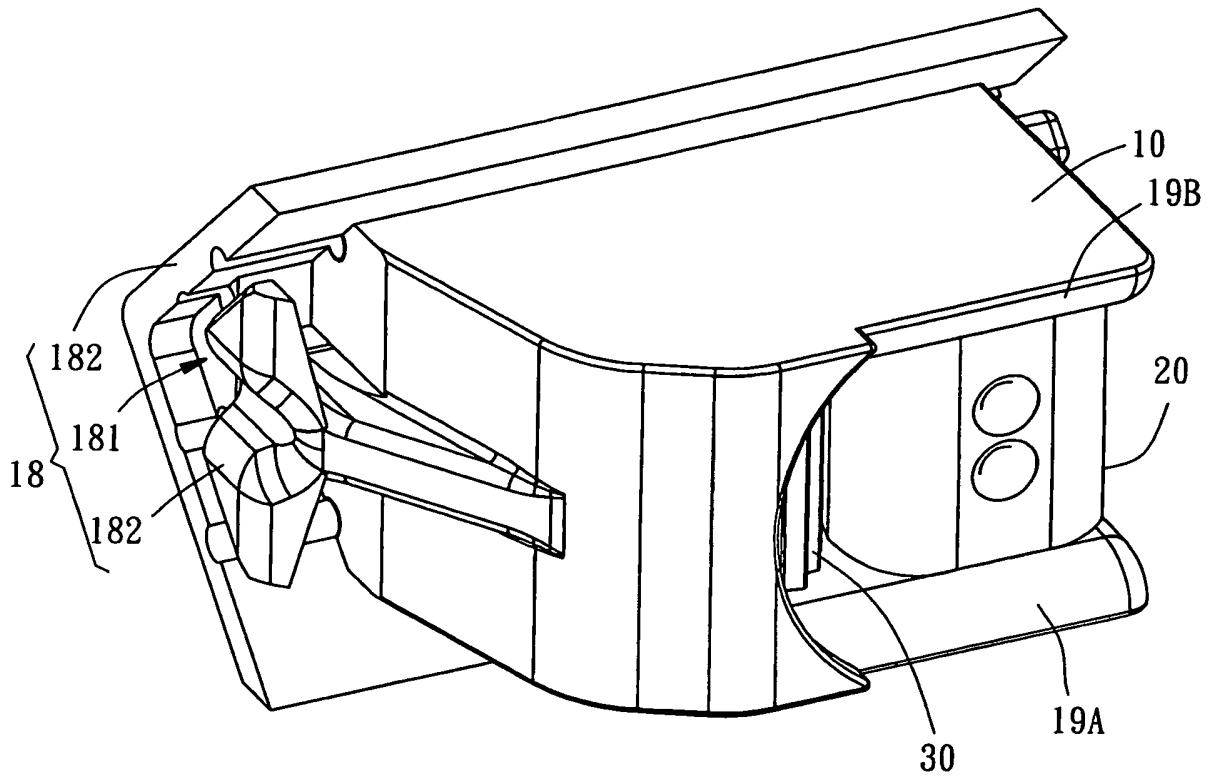


FIG. 4

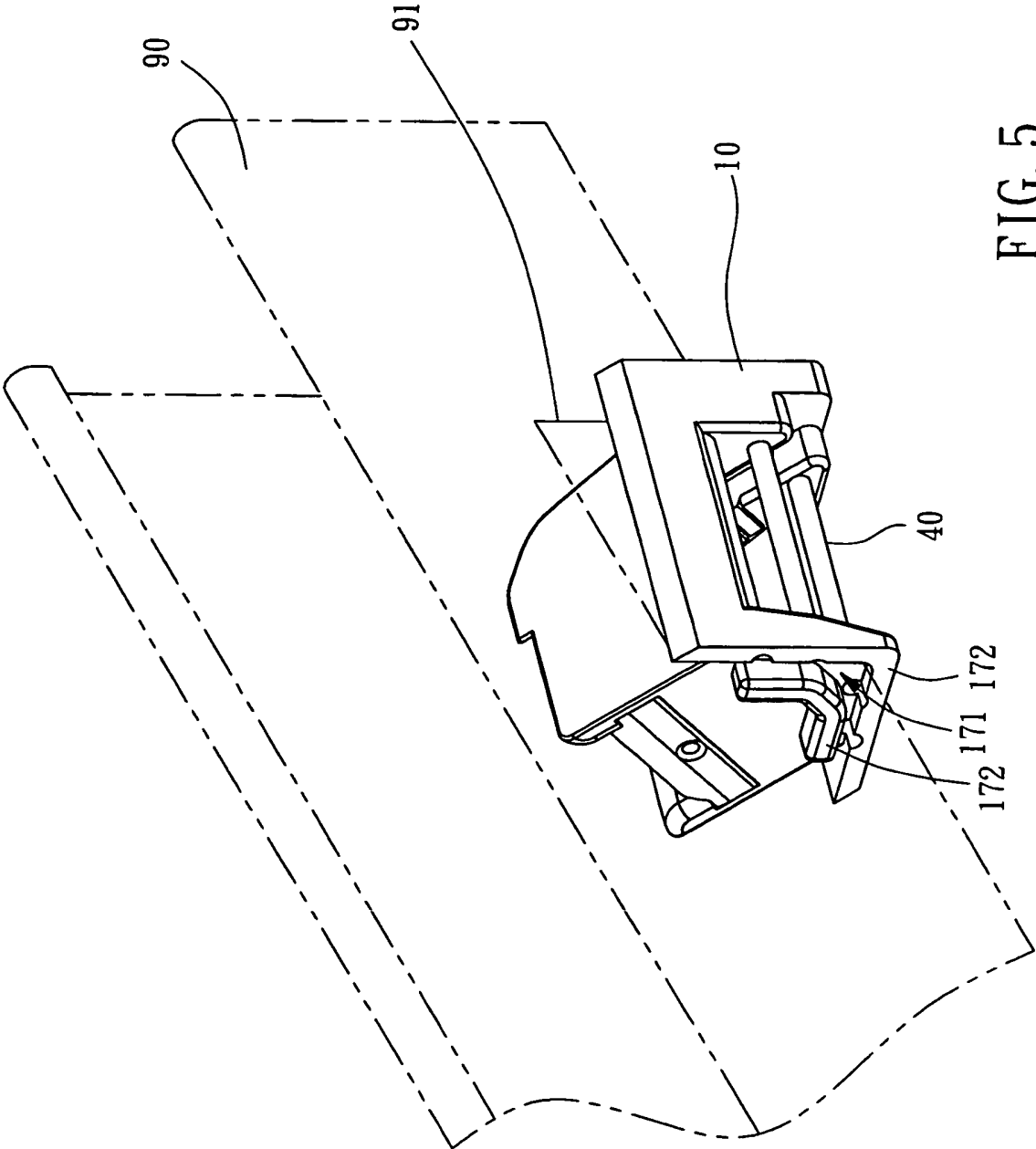


FIG. 5

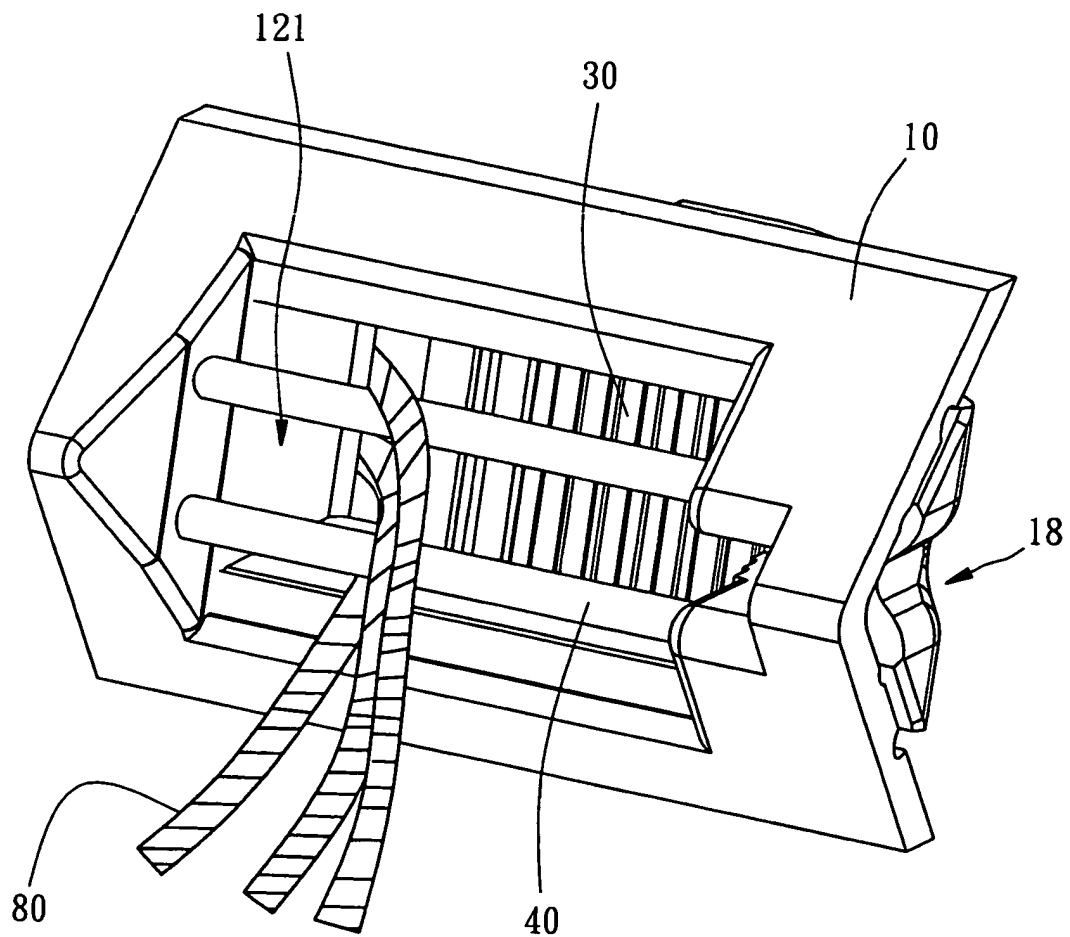


FIG. 6

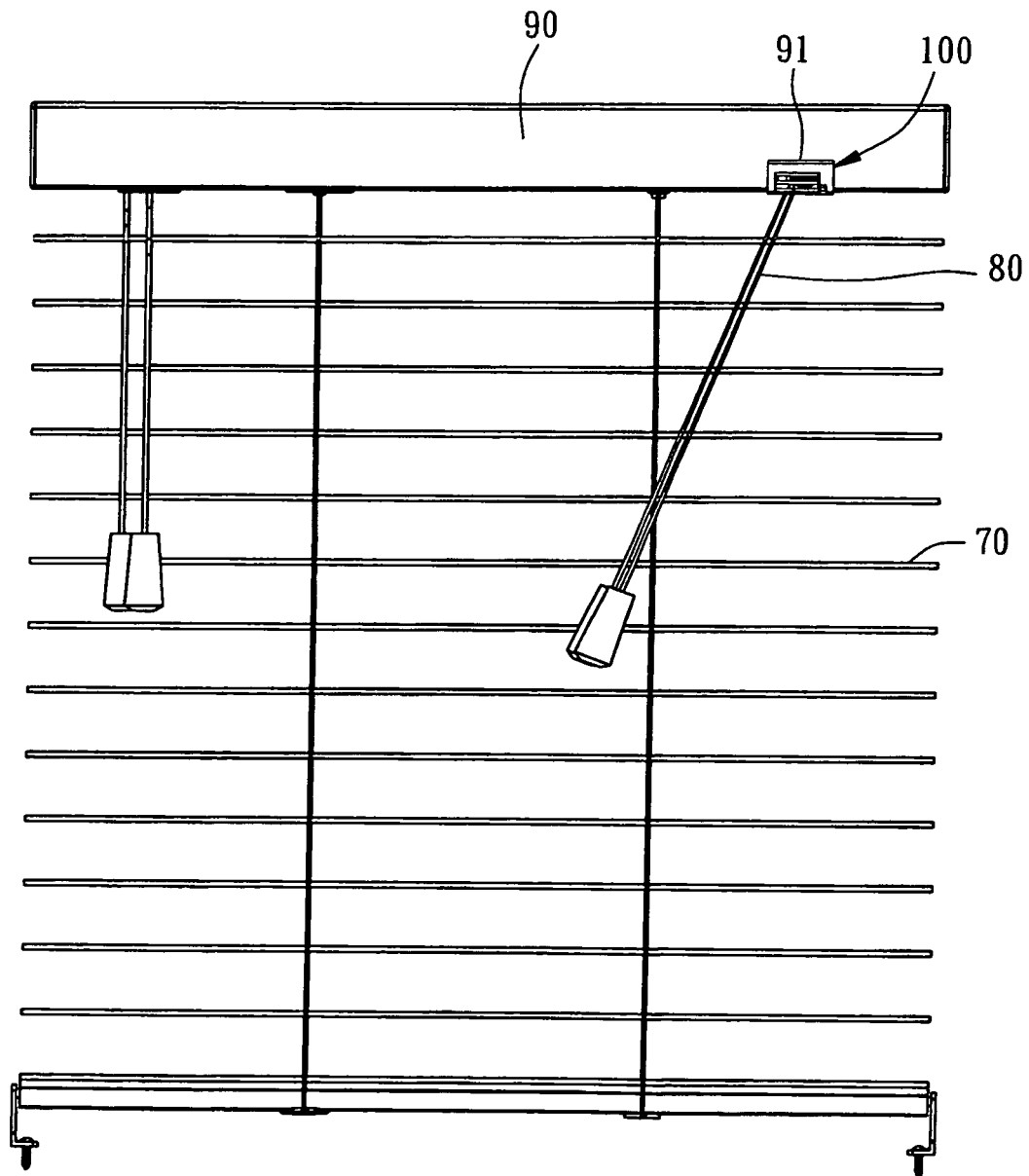


FIG. 7

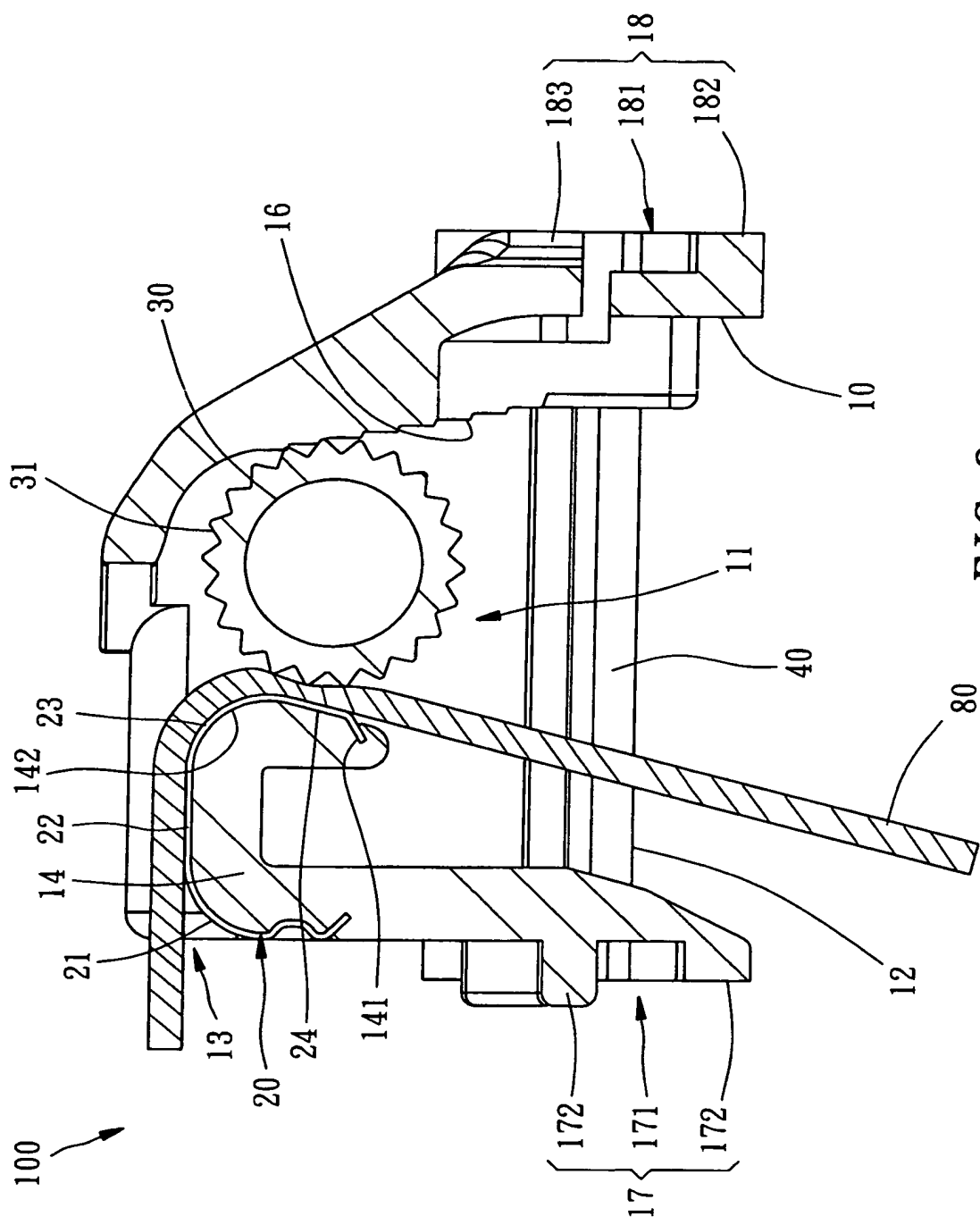


FIG. 8

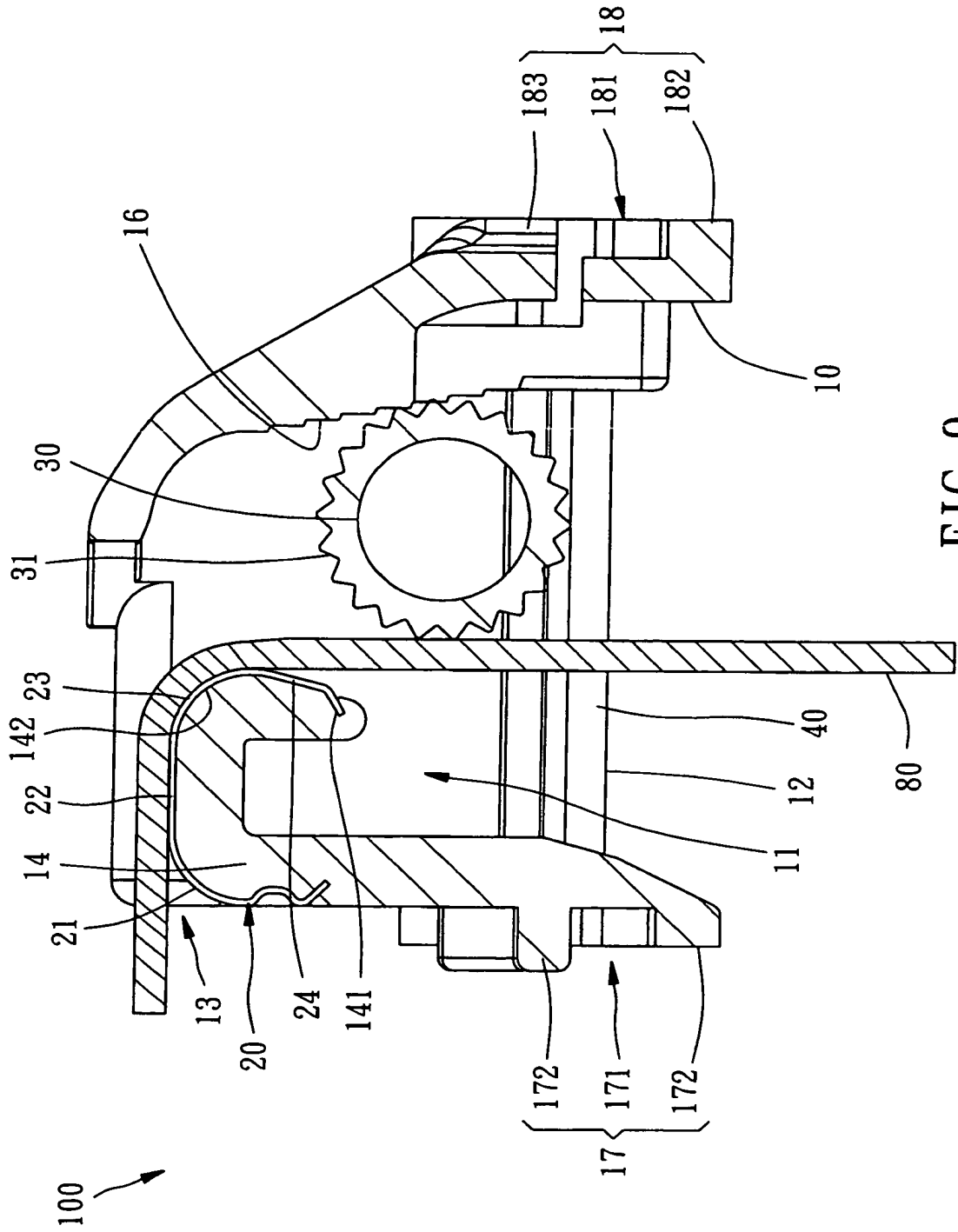


FIG. 9

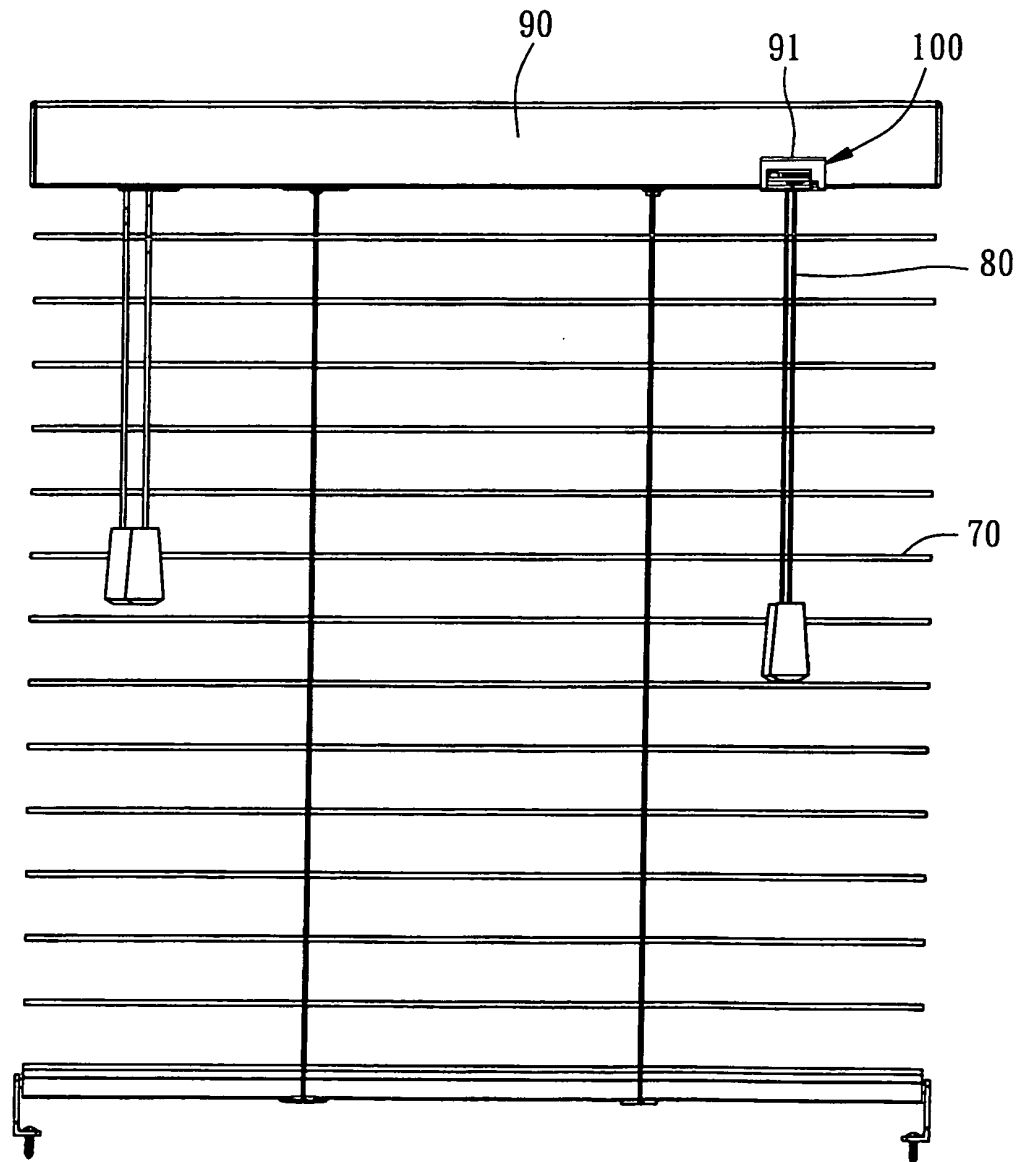


FIG. 10

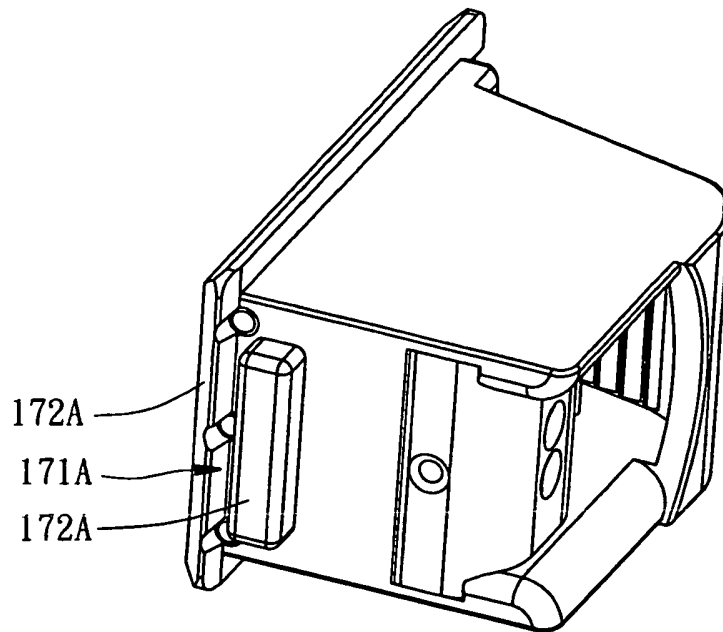


FIG. 11

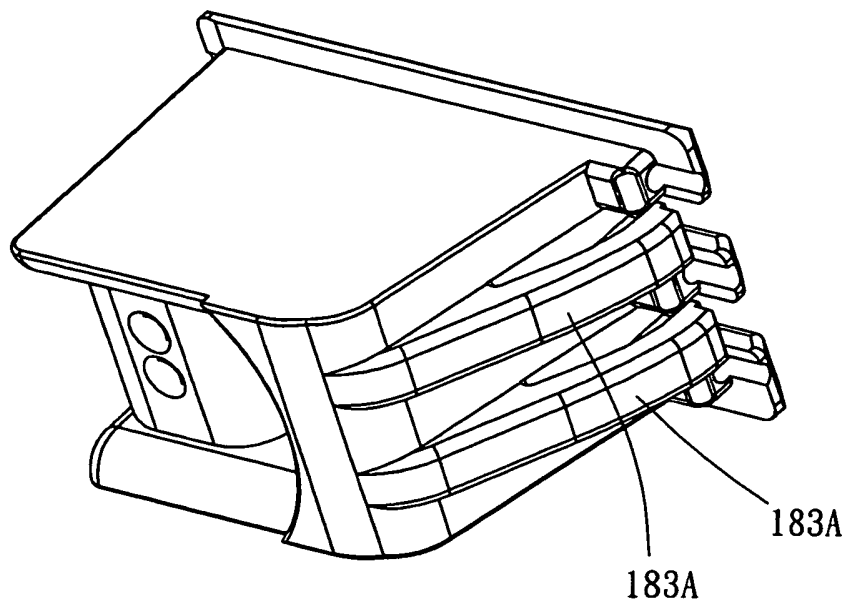


FIG. 12

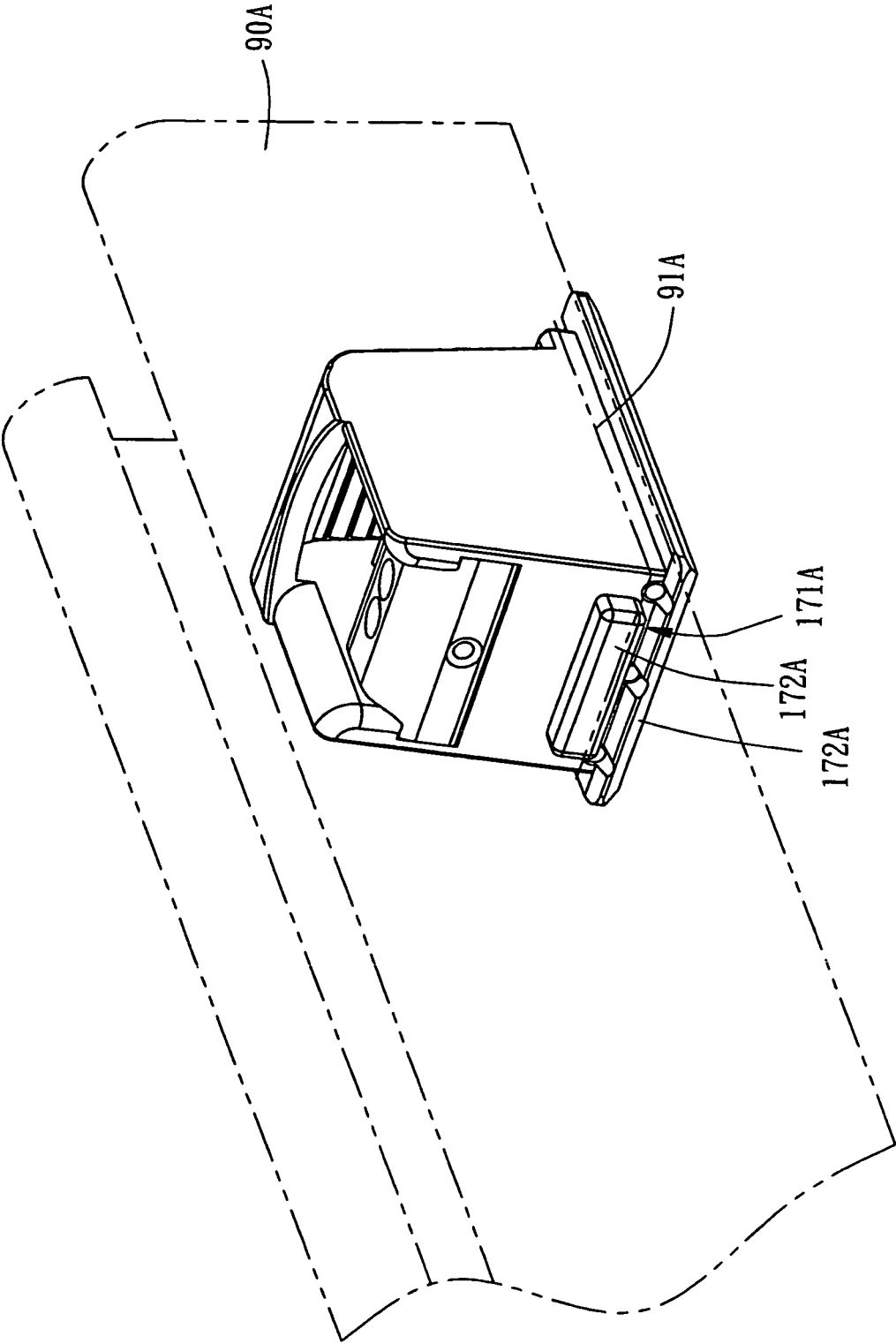


FIG. 13

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 4945970 A [0003]
- US 7117920 B [0003]
- US 20050224192 A [0004]
- WO 0142612 A [0004]
- US 20070102125 A [0005]