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(54) **Creeping device of movable frog**

Antrieb für bewegliches Herzstück

Dispositif pour entraîner un coeur de croisement à pointe mobile

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(56) References cited:
**EP-A2- 0 480 303 WO-A1-03/091501
WO-A1-2011/124738 AT-B- 411 350
GB-A- 482 477**

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Description

Technical Field

[0001] The technical solution concerns the creeping device of the movable frog toe in its end positions.

Contemporary State of the Art

[0002] Up to now, the mechanical vertical and horizontal creeping of the movable frog toe has not been solved. There is known a vertical creeping of the movable toe using a hydraulic device and its disadvantage including the power source necessity. More, another device must be used for horizontal creeping of the movable frogs toe. For this purpose there are used the spring creeping chairs originally designed for creeping the tongues of switches. The device creeps the movable toe of the switches in one direction only and there is also another disadvantage, when during the proper transfer of the movable tongue of the switch, the resistance power must exceed the proper functional creeping power.

[0003] The document EP 0 480 303 A2 discloses a switching device of a movable toe of frogs, wherein it consists of a common intermediate connecting block connected via a link with the movable toe of the frog. The document provides a locking arrangement without the effect of pushing the toe against the wing rails.

Technical Solution Base

[0004] The task of the technical solution is to create a creeping device that is as simple as possible, pushing the movable frog toe in vertical and horizontal direction and allowing pressure regulation. This can be reached to a significant extent by the creeping device of the movable frogs toe according to the technical solution as defined by claim 1. It is mainly based on the fact that it consists of a carriage connected via a tenon with the movable frog toe and pushed by a spring with its wheels to the cam route on the bottom side of the board, fixed detachably from below to the wing rails.

[0005] In consideration of the adherence pressure regulation acting on the carriage in the direction of the cam route it is advantageous for the spring to be slipped on the tenon, with one end falling back on the carriage and the other end falling back on the adjustment nut, secured by another nut.

[0006] In consideration of exact horizontal position setting of the board with the can route it is advantageous for the board to house adjustment screws falling back on the wing rails.

Drawings Explanation

[0007] The technical solution will be explained in detail using a drawing, showing in Fig. 1 the creeping device in cross section and in Fig. 2 the creeping device in partial

section with bottom view.

Technical Solution Sample Description

[0008] As it can be seen in Fig. 1, the creeping device consists of the carriage 4, kinematically connected via a tenon 5, which is detachably connected by screws 15 with the movable toe 2 of the frog 12. The carriage 4 is pushed with the wheels 41 to the cam route 3, developed on the bottom side of the board 9 equipped with a hole 91 for passage of the tenon 5. The board 9 is detachably connected from the bottom with screws 92 to the wing rails 1 and the toe 2 of the frog 12 moves between them.

[0009] In horizontal direction, the board 9 is adjustable using adjustment screws 31. The pressure of the wheels 41 of the carriage 4 to the cam route 3 is reached using the spring 6 slipped on the tenon 5 and falling back with one end on the carriage 4 and the other end on the adjustment nut 7 screwed on the tenon 5 and secured with a counter-nut 8.

[0010] The carriage 4 has only two wheels 41, placed on the carriage 4 in bearings 42 slipped on the axes 43.

[0011] The above described creeping device of the toe 2 of the frog 12 is advantageously installed on not-shown switch, next to also not-shown idler.

[0012] When moving the movable toe 2 of the frog 12, the carriage 4 moves on the cam route 3 from one reversal point to another, while in reversal points the wheels 41 of the carriage 4 fit - as it can be seen in Fig. 1 - the ascending part of the cam route 3, which distributes the power of the spring 6 to horizontal part Fx and vertical part Fy, creeping the toe 2 of the frog 12 in horizontal and vertical direction to the appropriate wing rail 1.

Claims

1. Creeping device of a movable toe of frogs, wherein it consists of a carriage (4) connected via a tenon (5) with the movable toe (2) of the frog (12) **characterised by** that the carriage (4) is pushed by a spring (6) with the wheels (41) to the cam route (3) on a bottom side of the board (9) detachably connected from the bottom to wing rails (1).
2. Creeping device according to claim 1, **characterised by** the fact that the spring (6) is slipped on the tenon (5) and it is falling back on the carriage (4) with one end and falling back on an adjustment nut (7) secured by another nut (8) with the other end.
3. Creeping device according to claim 1 or 1 and 2, **characterised by** the fact that the board (9) houses two adjustment screws (31) falling back on the wing rails (1).

Patentansprüche

1. Andrücksvorrichtung der beweglichen Spitze der Herzstücke, die aus einem Wagen (4) besteht, welcher mittels eines Mitnehmers (5) mit der beweglichen Spitze (2) des Herzstückes (12) verbunden ist, **gekennzeichnet dadurch, dass** der Wagen (4) mittels einer Feder (6) von den Rädern (41) an die Nockenbahn (3) auf der unteren Seite der Platte (9) angepresst wird, welche lösbar von unten zu den Flügelschienen (1) befestigt ist. 5
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2. Andrücksvorrichtung nach Anspruch 1, **gekennzeichnet dadurch, dass** die Feder (6) auf dem Mitnehmer (5) eingefädelt ist und mit einem Ende an den Wagen (4) angelehnt ist und mit dem anderen Ende an die mit einer anderen Nut (8) abgesicherte Einrichtungsnut (7). 15
3. Andrücksvorrichtung nach Anspruch 1 oder 2, **gekennzeichnet dadurch, dass** auf der Platte (9) zwei an die Flügelschienen (1) angelehnte Einrichtungsbolzen (31) angeordnet sind. 20

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Revendications

1. Dispositif de glissement d'une pointe mobile du coeur comprenant un chariot (4) associé par l'intermédiaire d'un tenon (5) à la pointe mobile (2) du coeur (12), **caractérisé en ce que** ledit chariot (4) est appuyé par l'intermédiaire d'un ressort (6) au moyen de roues (41) contre une piste de came (3) sur la face inférieure d'un plateau (9) assemblé de façon amovible de dessous aux pattes-de-lièvre (1). 30
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2. Dispositif de glissement selon la revendication 1, **caractérisé en ce que** le ressort (6) est enfilé sur le tenon (5) et appuyé par l'une de ses extrémités contre le chariot (4) et par l'autre de ses extrémités contre un écrou de réglage (7) sécurisé par un autre écrou (8). 40
3. Dispositif de glissement selon la revendication 1 ou 1 et 2, **caractérisé en ce que** le plateau (9) reçoit deux vis d'ajustage (31) appuyées contre les pattes-de-lièvre (1). 45

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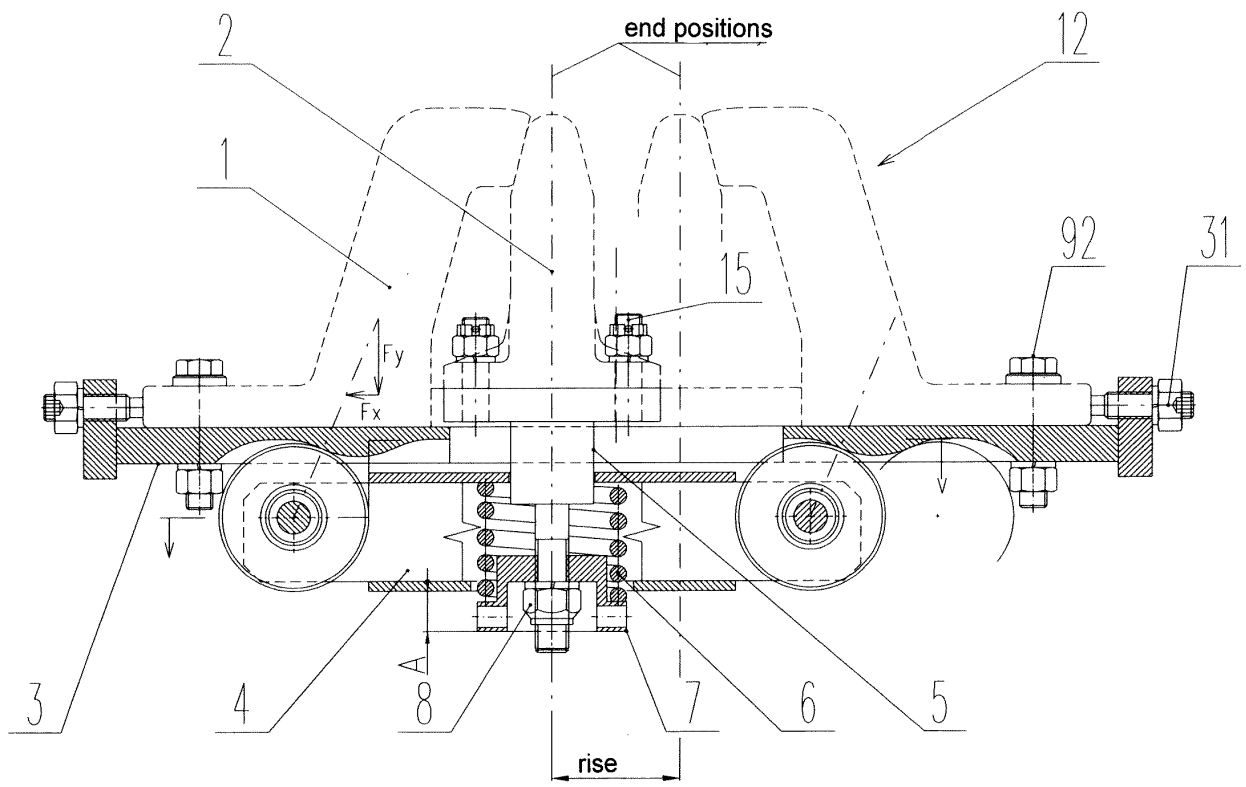


Fig. 1

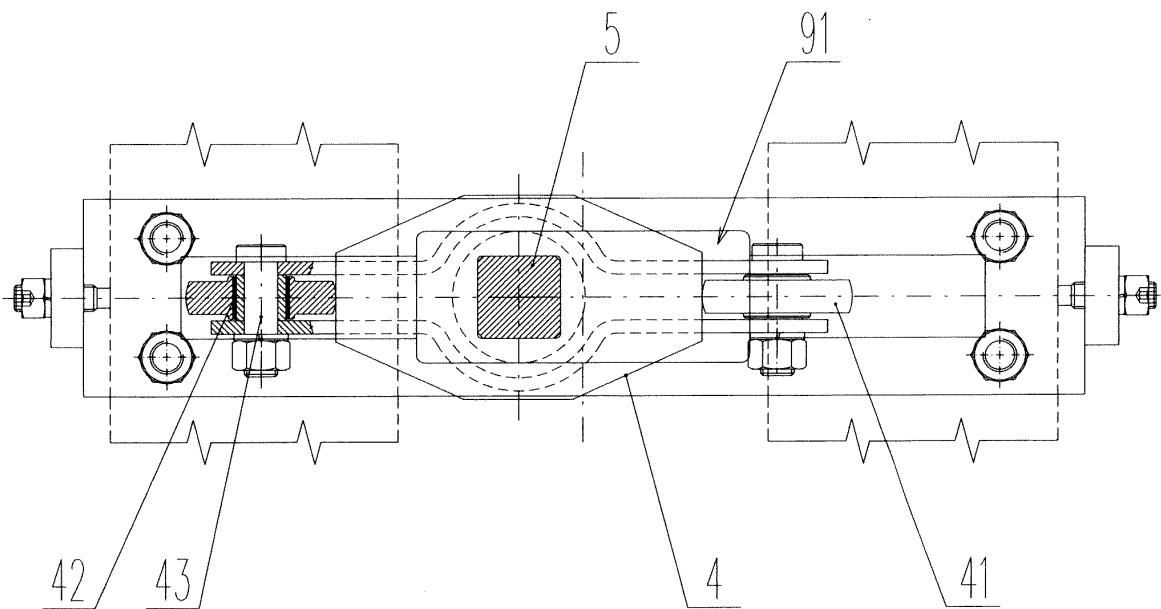


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0480303 A2 [0003]