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(54) **FIXING BRACKET FOR PHOTOGRAPHING DEVICE**

BEFESTIGUNGSBÜGEL FÜR EINE FOTOGRAFIEVORRICHTUNG

SUPPORT DE FIXATION POUR DISPOSITIF PHOTOGRAPHIQUE

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(56) References cited:
**US-A- 5 934 628 US-B2- 9 330 645**



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## Description

### TECHNICAL FIELD

**[0001]** The present disclosure relates to a field of fixing brackets for photographing devices, in particular to a fixing bracket for a photographing device which is capable of preventing supporting feet from excessively sliding to cause the supporting feet to be reversely folded or damaged.

### BACKGROUND

**[0002]** In order to prevent photographing devices from shaking during a photographing process, fixing brackets are required for fixing the photographing devices. The fixing brackets each mainly includes a platform, a rod member, and support feet. The support feet are rotatably connected to a hinge member sleeved on the rod member, so that the support feet are capable of being unfolded or folded with respect to the rod member. An unfolding angle of the support feet is related to a position where the hinge member is disposed on the rod member, the closer the hinge member slides to a bottom end of the rod member, the larger the unfolding angle of the support feet. If there is no related limiting structure, when a user unfolds the support feet or during the photographing process, the supporting feet may be reversely folded (that is, the supporting feet face upward or are parallel to the platform) due to a too large unfolding angle, thereby causing the fixing brackets to lose a supporting function. Therefore, it is necessary to provide a fixing bracket for the photographing device which is capable of preventing the supporting feet from excessively sliding.

**[0003]** US 9330645 B2 discloses a multi-legged stand which includes a base with a body pole, where a leg connector is slidably attached with the body pole and two stabilizers are pivotally connected with the leg connector.

### SUMMARY

**[0004]** The present disclosure aims to provide a fixing bracket for a photographing device, which is capable of preventing supporting feet from excessively sliding, thereby avoiding a problem that the supporting feet may be reversely folded or damaged. The present invention is defined by claim 1. The dependent claims relate to preferred embodiments of the present invention.

**[0005]** The present disclosure provides a fixing bracket for a photographing device, including a rod member, a sliding member, and a plurality of supporting feet, the sliding member is slidably sleeved on an outer surface of the rod member, top ends of the plurality of supporting feet are hinged to the sliding member, and the supporting feet are swingable with respect to the sliding member. At least one limiting protrusion is disposed on the outer surface of the rod member close to a bottom end of the rod member, the at least one limiting protrusion is configured to block the sliding member or the supporting feet from sliding towards the bottom end of the rod member, the at least one limiting protrusion is disposed between the sliding member and the bottom end of the rod member.

**[0006]** Furthermore, the at least one limiting protrusion is at least one structure outwardly protruding from the rod member.

**[0007]** Furthermore, the at least one limiting protrusion is at least one convex hull on the outer surface of the rod member.

**[0008]** Furthermore, the at least one limiting protrusion is an annular convex rib surrounding the outer surface of the rod member.

**[0009]** Furthermore, the at least one limiting protrusion is a sleeve sleeved on the rod member, a tail plug is disposed at the bottom end of the rod member, and the tail plug is configured to block the sleeve from sliding away from the rod member.

**[0010]** Furthermore, the sliding member is a hinge member, hinge holes are defined in a circumferential direction of the hinge member, and the hinge holes are configured to be hinged with the supporting feet.

**[0011]** Furthermore, the sliding member includes a hinge member and a sliding sleeve, the sliding sleeve is fixedly embedded in an inner ring of the hinge member, and the sliding sleeve is sleeved on an outer periphery of the rod member.

**[0012]** Furthermore, the sliding member is a cylinder for installing a remote control.

**[0013]** Furthermore, the fixing bracket for the photographing device further includes a supporting frame, the supporting frame includes a plurality of connecting rods, top ends of the plurality of the connecting rods are hinged with the supporting feet, and bottom ends of the plurality of the connecting rods are hinged with the bottom end of the rod member.

**[0014]** Furthermore, at least one sliding groove is defined on the outer surface of the rod member along an axial direction of the rod member, at least one guide protrusion with respect to the at least one sliding groove is disposed on the sliding member, the at least one guide protrusion is embedded in the at least one sliding groove, and the at least one limiting protrusion is disposed in the at least one sliding groove and is capable of abutting against the at least one guide protrusion.

**[0015]** Compared with the prior art, the present disclosure has beneficial effects as follows.

**[0016]** The present disclosure provides the fixing bracket of the photographing device, where the at least one limiting protrusion is disposed on the outer surface of the rod member close to the bottom end of the rod member, the at least one limiting protrusion is configured to block the sliding member or the supporting feet from sliding towards the bottom end of the rod member, the at least one limiting protrusion is disposed between the sliding member and the bottom end of the rod member. When the sliding member slides towards the bottom end

of the rod member, the supporting feet are gradually unfolded, when the sliding member slides to a position where the sliding member spatially interferes with the at least one limiting protrusion, the at least one limiting protrusion blocks the sliding member from continuing to slide towards the bottom end of the rod member. Since the sliding member is hinged to bottom ends of the supporting feet 4, when the sliding member stops sliding, an unfolding angle of the supporting feet is also kept fixed, so that the problem that the supporting feet are reversely folded or damaged due to the too large unfolding angle is prevented, and a stable supporting function of the fixing bracket is ensured.

## BRIEF DESCRIPTION OF DRAWINGS

**[0017]**

FIG. 1 is a structural schematic structural diagram of a fixing bracket for a photographing device according to a first embodiment of the present disclosure.

FIG. 2 is a schematic structural diagram of another angle of the fixing bracket for the photographing device shown in FIG. 1.

FIG. 3 is a structural schematic structural diagram of a rod member, a sliding member, and a tail plug of the fixing bracket for the photographing device shown in FIG. 1.

FIG. 4 is a structural schematic structural diagram of the rod member, the sliding member, and the tail plug of the fixing bracket for the photographing device according to a second embodiment of the present disclosure.

FIG. 5 is a structural schematic diagram of an exploded structure of the rod member, the sliding member, and the tail plug shown in FIG. 4.

FIG. 6 is a structural schematic diagram of the rod member, the sliding member, and the tail plug of the fixing bracket for the photographing device according to a third embodiment of the present disclosure.

FIG. 7 is a structural schematic diagram of an exploded structure of the rod member, the slider, and the tail plug shown in FIG. 6.

## DETAILED DESCRIPTION

**[0018]** In order to make objectives, technical solutions, and advantages of the present disclosure clearer, the present disclosure is further described in detail with reference to accompanying drawings and embodiments. It should be understood that the specific embodiments described herein are merely used to explain the present disclosure and are not intended to limit the present disclosure.

**[0019]** In the descriptions of the present disclosure, terms "center", "upper", "lower", "left", "right", "vertical", "horizontal", "inner", "outer", and other indicated directions or the position relation are based on the orientation or position relation shown in the drawings. Only for convenience of describing the present disclosure and simplification of the description, rather than indicating or implying that indicated apparatus or elements referred to have a specific orientation, be constructed and operated in a specific orientation, so that the above directions of the present disclosure cannot be understood as limitations. Terms "first", "second", "third", are only used for descriptive purposes and are not to be construed as indicating or implying relative importance. In addition, unless expressly specified and defined otherwise, terms "dispose", "connect", "connect with", "fix" and the like are to be construed broadly, for example, may be fixedly connected, may be detachably connected, or integrally connected, may be a mechanical connection, or may be an electrical connection, may be directly connected, may also be indirectly connected by an intermediate medium, or may be in communication with an interior of two components. Specific meanings of the above-described terms in the present disclosure may be understood by those who skilled in the art based on the specific circumstances.

### First embodiment

**[0020]** As shown in FIG. 1 and FIG. 2, the first embodiment of the present disclosure provides a fixing bracket for a photographing device, including a rod member 1, a sliding member 2, a tail plug 3, a plurality of supporting feet 4, and a supporting frame.

**[0021]** The sliding member 2 is slidably sleeved on an outer surface of the rod member 1, top ends of the plurality of supporting feet 4 are hinged to the sliding member 2, and the supporting feet 4 swing with respect to the sliding member. A tail plug 3 is disposed at a bottom end of the rod member 1.

**[0022]** The supporting frame includes a plurality of connecting rods 5, top ends of the plurality of the connecting rods 5 are hinged with the supporting feet 4, bottom ends of the plurality of the connecting rods 5 are hinged with the tail plug 3 at the bottom end of the rod member 1.

**[0023]** At least one limiting protrusion 11 is disposed on the outer surface of the rod member 1 close to a bottom end of the rod member 1, the at least one limiting protrusion 11 is configured to block the sliding member 2 (or the supporting feet 4) from sliding towards the bottom end of the rod member 1, the at least one limiting protrusion 11 is disposed between the sliding member 2 and the bottom end of the rod member 1. Therefore, the sliding member 2 is capable of sliding in an axial direction of the rod member 1, but a movement range of the sliding member 2 cannot exceed the at least one limiting protrusion 11.

**[0024]** When the supporting frame is unfolded, the supporting frame upwardly supports the supporting feet 4 to increase stability of the supporting feet 4, and the supporting frame cooperates with the sliding member 2 and

the at least one limiting protrusion 11 to keep an unfolded angle of the supporting feet 4 unchanged after being unfolded.

**[0025]** In the embodiment, the at least one limiting protrusion 11 is at least one structure outwardly protruding from the rod member 1. Specifically, the at least one limiting protrusion 11 is at least one convex hull on the outer surface of the rod member, and a number of the at least one convex hull is not limited. When the number of the at least one convex hull is more than one, the at least one convex hull is circumferentially spaced apart along the outer surface of the rod member 1. Or the at least one limiting protrusion is an annular convex rib surrounding the surface of the rod member. In actual production, the at least one convex hull or the annular convex rib may be directly formed by extending a wall body of the rod member 1 in an outward direction, or may be fixed on the outer surface of the rod member 1 in a fixed manner.

**[0026]** Hinge holes are defined in a circumferential direction of the sliding member 2, and the hinge holes are configured to be hinged with the supporting feet 4. The sliding member 2 may be a structural member only configured to connect to the supporting feet 4, the sliding member 2 may also be a cylinder combined a structure connected to the support feet 4 with a structure configured to install the remote control. As shown in FIG. 3, the sliding member 2 includes a hinge member 21 and a sliding sleeve 22, the sliding sleeve 22 is fixedly embedded in an inner ring of the hinge member 21, and the sliding sleeve 22 is sleeved on an outer periphery of the rod member 1.

**[0027]** According to the fixing bracket of the photographing device of the present disclosure, at least one limiting protrusion 11 is disposed on the outer surface of the rod member 1 close to the bottom end of the rod member 1, the at least one limiting protrusion 11 is disposed between the sliding member 2 and the bottom end of the rod member 1. When the sliding member 2 slides towards the bottom end of the rod member 1, the supporting feet 4 are gradually unfolded, when the sliding member 2 slides to a position where the sliding member 2 spatially interferes with the at least one limiting protrusion 11, the at least one limiting protrusion 11 blocks the sliding member 2 from continuing to slide towards the bottom end of the rod member 1. Since the sliding member 2 is hinged to the bottom ends of the supporting feet 4, when the sliding member 2 stops sliding, the unfolding angle of the supporting feet 4 is also kept fixed, so that the problem that the supporting feet 4 are reversely folded or damaged due to the too large unfolding angle is prevented, and a stable supporting function of the fixing bracket is ensured.

Second embodiment

**[0028]** The second embodiment of the present disclosure provides a fixing bracket for a photographing device, differences between the second embodiment and the first embodiment 1 are as follows.

**[0029]** As shown in FIGS. 4-5, in the embodiment, at least one sliding groove 12 is defined on the outer surface of the rod member 1 along an axial direction of the rod member 1, at least one guide protrusion 23 with respect to the at least one sliding groove 12 is disposed on the sliding member 2, and the at least one guide protrusion 23 is embedded in the at least one sliding groove 12, the at least one limiting protrusion 11 is disposed in the at least one sliding groove 12. When the sliding member 2 slides to a position where the sliding member 2 contacts with the at least one limiting protrusion 11, the at least one guide protrusion 23 on the sliding member 2 spatially interferes with the at least one limiting protrusion 11 in the at least one sliding groove 12, the at least one limiting protrusion 11 abuts against the at least one guide protrusion 23, thereby preventing the sliding member 2 from continuing to slide towards the bottom end of the rod member 1, and realizing a function of preventing the support feet 4 from being reversely folded.

Third embodiment

**[0030]** The third embodiment of the present disclosure provides a fixing bracket for a photographing device, differences between the third embodiment and the first embodiment are as follows.

**[0031]** As shown in FIG. 6 and FIG. 7, in the embodiment, the at least one limiting protrusion 11 is a sleeve sleeved on the rod member 1, a port at a top end of the sleeve serves as a structure for blocking the sliding member 2. A tail plug 3 is disposed at the bottom end of the rod member 1, the tail plug 3 is configured to block the sleeve from sliding away from the rod member 1. It is easy to understand that the sleeve may be a movable member, which is movably sleeved on the rod member 1, but cannot slide away from the rod member 1 under blocking of the tail plug 3. The sleeve may also be a member that is fixedly connected with the tail plug 3 or the rod member 1.

**[0032]** The sleeve of the embodiment is not directly extended from the rod member 1, and may be separately produced and then sleeved on the periphery of the rod member 1. Therefore, a structure and a production process of the rod member 1 may be simplified.

**[0033]** The above descriptions are only preferred embodiments of the present disclosure and are not intended to limit the present disclosure.

## Claims

1. A fixing bracket for a photographing device, comprising:

   a rod member (1);
   a sliding member (2);

a plurality of supporting feet (4); and
a supporting frame;
wherein the sliding member (2) is slidably sleeved on an outer surface of the rod member (1), top ends of the plurality of the supporting feet (4) are hinged to the sliding member (2), and the supporting feet (4) are swingable with respect to the sliding member (2); at least one limiting protrusion (11) is disposed on the outer surface of the rod member (1) close to a bottom end of the rod member (1), the at least one limiting protrusion (11) is configured to block the sliding member (2) or the supporting feet (4) from sliding towards the bottom end of the rod member (1), the at least one limiting protrusion (11) is disposed between the sliding member (2) and the bottom end of the rod member (1), the supporting frame comprises a plurality of connecting rods (5), top ends of the plurality of the connecting rods (5) are hinged with the supporting feet (4), and bottom ends of the connecting rods (5) are hinged with the bottom end of the rod member (1); the at least one limiting protrusion (11) is at least one structure outwardly protruding from the rod member (1),
wherein the at least one limiting protrusion (11) is at least one convex hull on the outer surface of the rod member (1), or the at least one limiting protrusion (11) is an annular convex rib surrounding the outer surface of the rod member (1),
**characterized in that**
the at least one convex hull or the annular convex rib is directly formed by extending a wall body of the rod member (1) in an outward direction.

**2.** The fixing bracket according to claim 1, wherein a tail plug (3) is disposed at the bottom end of the rod member (1).

**3.** The fixing bracket according to claim 1 or 2, wherein the sliding member (2) is a hinge member, hinge holes are defined in a circumferential direction of the sliding member (2), and the hinge holes are configured to be hinged with the supporting feet (4).

**4.** The fixing bracket according to claim 1 or 2, wherein the sliding member (4) comprises a hinge member (21) and a sliding sleeve (22), the sliding sleeve (22) is fixedly embedded in an inner ring of the hinge member (21), and the sliding sleeve (22) is sleeved on an outer periphery of the rod member (1).

**5.** The fixing bracket according to claim 1 or 2, wherein the sliding member (4) is a cylinder for installing a remote control.

**6.** The fixing bracket according to claim 1 or 2, wherein at least one sliding groove (12) is defined on the outer surface of the rod member (1) along an axial direction of the rod member (1), at least one guide protrusion (23) with respect to the at least one sliding groove (12) is disposed on the sliding member (2), the at least one guide protrusion (23) is embedded in the at least one sliding groove (12), and the at least one limiting protrusion (11) is disposed in the at least one sliding groove (12) and is capable of abutting against the at least one guide protrusion (23).

**Patentansprüche**

**1.** Befestigungsbügel für eine Fotografievorrichtung, umfassend:

ein Stabelement (1);
ein Gleitelement (2);
eine Vielzahl von Stützfüßen (4); und
ein Stützgestell;
wobei das Gleitelement (2) gleitbar auf eine äußere Oberfläche des Stabelements (1) aufgesteckt ist, obere Enden der Vielzahl von Stützfüßen (4) gelenkig an dem Gleitelement (2) angebracht sind und die Stützfüße (4) in Bezug auf das Gleitelement (2) schwenkbar sind; mindestens ein Begrenzungsvorsprung (11) an der äußeren Oberfläche des Stabelements (1) nahe einem unteren Ende des Stabelements (1) angeordnet ist, wobei der mindestens eine Begrenzungsvorsprung (11) dazu konfiguriert ist, das Gleitelement (2) oder die Stützfüße (4) daran zu hindern, in Richtung des unteren Endes des Stabelements (1) zu gleiten, der mindestens eine Begrenzungsvorsprung (11) zwischen dem Gleitelement (2) und dem unteren Ende des Stabelements (1) angeordnet ist, das Stützgestell eine Vielzahl von Verbindungsstäben (5) umfasst, obere Enden der Vielzahl von Verbindungsstäben (5) gelenkig an den Stützfüßen (4) angebracht sind und untere Enden der Verbindungsstäbe (5) gelenkig an dem unteren Ende des Stabelements (1) angebracht sind; der mindestens eine Begrenzungsvorsprung (11) mindestens eine von dem Stabelement (1) nach außen vorspringende Struktur ist,
wobei der mindestens eine Begrenzungsvorsprung (11) mindestens eine konvexe Ummantelung an der äußeren Oberfläche des Stabelements (1) ist oder der mindestens eine Begrenzungsvorsprung (11) eine ringförmige konvexe Rippe ist, die die äußere Oberfläche des Stabelements (1) umgibt,
**dadurch gekennzeichnet, dass**
die mindestens eine konvexe Ummantelung oder die ringförmige konvexe Rippe direkt durch

Erweitern eines Wandkörpers des Stabelements (1) in einer Richtung nach außen ausgebildet ist.

**2.** Befestigungsbügel nach Anspruch 1, wobei ein Abschlussstopfen (3) an dem unteren Ende des Stabelements (1) angeordnet ist.

**3.** Befestigungsbügel nach Anspruch 1 oder 2, wobei das Gleitelement (2) ein Gelenkelement ist, Gelenklöcher in einer Umfangsrichtung des Gleitelements (2) definiert sind und die Gelenklöcher dazu konfiguriert sind, an den Stützfüßen (4) gelenkig angebracht zu werden.

**4.** Befestigungsbügel nach Anspruch 1 oder 2, wobei das Gleitelement (4) ein Gelenkelement (21) und eine Gleithülse (22) umfasst, wobei die Gleithülse (22) feststehend in einem Innenring des Gelenkelements (21) eingebettet ist und die Gleithülse (22) auf einen Außenumfang des Stabelements (1) aufgesteckt ist.

**5.** Befestigungsbügel nach Anspruch 1 oder 2, wobei das Gleitelement (4) ein Zylinder zum Installieren einer Fernbedienung ist.

**6.** Befestigungsbügel nach Anspruch 1 oder 2, wobei mindestens eine Gleitnut (12) an der äußeren Oberfläche des Stabelements (1) entlang einer axialen Richtung des Stabelements (1) definiert ist, mindestens ein Führungsvorsprung (23) in Bezug auf die mindestens eine Gleitnut (12) auf dem Gleitelement (2) angeordnet ist, der mindestens eine Führungsvorsprung (23) in die mindestens eine Gleitnut (12) eingebettet ist und der mindestens eine Begrenzungsvorsprung (11) in der mindestens einen Gleitnut (12) angeordnet ist und in der Lage ist, an den mindestens einen Führungsvorsprung (23) anzustoßen.

**Revendications**

**1.** Support de fixation pour dispositif photographique, comprenant :

un élément tige (1) ;
un élément coulissant (2) ;
une pluralité de pieds de support (4) ; et
un cadre de support ;
ledit élément coulissant (2) étant emmanché de manière coulissante sur une surface externe de l'élément tige (1), des extrémités supérieures de la pluralité de pieds de support (4) étant articulées sur l'élément coulissant (2), et lesdits pieds de support (4) pouvant pivoter par rapport à l'élément coulissant (2) ; au moins une saillie de limitation (11) étant disposée sur la surface externe de l'élément tige (1) à proximité d'une extrémité inférieure de l'élément tige (1), ladite au moins une saillie de limitation (11) étant conçue pour empêcher l'élément coulissant (2) ou les pieds de support (4) de glisser vers l'extrémité inférieure de l'élément de tige (1), ladite au moins une saillie de limitation (11) étant disposée entre l'élément coulissant (2) et l'extrémité inférieure de l'élément tige (1), ledit cadre de support comprenant une pluralité de tiges de liaison (5), des extrémités supérieures de la pluralité de tiges de liaison (5) étant articulées avec les pieds de support (4), et lesdites extrémités inférieures des tiges de liaison (5) étant articulées avec l'extrémité inférieure de l'élément tige (1) ; ladite au moins une saillie de limitation (11) étant au moins une structure faisant saillie vers l'extérieur à partir de l'élément de tige (1),
ladite au moins une saillie de limitation (11) étant au moins une coque convexe sur la surface externe de l'élément tige (1), ou ladite au moins une saillie de limitation (11) étant une nervure convexe annulaire entourant la surface externe de l'élément tige (1),
**caractérisé en ce que**
la au moins une coque convexe ou ladite nervure convexe annulaire est formée directement en étendant un corps de paroi de l'élément tige (1) dans une direction vers l'extérieur.

**2.** Support de fixation selon la revendication 1, un bouchon arrière (3) étant disposé au niveau de l'extrémité inférieure de l'élément tige (1).

**3.** Support de fixation selon la revendication 1 ou 2, ledit élément coulissant (2) étant un élément d'articulation, des trous d'articulation étant définis dans une direction circonférentielle de l'élément coulissant (2), et lesdits trous d'articulation étant conçus pour être articulés avec les pieds de support (4).

**4.** Support de fixation selon la revendication 1 ou 2, ledit élément coulissant (4) comprenant un élément d'articulation (21) et un manchon coulissant (22), ledit manchon coulissant (22) étant encastré de manière fixe dans un anneau interne de l'élément d'articulation (21), et ledit manchon coulissant (22) étant emmanché sur une périphérie externe de l'élément tige (1).

**5.** Support de fixation selon la revendication 1 ou 2, ledit élément coulissant (4) étant un cylindre pour installer une télécommande.

**6.** Support de fixation selon la revendication 1 ou 2, au moins une rainure coulissante (12) étant définie sur la surface externe de l'élément tige (1) le long d'une direction axiale de l'élément tige (1), au moins une

saillie de guidage (23) par rapport à la au moins une rainure coulissante (12), étant disposée sur l'élément coulissant (2), ladite au moins une saillie de guidage (23) étant incorporée dans la au moins une rainure coulissante (12), et ladite au moins une saillie de limitation (11) étant disposée dans la au moins une rainure coulissante (12) et étant capable de venir en butée contre la au moins une saillie de guidage (23).

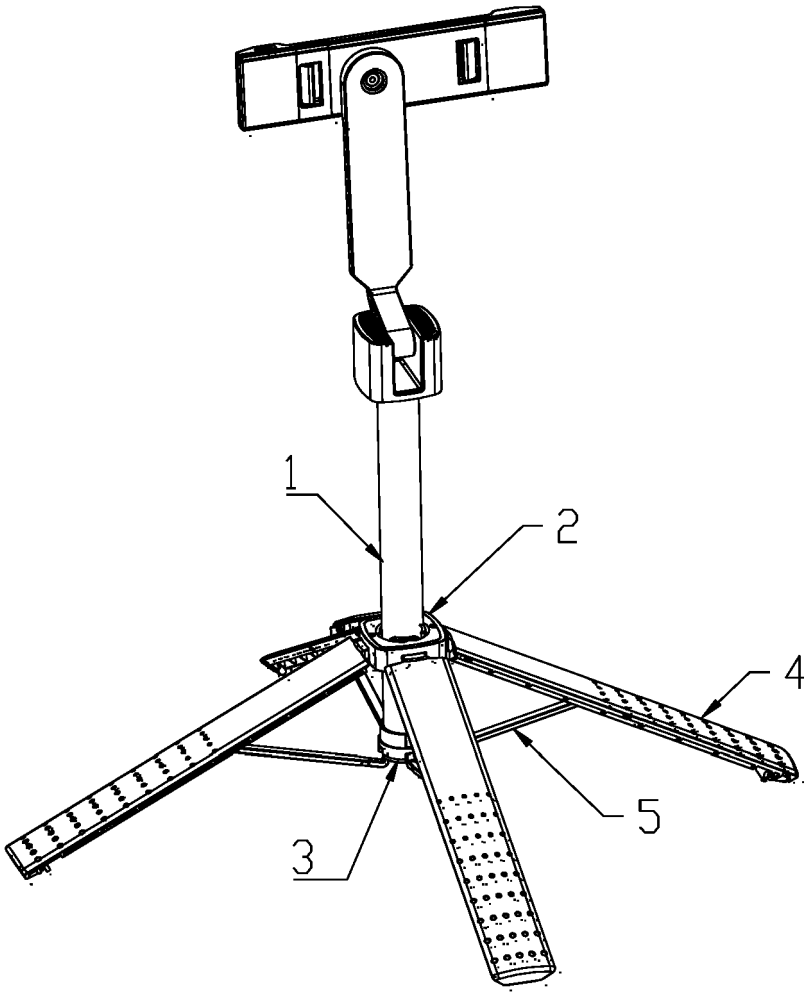


FIG. 1

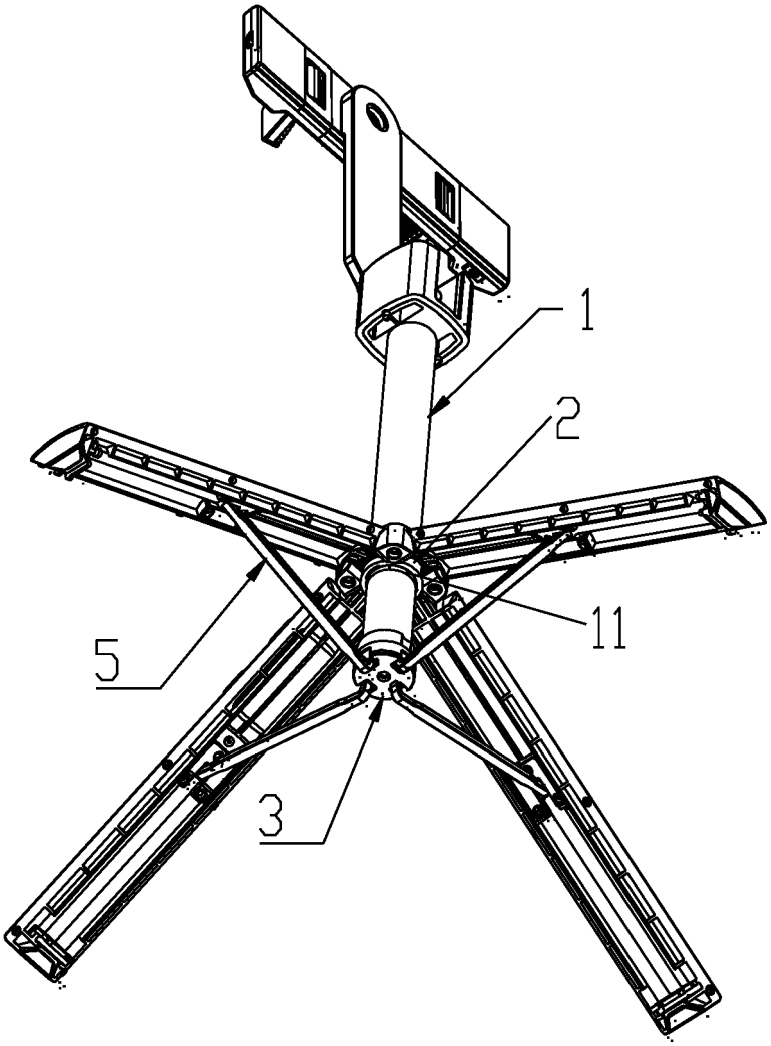


FIG. 2

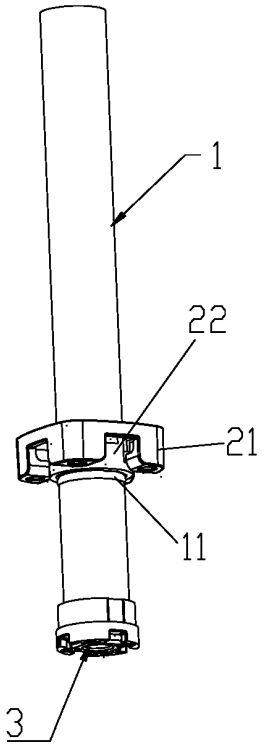


FIG. 3

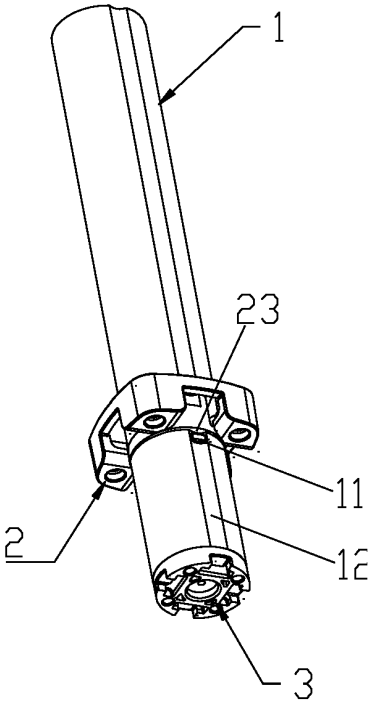


FIG. 4

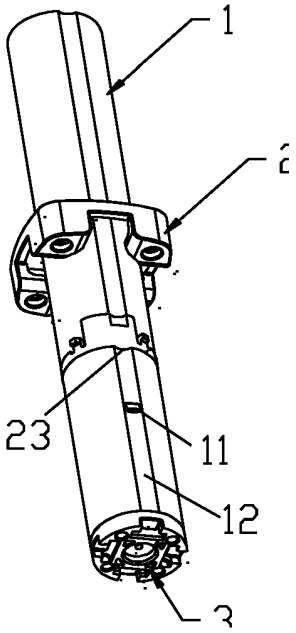


FIG. 5

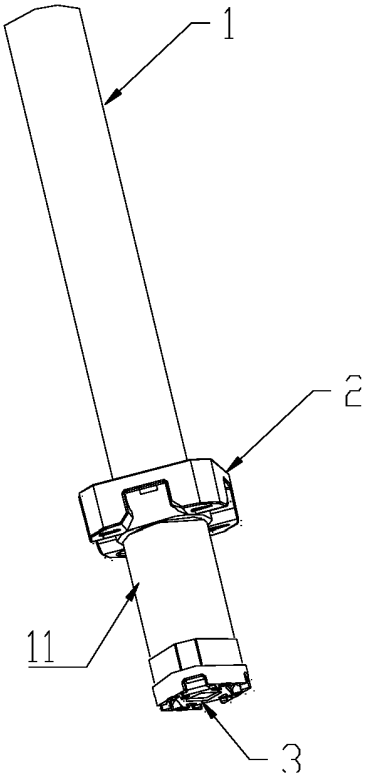


FIG. 6

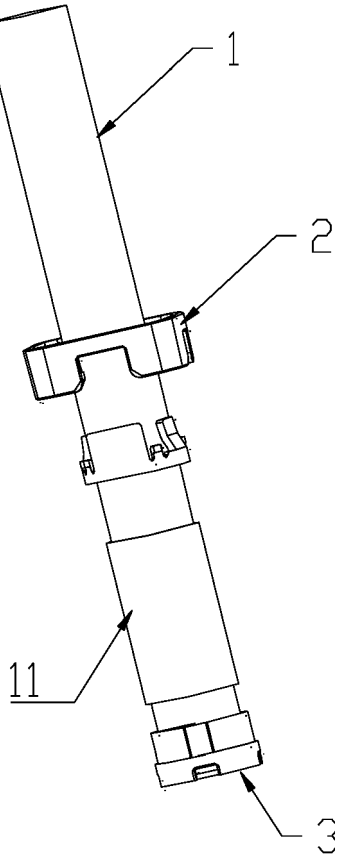


FIG. 7

## REFERENCES CITED IN THE DESCRIPTION

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### Patent documents cited in the description


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