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(54) DRAINAGE DEVICE OF PUSH-PULL DEVICE

ABLASSVORRICHTUNG EINES KLEMMSCHIEBERS

DISPOSITIF D'ÉVACUATION DE DISPOSITIF DE POUSSÉE-TRACTION

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(56) References cited:
CN-A- 101 672 154
CN-A- 103 437 642
CN-A- 104 653 073
CN-Y- 2 549 146
CN-Y- 2 558 743
FR-A1- 2 989 719
JP-A- H1 030 382
JP-A- 2000 034 870
JP-U- S4 822 435
JP-U- S5 224 745
TW-A- 200 920 923
US-B1- 6 357 186

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Description

Technical Field of the present invention

[0001] The present invention relates to the technical field of push-pull devices, and in particular to a drainage device for a push-pull device.

[0002] JPS5224745 describes a drainage device for a push-pull device, wherein the push-pull device comprises two push-pull leaves that overlap with each other and comprise overlapped parts, a downward-sliding first opening and a downward-sliding second opening, wherein the drainage device comprises a drainage box, the drainage box comprising a drainage chamber body, the first end of the drainage chamber body communicating with a second end of the drainage chamber body; and wherein the drainage device further comprises a water blocking device, the water blocking device comprising a first connecting part and a water blocking part; whereby the drainage box is configured so that, in the mounted state of the drainage device, the water blocking part of the water blocking device is arranged between overlapped parts of the two push-pull leaves of the push-pull device; the second end of the drainage chamber body extends out of the downward-sliding second opening of the push-pull device; and the drainage device further comprises a first one-way valve. Related technologies are known from CN201621343U and CN2665325Y.

Background of the present invention

[0003] In most traditional push-pull devices, a drainage hole has always been directly formed on a lower rail thereof for draining water away. The absence of a drainage device leads to both poor gas tightness and water tightness. In addition, as a result of doing so, when there is heavy rain and strong wind outside, rainwater is highly likely to flow backward into rooms, thus greatly influencing our daily life.

Summary of the present invention

[0004] With regard to the problems mentioned above, the purpose of the present invention is to provide a drainage device for a push-pull device so as to solve the problem that outside rainwater flows backward into rooms. In this way, the water tightness of push-pull devices is improved.

[0005] The present invention provides a drainage device according to claim 1.

[0006] In a preferred embodiment, the water blocking device further includes a second connecting part, and the drainage box includes a second trough body; in the mounted state, the second connecting part penetrates through a downward-sliding first opening of the push-pull device and is fixedly arranged inside the second trough body. The drainage device further includes a second one-way valve which is arranged on the second connecting part;

In a further preferred embodiment, the first connecting part is arranged inside the first trough body, and/or the second connecting part is arranged inside the second trough body.

[0007] In a further preferred embodiment, the first connecting part includes a first connecting device, a second connecting device and a first buffering channel, the first connecting device and the second connecting device (331) are respectively arranged on two sides of the first buffering channel, and the first connecting device, the first buffering channel and the second connecting device allow the first connecting part to have a U-shaped longitudinal section.

[0008] The first trough body includes a first receiving device, a second receiving device and a first bottom, and the first receiving device, the first bottom and the second receiving device allow the first trough body to have a U-shaped longitudinal section.

[0009] In the mounted state, the first connecting device is mounted on the first receiving device, and the second connecting device is mounted on the second receiving device, so that the first connecting part is arranged inside the first trough body.

[0010] In a further preferred embodiment, the first one-way valve includes a clamping part and a cover plate; a clamping structure is provided on the first connecting device and the second connecting device of the first connecting part, and the clamping part can be rotatably clamped on the clamping structure.

[0011] In a further preferred embodiment, the second connecting part includes a second buffering channel and a third connecting device, the third connecting device, the second buffering channel and the second connecting device allow the second connecting part to have a U-shaped longitudinal section.

[0012] The second trough body (120) further includes a third receiving device (1103) and a second bottom, the second receiving device, the second bottom and a third receiving device allow the second trough body to have a U-shaped longitudinal section.

[0013] In the mounted state, the third connecting device is mounted on the third receiving device, and the second connecting device is mounted on the second receiving device, so that the second connecting part is arranged inside the first trough body.

[0014] In a further preferred embodiment, the second one-way valve includes a clamping part and a cover plate; a clamping structure is provided on the second connecting device and the third connecting device of the second connecting part, and the clamping part can be rotatably clamped on the clamping structure.

[0015] In a further preferred embodiment, the cover plate is a curved cover plate.

[0016] In a further preferred embodiment, the first connecting part is hermetically arranged inside the first trough body, and/or the second connecting part is hermetically arranged inside the second trough body.

[0017] In a last preferred embodiment, a drainage lid is provided at a second end of the drainage chamber body, and the length of the drainage lid is greater than that of the downward-sliding second opening of the push-pull device.

[0018] With regard to the present invention, a water blocking device for a push-pull device is used, and a drainage box is designed inside a lower-rail profile chamber of a push-pull device in coordination with the device, so as to enhance the gas tightness and water tightness and solve the problem that rainwater flows backward and into rooms in the existing push-pull devices.

Brief Description of the Drawings

[0019] The accompanying drawings incorporated into the description and constitute a part of the description show the embodiments of the present invention and are used to explain the principle of the present invention together with the description. In these drawings, similar reference numerals are used to denote similar elements. The drawings described below show some but not all of the embodiments of the present invention. Fig. 1 is an exploded view of a drainage device of a push-pull device according to an embodiment of the present invention;

Fig. 2 is a schematic view of a drainage device of a push-pull device according to an embodiment of the present invention; and

Fig. 3 is a cross-sectional view of a drainage device of a push-pull device according to an embodiment of the present invention.

Detailed Description of the present invention

[0020] To make the purposes, technical solutions and advantages of the embodiments of the present invention more clear, the technical solutions in the embodiments of the present invention will be clearly and completely described with reference to the drawings in the embodiments of the present invention.

[0021] The present invention provides a drainage device for a push-pull device, which is particularly suitable to be mounted between two push-pull leaves. The purpose is that a drainage box is provided in coordination with a downward-sliding inner chamber of a push-pull device and is meanwhile combined with a water blocking device to form a hermetic water guide passageway, so that the water tightness of the push-pull device is enhanced.

[0022] The drainage device for a push-pull device provided by the present invention will be described in detail with reference to the drawings. The push-pull device provided in the present invention can be a push-pullwindow or a push-pulldoor, or other apparatuses to which this push-pull device is applied. In the present invention, a sliding window is exemplified for detailed description.

[0023] As shown in Fig. 1, the present invention provides a drainage device 1 of a push-pull device, including a drainage box 10, the drainage box 10 including a first trough body 110 and a drainage chamber body 111. As shown in Fig. 3, the first trough body 110 is in communication with a first end 1111 of the drainage chamber body 111, and the first end 1111 of the drainage chamber body 111 is in communication with a second end 1112 of the drainage chamber body 111.

[0024] Again, as shown in Fig. 1, the drainage device 1 further includes a water blocking device 30, the water blocking device 30 including a first connecting part 310 and a water blocking part; and in the mounted state, the water blocking part of the water blocking device 30 is arranged between overlapped parts of two push-pull leaves of a push-pull window, the first connecting part 310 penetrates through a downward-sliding first opening of the push-pull window and is fixedly arranged inside the first trough body 110, and the drainage box 10 is arranged inside a downward-sliding chamber body. Wherein, the shape of the drainage box 10 can be adapted to the downward-sliding chamber body. The second end 1112 of the drainage chamber body 111 extends out of a downward-sliding second opening of the push-pull device.

[0025] The drainage device 1 further includes a first one-way valve 20 which is arranged on the first connecting part 310 to control the opening and closing of a communication passageway between the first trough body 110 and the drainage chamber body 111.

[0026] As shown in Fig. 1, the water blocking device 30 can further include a second connecting part 320, and the drainage box 10 can also include a second trough body 120.

[0027] In the mounted state, the second connecting part 320 penetrates through a downward-sliding first opening of the push-pull device and is fixedly arranged inside the second trough body 120.

[0028] Wherein, the structure and configuration of the second connecting part 320 of the water blocking device 30 are the same as those of the first connecting part 310 of the water blocking device 30; and correspondingly, the structure and configuration of the first trough body 110 are the same as those of the second trough body 120.

[0029] The water blocking device 30 can include Q connecting parts, and correspondingly, the drainage box 10 can include Q trough bodies; and the Q connecting parts are respectively fixedly connected to the corresponding trough bodies, and all the Q trough bodies are in communication with the drainage chamber body. Of course, there may be one or more drainage chamber bodies, and the drainage chamber body is in communication with one or more of the Q trough bodies as desired. The number of drainage valves can be correspondingly set according to the number of trough bodies.

[0030] Wherein, Q can be any natural number greater than zero. In Fig. 1, Q equals to 2.

[0031] As shown in Fig. 1, the first connecting part 310 of the water blocking device 30 includes a first buffering

channel 332, a first connecting device 330 and a second connecting device 331, and the first buffering channel 332 includes a top-down bevel structure 3321 which is convenient for water to flow. The accumulated water flowing from the upper part of the water blocking device enters the first buffering channel 332 and flows through the bevel structure 3321, and enters the drainage chamber body 111 via the first one-way valve 20. On one hand, the arrangement of such a bevel structure 3321 can slow down water flowing from the upper part, without resulting in splashing because of the direct falling of water into the first connecting part 310. On the other hand, the water flowing from the upper part can be directly pushed to the first one-way valve 20, so that the first one-way valve 20 can be fully opened under the pressure. In this way, the accumulated water is guided into the drainage chamber body 111 and further led out of the push-pull device 1.

[0032] The first buffering channel 332 can also include a gentle section 3322 so as to further slow-down the flowing of the accumulated water. In this way, impact on the first one-way valve 20 is weakened.

[0033] The first connecting device 330 and the second connecting device 331 are respectively located on two sides of the first buffering channel 332, so that the first connecting part 310 is allowed to have a U-shaped longitudinal section. Correspondingly, the first trough body 110 of the drainage box 10 includes a first receiving device 1101 and a second receiving device 1102, both of which are matched with the first connecting device 330 and the second connecting device 331 of the first connecting part 310, and also includes a first bottom (not shown) connecting the first receiving device 1101 and the second receiving device 1102. In this way, the first trough body 110 is allowed to have a U-shaped longitudinal section.

[0034] The first receiving device 1101 and the second receiving device 1102 of the first trough body 110 corresponding to the first connecting device 330 and the second connecting device 331 of the first connecting part 310 can be connected in any way. Any structure, as long as it can realize the connection between the first trough body 110 and the first connecting part 310, shall fall into the protection scope of the present invention. In the present invention, a structure connected by snap fit is exemplarily shown. Specifically, the first connecting device 330 and the second connecting device 331 are of recessed structures, for example, slots. The first receiving device 1101 and the second receiving device 1102 are of protruded structures fitted with the recessed structures, for example, plates. In the mounted state, the first connecting device 330 of the first connecting part 310 is clamped in the first receiving device 1101, and the second connecting device 331 thereof is clamped in the second receiving device 1102. In this way, the first buffering channel 332 of the first connecting part 310 is arranged inside the first trough body 110. The first buffering channel 332 corresponds to the first one-way valve 20.

[0035] As shown in Fig. 1, the first one-way valve 20 is arranged on the first connecting part 310 of the water blocking device.

[0036] The first one-way valve 20 can be arranged on the water blocking device or the drainage box in any way. In the present invention, detailed description will be given by taking the arrangement of the first one-way valve 20 on the water blocking device as an example.

[0037] The first one-way valve 20 includes a clamping part 201 and a cover plate 202. The clamping part is cylindrical and is clamped between the first connecting device and the second connecting device of the first connecting part. The cover plate 202 is a curved cover plate having a curved longitudinal section. As shown in Fig. 1, a clamping structure 210 is provided at corresponding locations on the first connecting device and the second connecting device. The clamping part 201 of the first one-way valve 20 can be rotatably clamped at the clamping structure 210 of the first connecting device and the second connecting device. Wherein, the width of the cover plate 202 is greater than the depth of the first connecting part 310. In the non-drainage state, the location of the cover plate 202 is lower than the depth of the first connecting part 310. In this way, in the non-drainage state, the first one-way valve 20 makes it possible to separate the inside of the push-pull device from the outside thereof. Even in the windy state, the cover plate 202 generates a thrust force towards the inside under the impact of wind. since the location of the cover plate 202 of the first one-way valve 20 is lower than the depth of the first connecting part 310, the cover plate 202 receives resistance from a first bottom surface of the first connecting part 310, the cover plate 202 will not rotate towards the inside, making it possible to separate the inside of the push-pull device from the outside thereof.

[0038] In actual application, the width of the cover plate 202 can be the same as the depth of the first trough body.

[0039] When the drainage device provided by the present invention further includes a second connecting part, a second trough body and a second one-way valve, the second connecting part can further include a second buffering channel and a third connecting device. In this way, the second connecting device, the second buffering channel and the third connecting device allow the second connecting part to have a U-shaped longitudinal section.

[0040] The second trough body further includes a third receiving device 1103 and a second bottom. In this way, the second connecting device 1102, the second bottom and the third receiving device 1103 allow the second trough body 120 to have a U-shaped longitudinal section. In the mounted state, the second connecting device 331 and the third connecting device 333 are respectively connected to the second receiving device 1102 and the third receiving device 1103, so that the second buffering channel 334 of the second connecting part 320 is arranged inside the second trough body 120.

[0041] Wherein, the second buffering channel can have the same structure as the first buffering channel.

[0042] The second one-way valve is arranged on the

second connecting part and has a same connecting structure as the first one-way valve.

[0043] Similarly, the drainage device can also include a third connecting part and a third trough body and has a same structure as the second connecting part and the second trough body mentioned above.

[0044] Further, the first connecting part 310 is hermetically arranged inside the first trough body 110, and/or the second connecting part 320 is hermetically arranged inside the second trough body 120. The sealing can be performed in any way. For example, a sealant is applied so that the first connecting part 310 is hermetically arranged inside the first trough body 110, and/ or the second connecting part 320 is hermetically arranged inside the second trough body 120.

[0045] When in windy or rainy days, the accumulated water entering the rooms flows down from the upper part of the water blocking device 30, through the water blocking part, and into the buffering channel of the connecting part; the hydraulic pressure generated by water entering the buffering channel forces the one-way valve 20 to open; and the accumulated water enters the drainage chamber body 111 via the drainage valve. Meanwhile, since the first end of the drainage chamber body 111 is in a hermetic state when the one-way valve 20 is closed, when rainwater from the outside enters into the drainage chamber body 111 because of the wind pressure, the rainwater is blocked out of the valve and thus unable to enter the inside. In this way, the water tightness of the whole window is guaranteed.

[0046] It is proved by a large quantity of performance tests that the water tightness Δ P of the drainage device provided with the push-pull devices in the present invention is up to above 500 Pa, equivalent to Grade 5 in the national standard.

[0047] In addition, again as shown in Fig. 3, the first connecting part 310 and/or the second connecting part 320 includes a top-down bevel structure. A gentle section connected to the bevel structure can also be included. A drainage lid 410 is provided at a second end 1112 of the drainage chamber body 111, and the length of the drainage lid 410 is greater than that of the downward-sliding second opening of the push-pull door/window. In addition, a clamping structure is also provided on each of four sides of the second end 1112 of the drainage box 10 to be clamped with the drainage lid.

[0048] As described above, in the present invention, a water blocking structure of a push-pull device is used, and a drainage box is designed inside a lower-rail profile chamber of a push-pull device in coordination with the structure, so as to enhance the gas tightness and water tightness and solve the problem that rainwater flows backward and into rooms in the existing push-pull devices.

[0049] The content described above can be implemented separately or in combinations in various ways. However, all those variations shall fall into the protection scope of the present invention.

[0050] The value of the specific size of components listed in the present invention is exemplary. The size parameters of different components may take different values during practical construction according to construction requirements.

[0051] It should be noted that terms as used here, such as "include", "comprise" or other variants, are intended to cover non-exclusive inclusion, so that an item or an apparatus including a series of elements includes not only these elements, and also other elements not explicitly listed, or also includes elements intrinsic to this item or apparatus. In the absence of more restrictions, an element defined by a statement "include...." does not exclude the possibility that there are additional same elements in the item or apparatus including this element.

Industrial Applicability

[0052] In the present invention, a water blocking device for a push-pull device is used, and a drainage box is provided in coordination with a downward-sliding inner chamber of the push-pull device, and also in combination with the water blocking device to form a hermetic water guide passageway. In this way, the water tightness of the push-pull device is enhanced.

Claims

1. A drainage device (1) for a push-pull device, wherein the push-pull device comprises two push-pull leaves that overlap with each other and comprise overlapped parts, a downward-sliding first opening, a downward-sliding chamber body, and a downward-sliding second opening,

wherein the drainage device (1) comprises a drainage box (10), the drainage box (10) comprising a drainage chamber body (111), the first end (1111) of the drainage chamber body (111) being in communication with a second end (1112) of the drainage chamber body (111);
and wherein the drainage device (1) further comprises a water blocking device (30), the water blocking device (30) comprising a water blocking part;
the drainage box (10) being **characterized in that**, the drainage box (10) further comprises a first trough body (110), the first trough body (110) being communication with a first end (1111) of the drainage chamber body (111);
and the water blocking device (30) further comprises a first connecting part (310);
whereby the drainage box (10) is configured so that, in the mounted state of the drainage device, the water blocking part of the water blocking device (30) is arranged between overlapped parts of the two push-pull leaves of the push-pull de-

vice, the first connecting part (310) penetrates through the downward-sliding first opening of the push-pull device and to be fixedly arranged inside the first trough body (110), the drainage box (10) is arranged inside the downward-sliding chamber body, the second end (1112) of the drainage chamber body (111) extends out of the downward-sliding second opening of the push-pull device; and
the drainage device (1) further comprises a first one-way valve (20) which is arranged on the first connecting part (310) to control the opening and closing of a communication passageway between the first trough body (110) and the drainage chamber body (111).

2. The drainage device (1) according to claim 1, **characterized in that**, the water blocking device (30) further comprises a second connecting part (320), and the drainage box (10) comprises a second trough body (120), whereby, in the mounted state, the second connecting part (320) penetrates through the downward-sliding first opening of the push-pull device and is fixedly arranged inside the second trough body (120); and
the drainage device (1) further comprises a second one-way valve which is arranged on the second connecting part (320).

3. The drainage device (1) according to claim 1 or 2, **characterized in that**, the first connecting part (310) is arranged inside the first trough body (110), and/or the second connecting part (320) is arranged inside the second trough body (120).

4. The drainage device (1) according to claim 3, **characterized in that**, the first connecting part (310) comprises a first connecting device (330), a second connecting device (331) and a first buffering channel (332), the first connecting device (330) and the second connecting device (331) are respectively arranged on two sides of the first buffering channel (332), and the first connecting device (330), the first buffering channel (332) and the second connecting device (331) allow the first connecting part (310) to have a U-shaped longitudinal section;

the first trough body (110) comprises a first receiving device (1101), a second receiving device (1102) and a first bottom, and the first receiving device (1101), the first bottom and the second receiving device (1102) allow the first trough body (110) to have a U-shaped longitudinal section; and
in the mounted state, the first connecting device (330) is mounted on the first receiving device (1101), and the second connecting device (331) is mounted on the second receiving device (1102), so that the first connecting part (310) is arranged inside the first trough body (110).

5. The drainage device (1) according to claim 4, **characterized in that**, the first one-way valve (20) comprises a clamping part (201) and a cover plate (202); a clamping structure (210) is provided on the first connecting device (330) and the second connecting device (331) of the first connecting part (310), and the clamping part (201) can be rotatably clamped on the clamping structure (210).

6. The drainage device (1) according to claim 4, **characterized in that**, the second connecting part (320) comprises a second buffering channel (334) and a third connecting device (333), the third connecting device (333), the second buffering channel (334) and the second connecting device (331) allow the second connecting part (320) to have a U-shaped longitudinal section;

the second trough body (120) further comprises a third receiving device (1103) and a second bottom, the second receiving device (1102), the second bottom and a third receiving device (1103) allow the second trough body (120) to have a U-shaped longitudinal section; and
in the mounted state, the third connecting device (333) is mounted on the third receiving device (1103), the second connecting device (331) is mounted on the second receiving device (1102), so that the second connecting part (320) is arranged inside the first trough body (120).

7. The drainage device (1) according to claim 6, **characterized in that**, the second one-way valve comprises a clamping part (201) and a cover plate (202); a clamping structure (210) is provided on the second connecting device (331) and the third connecting device (333) of the second connecting part (320), and the clamping part (201) can be rotatably clamped on the clamping structure (210).

8. The drainage device (1) according to claim 5, **characterized in that**, the cover plate (202) is a curved cover plate.

9. The drainage device (1) according to claim 3, **characterized in that**, the first connecting part (310) is hermetically arranged inside the first trough body (110), and/or the second connecting part (320) is hermetically arranged inside the second trough body (120).

10. The drainage device (1) according to claim 1, **characterized in that**, a drainage lid is provided at a second end (1112) of the drainage chamber body (111), and the length of the drainage lid is greater than that

of the downward-sliding second opening of the push-pull device.

Patentansprüche

1. Drainagevorrichtung (1) für eine Druck- und Zugvorrichtung, wobei die Druck- und Zugvorrichtung zwei Druck- und Zugblätter, die einander überlappen und überlappende Teile umfassen, eine abwärts gleitende erste Öffnung, einen abwärts gleitenden Kammerkorpus und eine abwärts gleitende zweite Öffnung umfasst,

   wobei die Drainagevorrichtung (1) einen Drainagekasten (10) umfasst, der Drainagekasten (10) einen Drainagekammerkorpus (111) umfasst, das erste Ende (1111) des Drainagekammerkorpus (111) mit einem zweiten Ende (1112) des Drainagekammerkorpus (111) kommuniziert;
   und wobei die Drainagevorrichtung (1) weiterhin eine Wasserblockierungsvorrichtung (30) umfasst, die Wasserblockierungsvorrichtung (30) ein Wasserblockierungsteil umfasst;
   wobei der Drainagekasten (10) **dadurch gekennzeichnet ist, dass** der Drainagekasten (10) weiterhin einen ersten Wannenkorpus (110) umfasst, der erste Wannenkorpus (110) mit einem ersten Ende (1111) des Drainagekammerkorpus (111) kommuniziert;
   und die Wasserblockierungsvorrichtung (30) weiterhin ein erstes Verbindungsteil (310) umfasst;
   wobei der Drainagekasten (10) so konfiguriert ist, dass im montierten Zustand der Drainagevorrichtung das Wasserblockierungsteil der Wasserblockierungsvorrichtung (30) zwischen überlappenden Teilen der zwei Druck- und Zugblätter der Druck- und Zugvorrichtung angeordnet ist, das erste Verbindungsteil (310) durch die abwärts gleitende erste Öffnung der Druck- und Zugvorrichtung dringt und fest innerhalb des ersten Wannenkorpus (110) angeordnet ist, der Drainagekasten (10) innerhalb des abwärts gleitenden Kammerkorpus angeordnet ist, sich das zweite Ende (1112) des Drainagekammerkorpus (111) aus der abwärts gleitenden zweiten Öffnung der Druck- und Zugvorrichtung heraus erstreckt; und
   die Drainagevorrichtung (1) weiterhin ein erstes Rückschlagventil (20) umfasst, das am ersten Verbindungsteil (310) angeordnet ist, um das Öffnen und Schließen eines Kommunikationsdurchlasses zwischen dem ersten Wannenkorpus (110) und dem Drainagekammerkorpus (111) zu steuern.

2. Drainagevorrichtung (1) gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Wasserblockierungsvorrichtung (30) weiterhin ein zweites Verbindungsteil (320) umfasst und der Drainagekasten (10) einen zweiten Wannenkorpus (120) umfasst, wobei im montierten Zustand das zweite Verbindungsteil (320) durch die abwärts gleitende erste Öffnung der Druck- und Zugvorrichtung dringt und fest innerhalb des zweiten Wannenkorpus (120) angeordnet ist; und
   die Drainagevorrichtung (1) weiterhin ein zweites Rückschlagventil umfasst, das am zweiten Verbindungsteil (320) angeordnet ist.

3. Drainagevorrichtung (1) gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das erste Verbindungsteil (310) innerhalb des ersten Wannenkorpus (110) angeordnet ist und/oder das zweite Verbindungsteil (320) innerhalb des zweiten Wannenkorpus (120) angeordnet ist.

4. Drainagevorrichtung (1) gemäß Anspruch 3, **dadurch gekennzeichnet, dass** das erste Verbindungsteil (310) eine erste Verbindungsvorrichtung (330), eine zweite Verbindungsvorrichtung (331) und einen ersten Pufferkanal (332) umfasst, die erste Verbindungsvorrichtung (330) und die zweite Verbindungsvorrichtung (331) jeweils auf zwei Seiten des ersten Pufferkanals (332) angeordnet sind und die erste Verbindungsvorrichtung (330), der erste Pufferkanal (332) und die zweite Verbindungsvorrichtung (331) ermöglichen, dass das erste Verbindungsteil (310) einen U-förmigen Längsschnitt aufweist;

   der erste Wannenkorpus (110) eine erste Aufnahmevorrichtung (1101), eine zweite Aufnahmevorrichtung (1102) und einen ersten Boden umfasst und die erste Aufnahmevorrichtung (1101), der erste Boden und die zweite Aufnahmevorrichtung (1102) ermöglichen, dass der erste Wannenkorpus (110) einen U-förmigen Längsschnitt aufweist; und
   im montierten Zustand die erste Verbindungsvorrichtung (330) auf der ersten Aufnahmevorrichtung (1101) montiert ist und die zweite Verbindungsvorrichtung (331) auf der zweiten Aufnahmevorrichtung (1102) montiert ist, so dass das erste Verbindungsteil (310) innerhalb des ersten Wannenkorpus (110) angeordnet ist.

5. Drainagevorrichtung (1) gemäß Anspruch 4, **dadurch gekennzeichnet, dass** das erste Rückschlagventil (20) einen Klemmteil (201) und eine Abdeckplatte (202) umfasst; sich eine Klemmstruktur (210) an der ersten Verbindungsvorrichtung (330) und der zweiten Verbindungsvorrichtung (331) des ersten Verbindungsteils (310) befindet; und der

Klemmteil (201) drehbar an die Klemmstruktur (210) geklemmt werden kann.

6. Drainagevorrichtung (1) gemäß Anspruch 4, **dadurch gekennzeichnet, dass** das zweite Verbindungsteil (320) einen zweiten Pufferkanal (334) und eine dritte Verbindungsvorrichtung (333) umfasst, die dritte Verbindungsvorrichtung (333), der zweite Pufferkanal (334) und die zweite Verbindungsvorrichtung (331) ermöglichen, dass das zweite Verbindungsteil (320) einen U-förmigen Längsschnitt aufweist;

der zweite Wannenkorpus (120) weiterhin eine dritte Aufnahmevorrichtung (1103) und einen zweiten Boden umfasst, die zweite Aufnahmevorrichtung (1102), der zweite Boden und eine dritte Aufnahmevorrichtung (1103) ermöglichen, dass der zweite Wannenkorpus (120) einen U-förmigen Längsschnitt aufweist; und
im montierten Zustand die dritte Verbindungsvorrichtung (333) auf der dritten Aufnahmevorrichtung (1103) montiert ist, die zweite Verbindungsvorrichtung (331) auf der zweiten Aufnahmevorrichtung (1102) montiert ist, so dass das zweite Verbindungsteil (320) innerhalb des ersten Wannenkorpus (120) angeordnet ist.

7. Drainagevorrichtung (1) gemäß Anspruch 6, **dadurch gekennzeichnet, dass** das zweite Rückschlagventil einen Klemmteil (201) und eine Abdeckplatte (202) umfasst; sich eine Klemmstruktur (210) an der zweiten Verbindungsvorrichtung (331) und der dritten Verbindungsvorrichtung (333) des zweiten Verbindungsteils (320) befindet; und der Klemmteil (201) drehbar an die Klemmstruktur (210) geklemmt werden kann.

8. Drainagevorrichtung (1) gemäß Anspruch 5, **dadurch gekennzeichnet, dass** die Abdeckplatte (202) eine gekrümmte Abdeckplatte ist.

9. Drainagevorrichtung (1) gemäß Anspruch 3, **dadurch gekennzeichnet, dass** das erste Verbindungsteil (310) hermetisch innerhalb des ersten Wannenkorpus (110) angeordnet ist und/oder das zweite Verbindungsteil (320) hermetisch innerhalb des zweiten Wannenkorpus (120) angeordnet ist.

10. Drainagevorrichtung (1) gemäß Anspruch 1, **dadurch gekennzeichnet, dass** sich ein Drainagedeckel an einem zweiten Ende (1112) des Drainagekammerkorpus (111) befindet und die Länge des Drainagedeckels größer ist als die der abwärts gleitenden zweiten Öffnung der Druck- und Zugvorrichtung.

Revendications

1. Dispositif de drainage (1) pour un dispositif de poussée et de traction, dans lequel ledit dispositif de poussée et de traction comprend deux feuilles de poussée et de traction se chevauchant et comprenant des parties superposées, une première aperture glissant vers le bas, un corps de compartiment glissant vers le bas, et une deuxième aperture glissant vers le bas,

dans lequel ledit dispositif de drainage (1) comprend une boîte de drainage (10), ladite boîte de drainage (10) comprenant un corps de compartiment de drainage (111), la première extrémité (1111) dudit corps de compartiment de drainage (111) étant en communication avec une deuxième extrémité (1112) dudit corps de compartiment de drainage (111),
et dans lequel ledit dispositif de drainage (1) comprend en outre un dispositif de blocage d'eau (30), ledit dispositif de blocage d'eau (30) comprenant une partie de blocage d'eau,
ladite boîte de drainage (10) étant **caractérisée en ce que** ladite boîte de drainage (10) comprend en outre un premier corps de cuve (110), le premier corps de cuve (110) étant en communication avec une première extrémité (1111) dudit corps de compartiment de drainage (111),
et ledit dispositif de blocage d'eau (30) comprend en outre une première partie de connexion (310),
dans lequel ladite boîte de drainage (10) est configurée de manière que, dans l'état monté du dispositif de drainage, ladite partie de blocage d'eau dudit dispositif de blocage d'eau (30) soit arrangée entre des parties superposées desdites deux feuilles de poussée et de traction du dispositif de poussée et de traction, la première partie de connexion (310) pénètre à travers la première aperture glissant vers le bas dudit dispositif de poussée et de traction, et soit arrangée fermement au sein du premier corps de cuve (110), ladite boîte de drainage (10) est arrangée au sein du corps de compartiment glissant vers le bas, la deuxième extrémité (1112) dudit corps de compartiment de drainage (111) s'étend hors de la deuxième aperture glissant vers le bas dudit dispositif de poussée et de traction, et
ledit dispositif de drainage (1) comprend en outre un premier clapet de non-retour (20), qui est arrangé sur la première partie de connexion (310), pour commander l'ouverture et la fermeture d'un passage de communication entre le premier corps de cuve (110) et le corps de compartiment de drainage (111).

2. Dispositif de drainage (1) selon la revendication 1,

caractérisé en ce que ledit dispositif de blocage d'eau (30) comprend en outre une deuxième partie de connexion (320), et ladite boîte de drainage (10) comprend un deuxième corps de cuve (120), dans lequel, dans l'état monté, la deuxième partie de connexion (320) pénètre à travers la première aperture glissant vers le bas dudit dispositif de poussée et de traction, et est fermement arrangée au sein du deuxième corps de cuve (120), et
ledit dispositif de drainage (1) comprend en outre un deuxième clapet de non-retour qui est arrangé sur la deuxième partie de connexion (320).

3. Dispositif de drainage (1) selon la revendication 1 ou 2, **caractérisé en ce que** la première partie de connexion (310) est arrangée au sein du premier corps de cuve (110), et/ou la deuxième partie de connexion (320) est arrangée au sein du deuxième corps de cuve (120).

4. Dispositif de drainage (1) selon la revendication 3, **caractérisé en ce que** la première partie de connexion (310) comprend un premier dispositif de connexion (330), un deuxième dispositif de connexion (331), et un premier canal de tamponnage (332), le premier dispositif de connexion (330) et le deuxième dispositif de connexion (331) sont respectivement arrangés sur deux côtés du premier canal de tamponnage (332), et le premier dispositif de connexion (330), le premier canal de tamponnage (332) et le deuxième dispositif de connexion (331) permettent à la première partie de connexion (310) d'avoir une section longitudinale en "U",

le premier corps de cuve (110) comprend un premier dispositif de réception (1101), un deuxième dispositif de réception (1102) et un premier fond, et le premier dispositif de réception (1101), le premier fond et le deuxième dispositif de réception (1102) permettent au premier corps de cuve (110) d'avoir une section longitudinale en "U", et dans l'état monté, le premier dispositif de connexion (330) est monté sur le premier dispositif de réception (1101), et le deuxième dispositif de connexion (331) est monté sur le deuxième dispositif de réception (1102), de manière que la première partie de connexion (310) soit arrangée au sein du premier corps de cuve (110).

5. Dispositif de drainage (1) selon la revendication 4, **caractérisé en ce que** le premier clapet de non-retour (20) comprend une partie de serrage (201) et une plaque de recouvrement (202), une structure de serrage (210) est procurée sur le premier dispositif de connexion (330) et le deuxième dispositif de connexion (331) de la première partie de connexion (310), et ladite partie de serrage (201) peut être serrée de manière rotative sur la structure de serrage (210).

6. Dispositif de drainage (1) selon la revendication 4, **caractérisé en ce que** la deuxième partie de connexion (320) comprend un deuxième canal de tamponnage (334) et un troisième dispositif de connexion (333), le troisième dispositif de connexion (333), le deuxième canal de tamponnage (334) et le deuxième dispositif de connexion (331) permettent à la deuxième partie de connexion (320) d'avoir une section longitudinale en "U",

le deuxième corps de cuve (120) comprend en outre un troisième dispositif de réception (1103) et un deuxième fond, le deuxième dispositif de réception (1102), le deuxième fond et un troisième dispositif de réception (1103) permettent au deuxième corps de cuve (120) d'avoir une section longitudinale en "U", et
dans l'état monté, le troisième dispositif de connexion (333) est monté sur le troisième dispositif de réception (1103), le deuxième dispositif de connexion (331) est monté sur le deuxième dispositif de réception (1102), de manière que la deuxième partie de connexion (320) soit arrangée au sein du premier corps de cuve (120).

7. Dispositif de drainage (1) selon la revendication 6, **caractérisé en ce que** le deuxième clapet de non-retour comprend une partie de serrage (201) et une plaque de recouvrement (202), une structure de serrage (210) est procurée sur le deuxième dispositif de connexion (331) et le troisième dispositif de connexion (333) de la deuxième partie de connexion (320), et ladite partie de serrage (201) peut être serrée de manière rotative sur la structure de serrage (210).

8. Dispositif de drainage (1) selon la revendication 5, **caractérisé en ce que** ladite plaque de recouvrement (202) est une plaque de recouvrement courbée.

9. Dispositif de drainage (1) selon la revendication 3, **caractérisé en ce que** la première partie de connexion (310) est arrangée hermétiquement au sein du premier corps de cuve (110), et/ou la deuxième partie de connexion (320) est arrangée hermétiquement au sein du deuxième corps de cuve (120).

10. Dispositif de drainage (1) selon la revendication 1, **caractérisé en ce que** un couvercle de drainage est procuré à une deuxième extrémité (1112) dudit corps de compartiment de drainage (111), et la longueur du couvercle de drainage est supérieure à celle de la deuxième aperture glissant vers le bas dudit dispositif de poussée et de traction.

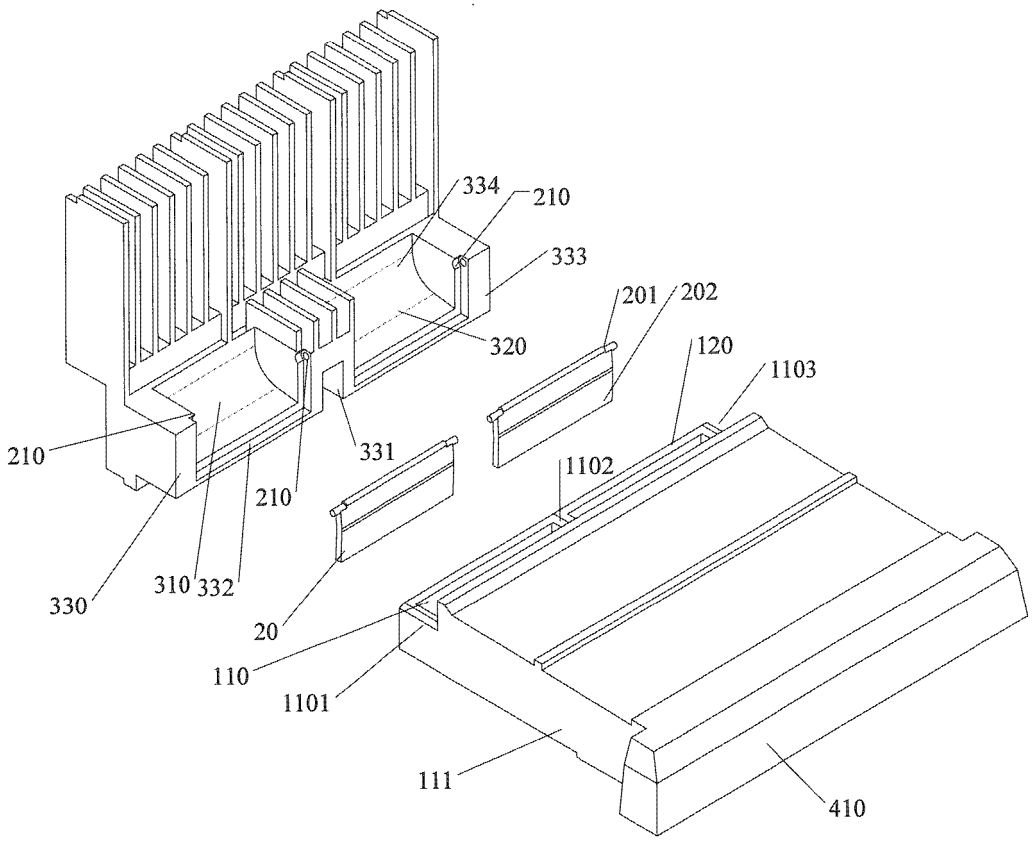
334
210
333
201
202
320
120
1103
210
331
1102
210
330
310
332
20
110
1101
111
410

Figure 1

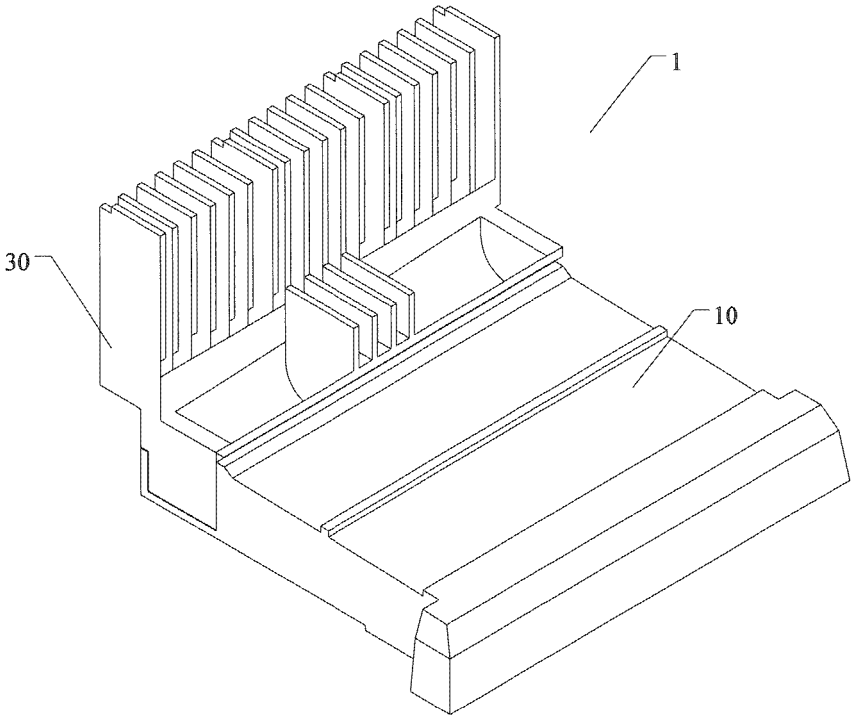

Figure 2

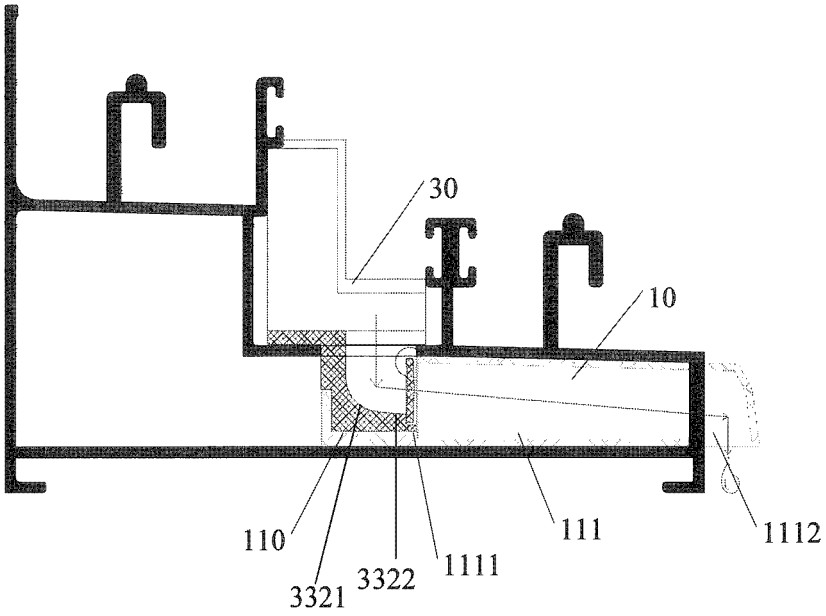

Figure 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP S5224745 B **[0002]**
- CN 201621343 U **[0002]**
- CN 2665325 Y **[0002]**