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PATENTS ACT, 1978

CERTIFICATE

In accordance with section 44 (1) of the Patents Act, No. 57 of 1978, it is hereby certified that:

GANSU DESERT CONTROL RESEARCH INSTITUTE

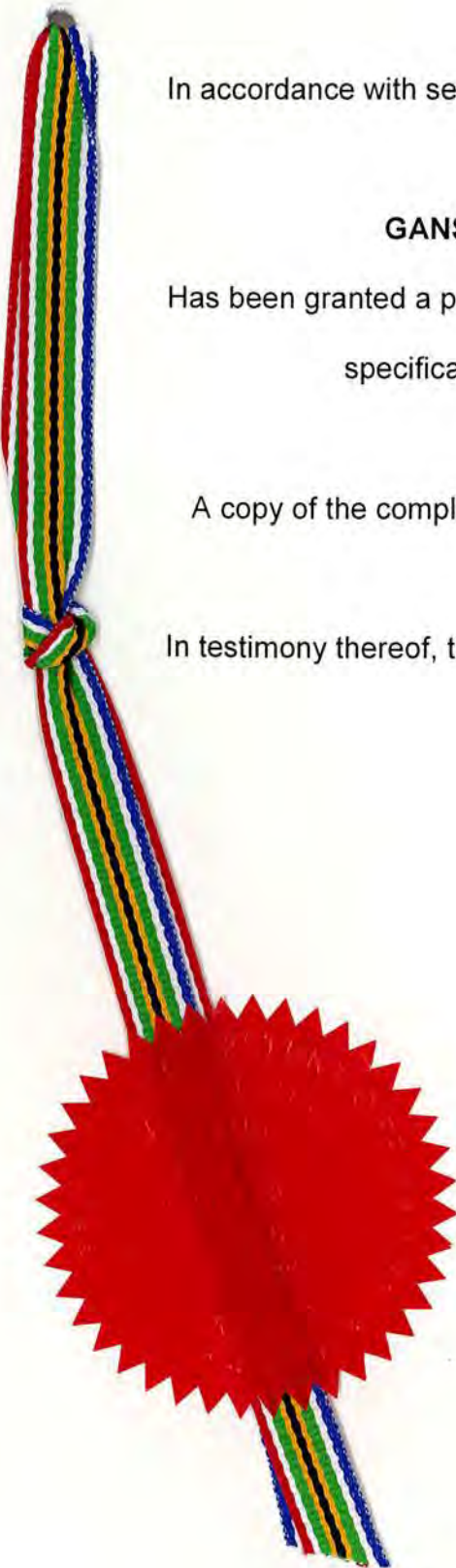
Has been granted a patent in respect of an invention described and claimed in complete specification deposited at the Patent Office under the number

2022/04349

A copy of the complete specification is annexed, together with the relevant Form P2.

In testimony thereof, the seal of the Patent Office has been affixed at Pretoria with effect
from the **25th** day of **May 2022**


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PATENTS ACT, 1978

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71	Full name(s) of applicant(s)/Patentee(s):				
GANSU DESERT CONTROL RESEARCH INSTITUTE NO. 1856 QILIAN AVENUE, XIGUAN STREET, LIANGZHOU DISTRICT, WUWEI, GANSU, China					
71	Applicant substituted:			Date registered	
71	Assignee(s):			Date registered	
72	Full name(s) of inventor(s):				
ZHANG, Huiwen WU, Zhen ZHANG, Zhiping CAO, Lei					
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GRASS GRID DEVICE FOR DESERTIFICATION CONTROL ACCORDING TO WIND DIRECTIONS					
Address of applicant(s)/patentee(s):					
NO. 1856 QILIAN AVENUE, XIGUAN STREET, LIANGZHOU DISTRICT, WUWEI, GANSU CHINA					
74	Address for service				
Bredenkamp Attorneys Inc. PMA House, Block B, Tijger Vallei Office Park, Silver Lakes Road, Silver Lakes, Pretoria, 0081 SOUTH AFRICA Reference No. NZA1658					
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REPUBLIC OF SOUTH AFRICA
 PATENTS ACT, 1978
COMPLETE SPECIFICATION
[Section 30(1) – Regulation 28]

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51	E02D;E02B;A01G
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FULL NAME(S) OF APPLICANT(S)

71	GANSU DESERT CONTROL RESEARCH INSTITUTE NO. 1856 QILIAN AVENUE, XIGUAN STREET, LIANGZHOU DISTRICT, WUWEI, GANSU, China
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FULL NAME(S) OF INVENTORS(S)

72	1. ZHANG, Huiwen 2. WU, Zhen 3. ZHANG, Zhiping 4. CAO, Lei
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TITLE OF INVENTION

54	GRASS GRID DEVICE FOR DESERTIFICATION CONTROL ACCORDING TO WIND DIRECTIONS
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Description

GRASS GRID DEVICE FOR DESERTIFICATION CONTROL ACCORDING TO WIND DIRECTIONS

Technical Field

The present invention belongs to the technical field of desertification control equipment, in particular to a grass grid device for desertification control according to wind directions.

Background

A grass grid is a desertification control method to prevent winds, fix sand and conserve water. Reticulated grass grids look like inanimate desert miniature protective belts which are interlinked and connected to a single stretch.

Based on the above, the inventor has found the following problems: a current bundling method of grass grids is as follows: grids of 1m×1m are excavated from a sand surface; and then wheat straws are placed on the grids and bundled into the grids with a spade. The overall height of the wheat straws is unified and unchanged; and positions of the wheat straws are fixed after being bundled into the sand surface. However, wind directions in a desert are often changed, while impact forces of the different wind directions on the grass grids are also different. It is found through research that when a bundling mode of the grass grids is that the grass grids are higher on one side and lower on three sides, an effect of wind prevention and sand fixation thereof is the best.

Therefore, in view of this, research and improvements are made aiming at the existing structure and deficiencies, to provide a grass grid device for desertification control according to wind directions in order to achieve the purpose of higher practical value.

Summary

Description

In order to solve the above technical problems, the present invention provides a grass grid device for desertification control according to wind directions to solves the problem about how existing grass grids change a direction of wind prevention and sand fixation according to squares.

Purposes and functions of the grass grid device for desertification control according to wind directions in the present invention are achieved by the following specific technical means:

A grass grid device for desertification control according to wind directions comprises an annular bottom ring, an annular top ring and an annular inner ring; a plurality of groups of grass grid frames are laid and installed between inner walls of the annular inner ring; the top of each grass grid frame is provided with a square groove; a fixing strip is arranged in the square groove; adjusting thread bolts are inserted and installed on the inner walls of the grass grid frames; one end of each adjusting thread bolt penetrates through the fixing strip and extends to the inside; a telescopic adjusting sleeve is installed on one side of an upper end surface of the annular top ring through a fixing piece; a sleeve rod is inserted and installed on the top of the telescopic adjusting sleeve; a ring seat is installed on the top of the sleeve rod; cross bars are installed on both sides of the ring seat; and side wing guide plates are inserted and installed on outer walls of both sides of one end of each cross bar.

Further, the bottom end of the annular top ring is provided with a plurality of groups of slide rails; an upper end surface of the annular bottom ring is provided with a circular chute; and the annular top ring is assembled and installed with the annular bottom ring through the slide rails.

Further, the bottom end of the annular bottom ring is equidistantly provided with conical seats; and the outer wall of each conical seat is provided with annular threads.

Further, the side wing guide plates are made of plastic material and the plastic material is a polyethylene material.

Description

Further, assembly grooves are symmetrically arranged in both sides of the surface of each cross bar; an assembly plate is installed on one end of each side wing guide plate; and the side wing guide plate is clamped and installed with each assembly groove through the assembly plate.

Further, the outer wall of the annular inner ring is equidistantly provided with a plurality of shaft pins; the inner wall of the annular top ring is equidistantly provided with a plurality of shaft pin holes; and the annular inner ring is assembled and installed with the annular top ring through the shaft pins.

Further, wheat straws are arranged between the fixing strips and the straw grid frames; and a bundling mode of the wheat straws is that the wheat straws are higher on one side and lower on three sides.

Compared with the prior art, the present invention has the following beneficial effects:

According to the present invention, the ring seat is matched with the cross bars and the side wing guide plates during use. When the side wing guide plates are driven by different wind directions, the annular top ring can be rotated; the annular top ring can keep a direction of the side wing guide plates consistent with a blowing direction of the wind direction while rotating, so that an arrangement direction of the grass grid frames installed in the annular top ring is kept consistent with the wind direction; and the wheat straw bundling mode in the grass grid frames is that the wheat straws are higher on one side and lower on three sides, so that an overall effect of wind prevention and sand fixation can be maximized. Secondly, through combination of the adjusting thread bolts and the fixing strips during use, the wheat straws or other products of wind prevention and sand fixation can be quickly installed; and overall construction efficiency can be improved.

Description of Drawings

Description

Fig. 1 is an integral three-dimensional schematic diagram of a grass grid device for desertification control according to wind directions in the present invention.

Fig. 2 is a plan diagram of a grass grid of a grass grid device for desertification control according to wind directions in the present invention.

Fig. 3 is an exploded diagram of a grass grid device for desertification control according to wind directions in the present invention.

Fig. 4 is a schematic diagram of installation of side wing guide plates and a ring seat of a grass grid device for desertification control according to wind directions in the present invention.

Fig. 5 is an enlarged schematic diagram of point B in Fig. 4 of a grass grid device for desertification control according to wind directions in the present invention.

Fig. 6 is an enlarged schematic diagram of point A in Fig. 2 of a grass grid device for desertification control according to wind directions in the present invention.

In the diagrams, corresponding relationships between component names and drawing numbers are as follows:

1. annular bottom ring; 2. annular top ring; 3, telescopic adjusting sleeve; 4. grass grid frame; 5. sleeve rod; 6. ring seat; 7. cross bar; 8. side wing guide plate; 9. annular inner ring; 10. shaft pin hole; 11. shaft pin; 12. slide rail; 13. conical seat; 401. fixing strip; 402. adjusting thread bolt; 701. assembly groove; and 702. assembly plate.

Detailed Description

Implementation modes of the present invention are further described below in detail in combination with drawings and the embodiments. The following embodiments are used for illustrating the present invention, not used for limiting the scope of the present invention.

Description

In the description of the present invention, the meaning of “a plurality of” is two or more unless otherwise specified. Terms such as “upper”, “lower”, “left”, “right”, “inner”, “outer”, “front”, “rear”, “head”, “tail”, etc. indicate direction or position relationships shown based on the drawings, and are only intended to facilitate the description of the present invention and the simplification of the description rather than to indicate or imply that the indicated device or element must have a specific direction or constructed and operated in a specific direction, and therefore, shall not be understood as a limitation to the present invention. In addition, the terms such as “first”, “second” and “third” are only used for the purpose of description, rather than being understood to indicate or imply relative importance.

It should be noted in the description of the present invention that, unless otherwise specifically regulated and defined, terms such as “connected” and “connecting” shall be understood in broad sense, and for example, may refer to fixed connection or detachable connection or integral connection, may refer to mechanical connection or electrical connection, and may refer to direct connection or indirect connection through an intermediate medium. For those ordinary skilled in the art, the specific meanings of the above terms in the present invention may be understood according to specific conditions.

Embodiments:

As shown in Figs. 1 to 6:

The present invention provides a grass grid device for desertification control according to wind directions, which comprises an annular bottom ring 1, an annular top ring 2 and an annular inner ring 9; a plurality of groups of grass grid frames 4 are laid and installed between inner walls of the annular inner ring 9; the top of each grass grid frame 4 is provided with a square groove; a fixing strip 401 is arranged in the square groove; adjusting thread bolts 402 are inserted and installed on the inner walls of the grass grid frames 4; one end of each adjusting thread bolt 402 penetrates through the fixing strip 401 and extends to the inside; a telescopic adjusting sleeve 3 is installed on one side of an upper end surface of the

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annular top ring 2 through a fixing piece; a sleeve rod 5 is inserted and installed on the top of the telescopic adjusting sleeve 3; a ring seat 6 is installed on the top of the sleeve rod 5; cross bars 7 are installed on both sides of the ring seat 6; and side wing guide plates 8 are inserted and installed on outer walls of both sides of one end of each cross bar 7.

The bottom end of the annular top ring 2 is provided with a plurality of groups of slide rails 12; an upper end surface of the annular bottom ring 1 is provided with a circular chute; and the annular top ring 2 is assembled and installed with the annular bottom ring 1 through the slide rails 12.

The bottom end of the annular bottom ring 1 is equidistantly provided with conical seats 13; and the outer wall of each conical seat 13 is provided with annular threads.

The side wing guide plates 8 are made of plastic material and the plastic material is a polyethylene material.

Assembly grooves 701 are symmetrically arranged in both sides of the surface of each cross bar 7; an assembly plate 702 is installed on one end of each side wing guide plate 8; and the side wing guide plate 8 is clamped and installed with each assembly groove 701 through the assembly plate 702.

The outer wall of the annular inner ring 9 is equidistantly provided with a plurality of shaft pins 11; the inner wall of the annular top ring 2 is equidistantly provided with a plurality of shaft pin holes 10; and the annular inner ring 9 is assembled and installed with the annular top ring 2 through the shaft pins 11.

Wheat straws are arranged between the fixing strips 401 and the straw grid frames 4; and a bundling mode of the wheat straws is that the wheat straws are higher on one side and lower on three sides.

The specific usage mode and effects of the present embodiment are as follows:

According to the present invention, before use of the grass grid device, overall integrity of the device is checked at first. After confirmation, the device is carried to a designated place. The annular bottom ring 1 is inserted into a desert by the

Description

conical seats 13; the annular top ring 2 is installed in the annular bottom ring 1 through the rails 12; and the telescopic adjusting sleeve 3, the ring base 6, the cross bars 7 and the side wing guide plates 8 are installed successively. The ring seat 6 is matched with the cross bars 7 and the side wing guide plates 8 during use. When the side wing guide plates 8 are driven by different wind directions, the annular top ring 2 can be rotated; the annular top ring 2 can keep a direction of the side wing guide plates 8 consistent with a blowing direction of the wind direction while rotating, so that an arrangement direction of the grass grid frames 4 installed in the annular top ring 2 is kept consistent with the direction; and the wheat straw bundling mode in the grass grid frames 4 is that the wheat straws are higher on one side and lower on three sides, so that an overall effect of wind prevention and sand fixation can be maximized. The device is novel in overall design, simple in structure and worthy of wide promotion and use.

Embodiments of the present invention are provided for examples and illustration, and are not exhaustive or used to limit the present invention to the disclosed forms. Many modifications and changes are apparent to those ordinary skilled in the art. Embodiments are selected and described in order to better explain the principle and practical application of the present invention and to enable those ordinary skilled in the art to understand the present invention so as to design various embodiments with various modifications suitable for specific application.

Claims

1. A grass grid device for desertification control according to wind directions, comprising an annular bottom ring (1), an annular top ring (2) and an annular inner ring (9), wherein a plurality of groups of grass grid frames (4) are laid and installed between inner walls of the annular inner ring (9); the top of each grass grid frame (4) is provided with a square groove; a fixing strip (401) is arranged in the square groove; adjusting thread bolts (402) are inserted and installed on the inner walls of the grass grid frames (4); one end of each adjusting thread bolt (402) penetrates through the fixing strip (401) and extends to the inside; a telescopic adjusting sleeve (3) is installed on one side of an upper end surface of the annular top ring (2) through a fixing piece; a sleeve rod (5) is inserted and installed on the top of the telescopic adjusting sleeve (3); a ring seat (6) is installed on the top of the sleeve rod (5); cross bars (7) are installed on both sides of the ring seat (6); and side wing guide plates (8) are inserted and installed on outer walls of both sides of one end of each cross bar (7).

2. The grass grid device for desertification control according to wind directions according to claim 1, wherein the bottom end of the annular top ring (2) is provided with a plurality of groups of slide rails (12); an upper end surface of the annular bottom ring (1) is provided with a circular chute; and the annular top ring (2) is assembled and installed with the annular bottom ring (1) through the slide rails (12).

3. The grass grid device for desertification control according to wind directions according to claim 1, wherein the bottom end of the annular bottom ring (1) is equidistantly provided with conical seats (13); and the outer wall of each conical seat (13) is provided with annular threads.

4. The grass grid device for desertification control according to wind directions according to claim 1, wherein the side wing guide plates (8) are made of plastic material and the plastic material is a polyethylene material.

5. The grass grid device for desertification control according to wind directions according to claim 1, wherein assembly grooves (701) are symmetrically

Claims

arranged in both sides of the surface of each cross bar (7); an assembly plate (702) is installed on one end of each side wing guide plate (8); and the side wing guide plate (8) is clamped and installed with each assembly groove (701) through the assembly plate (702).

6. The grass grid device for desertification control according to wind directions according to claim 1, wherein the outer wall of the annular inner ring (9) is equidistantly provided with a plurality of shaft pins (11); the inner wall of the annular top ring (2) is equidistantly provided with a plurality of shaft pin holes (10); and the annular inner ring (9) is assembled and installed with the annular top ring (2) through the shaft pins (11).

7. The grass grid device for desertification control according to wind directions according to claim 1, wherein wheat straws are arranged between the fixing strips (401) and the straw grid frames (4); and a bundling mode of the wheat straws is that the wheat straws are higher on one side and lower on three sides.

Drawings of Description

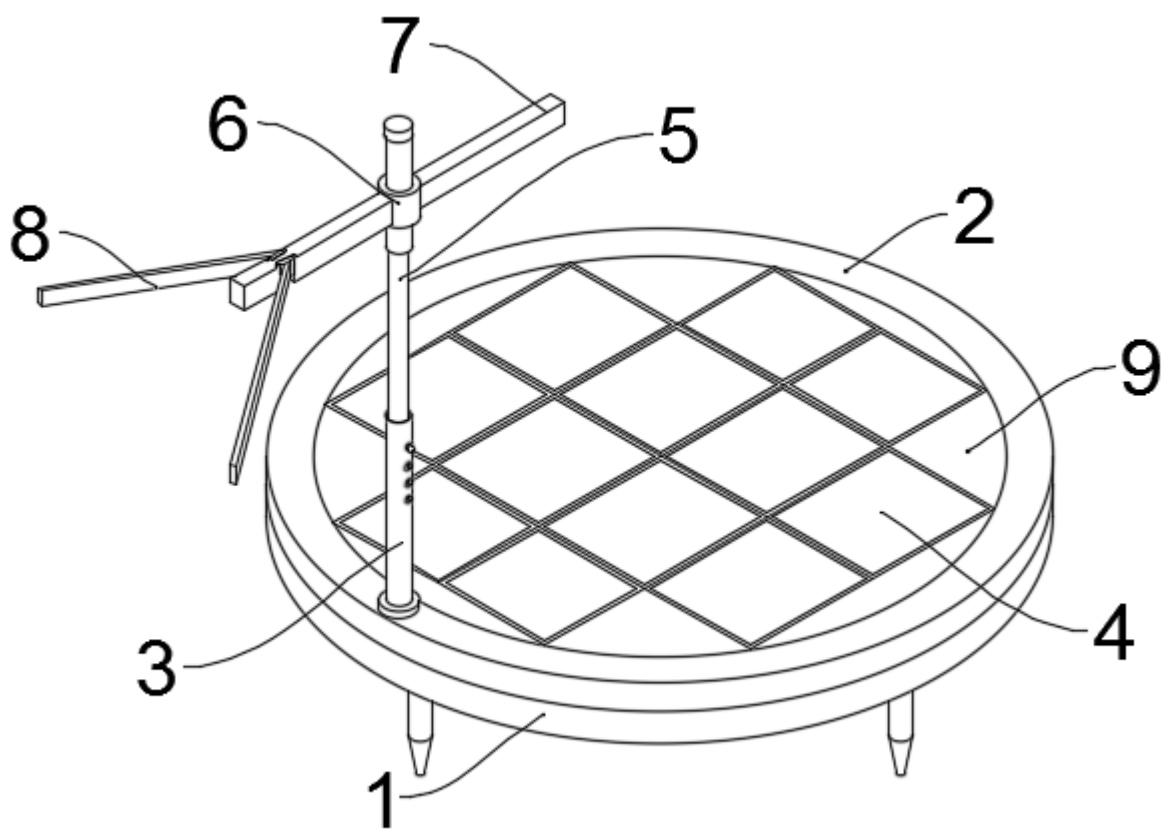


Fig. 1

Drawings of Description

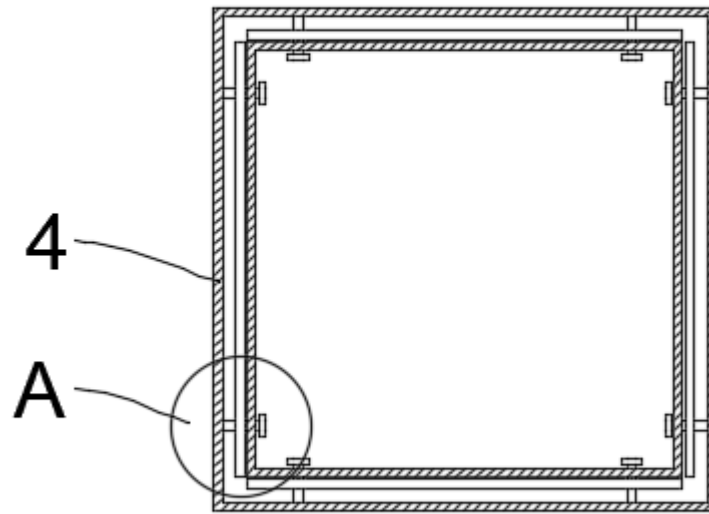


Fig. 2

Drawings of Description

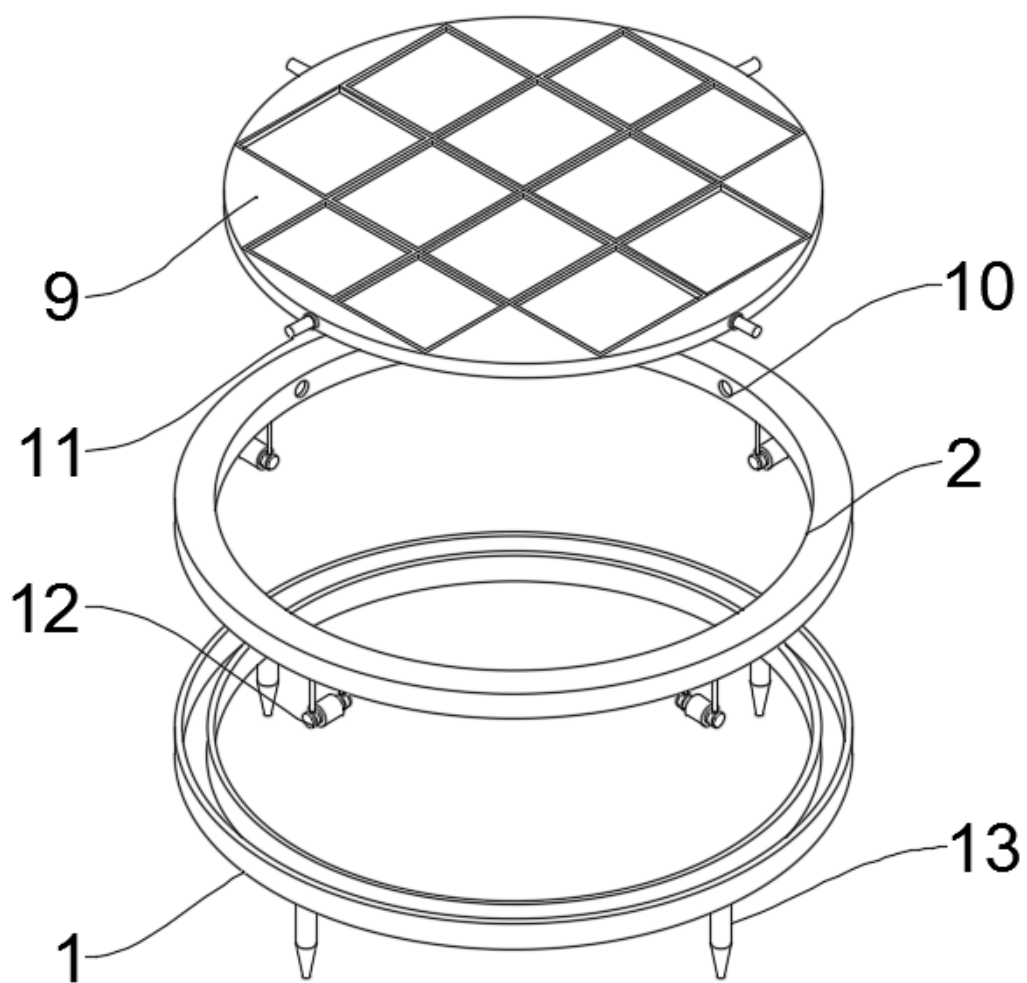


Fig. 3

Drawings of Description

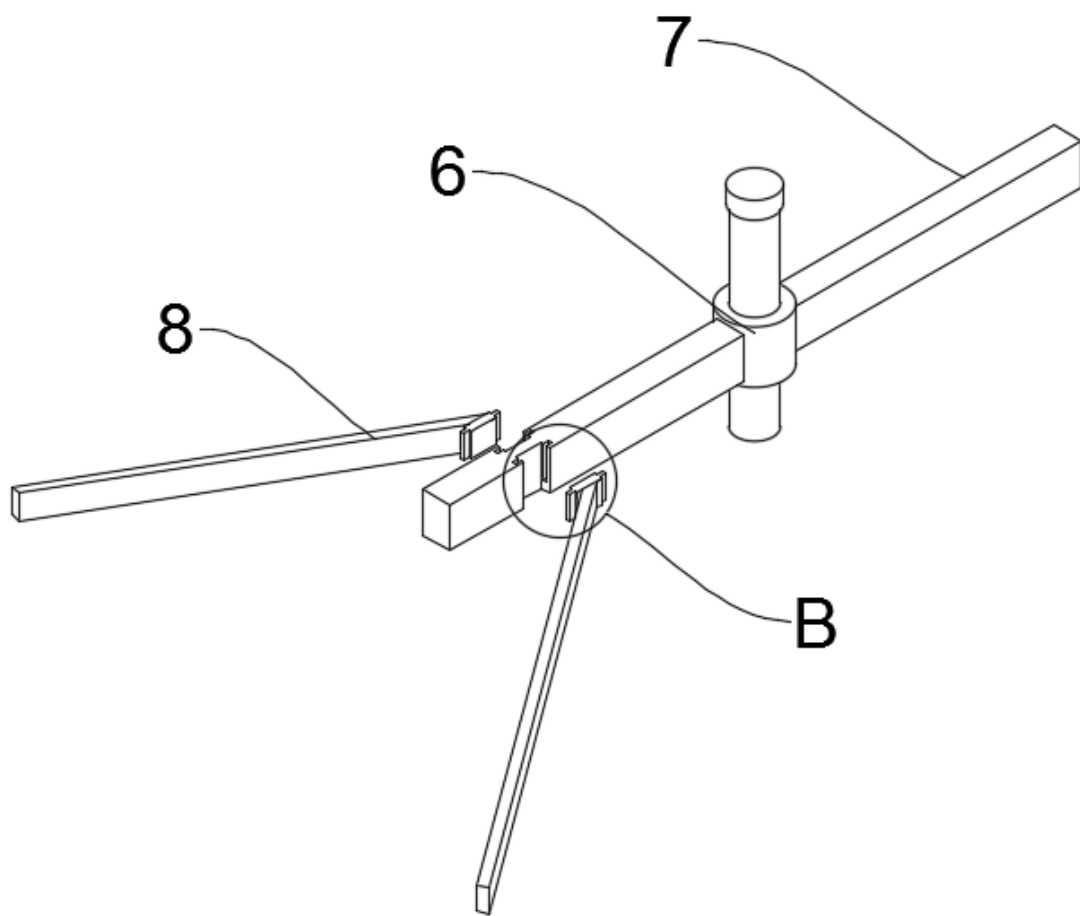


Fig. 4

Drawings of Description

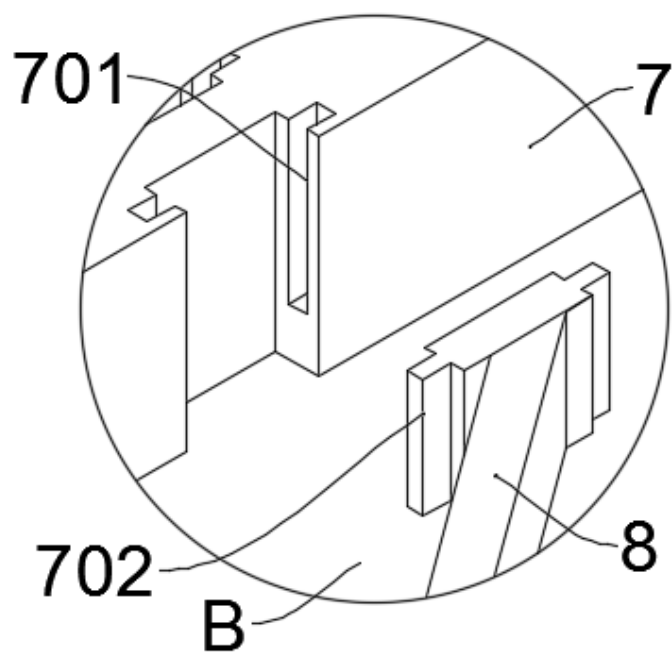


Fig. 5

Drawings of Description

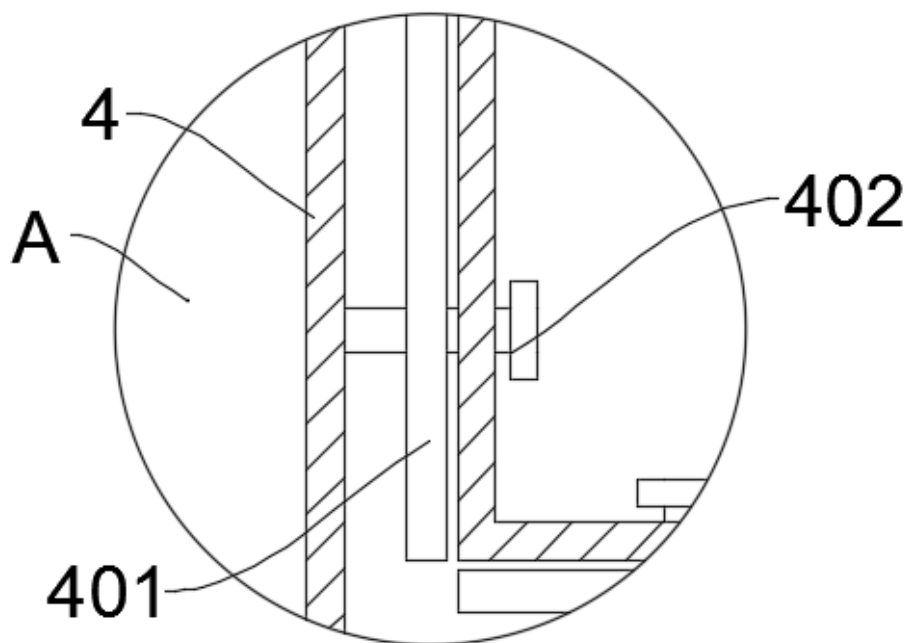


Fig. 6