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(54) GYMNASTIC MACHINE HAVING A CLOSED CIRCUIT SLIDING BELT PROVIDED WITH SECURITY ELEMENTS

(57) The present invention relates to a gymnastic machine (1) comprising a base structure (2) comprising a first (21) and a second (22) longitudinal member, a sliding belt (3), on which a user can perform a gymnastic exercise, arranged between said first (21) and second (22) longitudinal member, configured for rotating according to a sliding direction (X) and comprising a plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) arranged side by side according to a transversal direction (Y) to said sliding direction (X) and hinged to one other, said gymnastic machine (1) being characterized in that at least one slat (31k) of said plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) is provided with at least one security element (4, 4', 4").

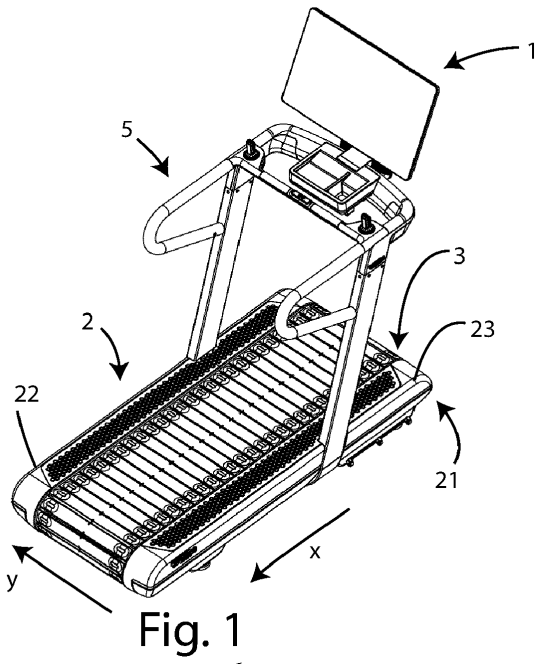

Fig. 1

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Description

[0001] The present invention relates to a gymnastic machine having a closed circuit sliding belt provided with security elements.

[0002] More in detail, the invention relates to a closed-circuit sliding belt gymnastic machine of the type comprising a plurality of slats arranged transversely with respect to the running direction of the belt itself, and which forms an exercise surface that allows the user to perform gymnastic workouts, such as running, walking and the like, equipped with safety elements.

[0003] In these gymnastic machines, as soon as the user activates the machine to perform the gymnastic workout, the sliding belt is automatically moved by an electric motor, and therefore the user must adapt his walk or run according to the sliding speed of the sliding belt.

[0004] In the following, the description will be directed to a sliding belt machine with slats for the execution of running and walking workouts, but it is clear that it should not be considered limited to this specific use.

[0005] As it is well known, there are currently gymnastic machines with sliding belt with slats, or also commonly known as "roller shutter" machines comprising electric motors, which rotate the sliding belt for the execution of a gymnastic exercise or training program.

[0006] As is known, the sliding belts of gymnastic machines on the market comprise slats, provided with a continuous and flat surface and are coupled to the base structure, occupying a part thereof, the remaining part of the base structure is occupied by the frame of the base structure itself.

[0007] A disadvantage of known machines is represented by the fact that if a user distracts the attention during a gymnastic workout or encounters a problem in the execution of the same, he can mistakenly place a foot outside the area of the base structure occupied by the sliding belt, for example on the frame of the base structure, while the remaining foot rests on the moving belt.

[0008] This can obviously cause an accidental fall of the user from the gymnastic machine, with consequent physical damage to the user.

[0009] In the light of the above, it is therefore an object of the present invention to provide a gymnastic machine with a sliding belt with slats provided with safety elements for the user who performs the gymnastic exercise on the machine.

[0010] A further object of the present invention is to provide a gymnastic machine with a sliding belt with slats provided with safety elements for the user placed close to an operating gymnastic machine.

[0011] In is therefore specific object of the present invention a gymnastic machine comprising a base structure comprising a first and a second longitudinal member, a sliding belt, on which a user can perform a gymnastic exercise, arranged between said first and second longitudinal member, configured for rotating according to a sliding direction and comprising a plurality of slats arranged side by side according to a transversal direction to said sliding direction and hinged to one other, said gymnastic machine being characterized in that at least one slat of said plurality of slats is provided with at least one security element.

[0012] Further according to the invention, said at least one slat comprises a first end and a second end, and said at least one security element is arranged in correspondence of said first or said second end.

[0013] Preferably according to the invention, said at least one slat is provided with a security element arranged in correspondence of said first end and a security element arranged in correspondence of said second end.

[0014] Still according to the invention, two or more slats of said plurality of slats are provided with at least one security element.

[0015] Further according to the invention, each slat of said plurality of slats is provided with at least one security element.

[0016] Preferably according to the invention, each slat of said plurality of slats is provided with one security element arranged in correspondence of said first end and a security element arranged in correspondence of said second end.

[0017] Still according to the invention, said security element is a relief made on said slat.

[0018] Further according to the invention, said security element is a thickening of the slat structure.

[0019] Preferably according to the invention, said security element is a plate connectable to said slat.

[0020] Still according to the invention, said plate has an L-shape.

[0021] The present invention will be now described, for illustrative but not limitative purposes, according to its preferred embodiments, with particular reference to the figures of the enclosed drawings, wherein:

figure 1 illustrates a side perspective view of the closed-circuit sliding belt gymnastic machine provided with safety elements, object of the present invention;

figure 2 illustrates a side perspective view of a portion of the base structure of the gymnastic machine of figure 1;

figure 3 illustrates a side perspective view of a component included in the basic structure of the gymnastic machine of figure 1;

figure 4 illustrates a sectional front view, according to a plane orthogonal to the base structure, of the component of figure 3;

figure 5 illustrates a front view of the component of figure 3;

figure 6a illustrates a section along an axis AA of the component shown in figure 5;

figure 6b illustrates a section along an axis BB of the component shown in figure 5;

figure 7 illustrates a side perspective view of the gym-

nastic machine in a second embodiment of the closed-circuit sliding belt provided with safety elements, object of the present invention;

figure 8 illustrates a side perspective view of a portion of the base structure of the gymnastic machine of figure 7;

figure 9 illustrates a side perspective view of a component included in the basic structure of the gymnastic machine of figure 7;

figure 10 illustrates a section view, according to a plane orthogonal to the base structure, of the component of figure 9;

figure 11 illustrates a further front view of the component of figure 9;

figure 12a illustrates a section along an axis AA of the component shown in figure 11;

figure 12b illustrates a section along an axis BB of the component shown in figure 11;

figure 13 illustrates a side perspective view of a sliding belt according to a third embodiment, object of the present invention;

figure 14a illustrates a perspective view of a portion of the sliding belt shown in figure 13;

figure 14b illustrates a perspective view of a further portion of the sliding belt shown in figure 13;

figure 15 illustrates a perspective view of another portion of the sliding belt shown in figure 13; and

figure 16 illustrates an exploded view of the portion of the sliding belt shown in figure 15.

[0022] In the various figures, similar parts will be indicated with the same numerical references.

[0023] With reference to figures 1-6b, the closed-circuit sliding belt gymnastic machine 1 provided with safety elements object of the present invention is shown.

[0024] Said gymnastic machine 1 essentially comprises a base structure 2, having a frame 21, comprising a first side member 22 and a second longitudinal member 23, parallel to each other, between which a sliding belt 3 is mounted, which is moved, according to a sliding direction indicated by X.

[0025] The gymnastic machine 1 also comprises a support structure 5, coupled to said base structure 2, used by the user during the ascent and the descent from the sliding belt 3, and in some moments, also as a support during the exercise.

[0026] Said sliding belt 3 is of the type also called "roller shutter-belt", due to the conformation of the operating surface, comprising a plurality of slats 31_a, 31_b, ..., 31_k, ... 31_n side by side, one next to the other according to a direction Y, transverse to the sliding direction X of said sliding belt 3, and articulated to each other.

[0027] Each slat 31_k of said sliding belt 3 is placed on, and fixed to the sides of two belts arranged below said slats, connected to the electric motor, not shown in the figure.

[0028] Each slat 31_k has an elongated shape, i.e., it has a prevalent dimension that extends along said Y-axis, and comprises a first end 311_k and a second end 312_k, opposite said first end 311_k.

[0029] At least one slat 31_k of said plurality of slats 31_a, 31_b, ..., 31_k, ... 31_n is provided with at least one safety element 4.

[0030] Said safety element is arranged in correspondence with said first end 311_k or said second end 312_k.

[0031] Without departing from the scope of protection of the present invention, it is also possible that at least one slat 31_k is provided with a safety element 4, arranged in correspondence with said first end 311_k, and with a safety element 4, arranged in correspondence with said second end 312_k.

[0032] However, to ensure the safety of a user who moves away from the central portion of said sliding belt 3, with the risk of inadvertently placing a foot on the frame 21 of said gymnastic machine 1, it is preferable that each slat 31_k of said plurality of slats 31_a, 31_b, ..., 31_k, ... 31_n is provided with a safety element 4, arranged in correspondence with said first end 311_k, and with a safety element 4, arranged in correspondence with said second end 312_k.

[0033] In a first embodiment, said safety element 4 is a relief.

[0034] Said relief 4 is made on each slat 31_k, in particular at one end of said slat 31_k.

[0035] In particular, the preferred configuration provides for the realization of a relief 4 in correspondence with said first end 311_k, and a relief 4 in correspondence with said second end 312_k of said slat 31_k.

[0036] In this way, if during the performance of the gymnastic workout the user places a foot on a relief 4, he perceives that he is running in proximity to the frame 21 of the gymnastic machine 1 and can therefore rearrange himself in the central area of the sliding belt 3.

[0037] In this way, the user avoids the risk of inadvertently placing a foot on the frame 21 of said gymnastic machine 1 during the workout, risking an injury.

[0038] Referring now to figures 7-12b, in a second embodiment said safety element 4' is a thickening of the structure of the slat 31_k.

[0039] In particular, only one end, or both ends of one or all of the plurality of slats 31_a, 31_b, ..., 31_k, ... 31_n, has a thickening in the structure of the slat 31_k which performs the same task of said relief 4 described above.

[0040] Both said relief 4 and said thickening 4' can be realized in each slat 31_n using a suitable "negative" form in the mold used to make the slat 31_n itself.

[0041] Each slat 31_n comprises an aluminum part 41, 41', which is the structural part, and a rubber part 42, 42', which is the running surface, with specific damping, friction, and the like characteristics.

[0042] Each slat 31_n can be obtained by co-injection molding or compression of rubber compound in order to obtain the rubber part 42, 42', which is vulcanized on the aluminum support 41, 41'.

[0043] Referring now to figures 13-16, in a third embodiment, said safety element 4" is a plate.

[0044] In particular, said plate 4" is L-shaped and is fixed to said slat 31_k by means of fixing means or by means of shape couplings or by gluing.

[0045] In particular, said plate 4" can be fixed in correspondence with at least one end of at least one slat 31_k.

[0046] Or said plate 4" can be fixed in correspondence with at least one end of two or more slats 31_k.

[0047] Or said plate 4" can be fixed at both said first 311_k and second 312_k ends of at least one slat 31_k.

[0048] Or said plate 4" can be fixed at both said first 311_k and second 312_k ends of each slat 31_k.

[0049] Finally, if N is the maximum number of slats 31_k, said plate 4" can be fixed at both the first 311_k and second 312_k ends of N-1 slats 31_k.

[0050] Said plate 4" can be made of any material and in a color different from the color of the slats 31_k, so as to be visible to a user who comes closer to the gymnastic machine 1 while operating.

[0051] Said material can also be fluorescent or luminescent, to be visible in poor visibility conditions.

[0052] It is also possible to provide a sliding belt 3 provided both with said reliefs 4 and with said plates 4".

[0053] Furthermore, it is also possible to provide a sliding belt 3, provided with both said thickenings 4' and said plates 4".

[0054] The operation of the closed-circuit sliding belt gymnastic machine 1 provided with safety elements described above is as follows.

[0055] When a user wishes to carry out a running or walking gymnastic workout, he accesses said gymnastic machine 1 by positioning himself on said sliding belt 3, possibly in the central region of the latter.

[0056] According to the type of workout selected, the sliding belt 3 moves according to said sliding direction X.

[0057] If during the performance of a gymnastic exercise, the user places his foot on said safety element 4, he perceives that he is running in the proximity of the frame 21, in particular of the longitudinal members 22 and 23 of the gymnastic machine 1.

[0058] In this way, the user can correct his position, placing himself again in the central area of the sliding belt 3.

[0059] In this way, the user avoids the risk of inadvertently placing a foot on the frame 21 of said gymnastic machine 1 during the workout, risking an injury.

[0060] The operation of the gymnastic machine 1 is also unchanged for the safety element 4' of the second embodiment and for the safety element 4" of the third embodiment.

[0061] In particular, when the safety element 4" of the third embodiment is used, a further advantage is achieved.

[0062] In fact, since said plate 4" is visible at distance, if the sliding belt 3 is in motion, a user who is coming closer to the gymnastic machine 1 perceives that the belt 3 is moving thanks to the presence of the plate 4", and does not incur in the risk of getting on a running belt 3.

[0063] As is evident from the above description, said closed-circuit sliding belt gymnastic machine provided with safety elements, allows a user to reposition himself correctly on the sliding belt during the performance of a workout, should he perceive its proximity to the frame of the machine.

[0064] Furthermore, the safety elements allow a belt to be perceived from a distance, allowing a user to avoid the risk of getting on while the belt is moving.

[0065] The present invention has been described for illustrative but not limitative purposes, according to its preferred embodiments, but it is to be understood that modifications and/or changes can be introduced by those skilled in the art without departing from the relevant scope as defined in the enclosed claims.

Claims

1. Gymnastic machine (1) comprising
a base structure (2) comprising a first (21) and a second (22) longitudinal member,
a sliding belt (3), on which a user can perform a gymnastic exercise, arranged between said first (21) and second (22) longitudinal member, configured for rotating according to a sliding direction (X) and comprising a plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) arranged side by side according to a transversal direction (Y) to said sliding direction (X) and hinged to one other, said gymnastic machine (1) being **characterized in that** at least one slat (31k) of said plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) is provided with at least one security element (4, 4', 4").

2. Gymnastic machine (1) according to the preceding claim, **characterized**
in that said at least one slat (31_k) comprises a first end (311_k) and a second end (312_k), and
in that said at least one security element (4, 4', 4") is arranged in correspondence of said first (311_k) or said second (312_k) end.

3. Gymnastic machine (1) according to the preceding claim, **characterized in that** said at least one slat (31k) is provided with a security element (4, 4', 4") arranged in correspondence of said first end (311_k) and a security element (4, 4', 4") arranged in correspondence of said second end (312_k).

4. Gymnastic machine (1) according to any one of the preceding claims, **characterized in that** two or more slats of said plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) are provided with at least one security element (4, 4', 4").

5. Gymnastic machine (1) according to any one of the preceding claims, **characterized in that** each slat (31_k) of said plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) is provided with at least one security element

(4, 4', 4").

6. Gymnastic machine (1) according to any one of said claims 2-5, **characterized in that** each slat (31_k) of said plurality of slats (31_a, 31_b, ..., 31_k, ... 31_n) is provided with one security element (4, 4', 4") arranged in correspondence of said first end (311_k) and a security element (4, 4', 4") arranged in correspondence of said second end (312_k).

7. Gymnastic machine (1) according to any one of said preceding claims, **characterized in that** said security element (4) is a relief made on said slat (31k).

8. Gymnastic machine (1) according to any one of said claims 1-6, **characterized in that** said security element (4') is a thickening of the slat structure (31k).

9. Gymnastic machine (1) according to any one of said claims 1-6, **characterized in that** said security element (4") is a plate connectable to said slat (31k).

10. Gymnastic machine (1) according to the preceding claim, **characterized in that** said plate (4") has an L-shape.

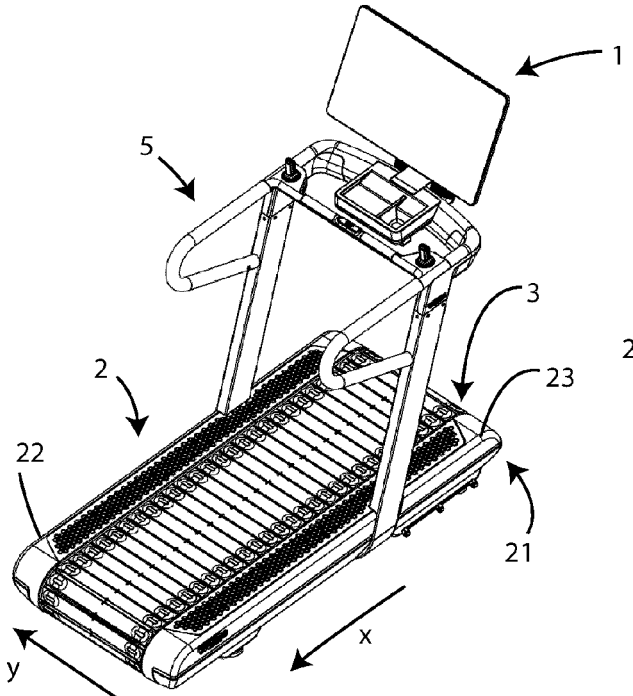

Fig. 1

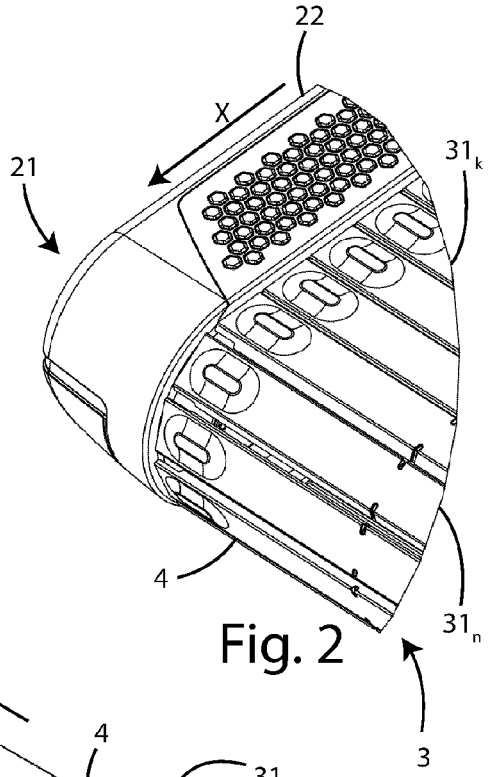

Fig. 2

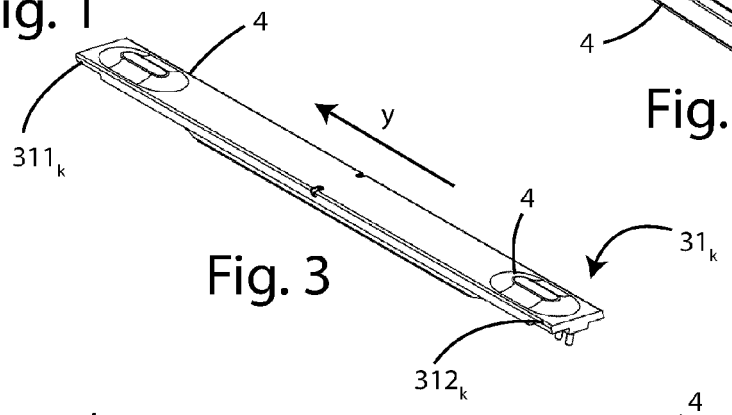

Fig. 3

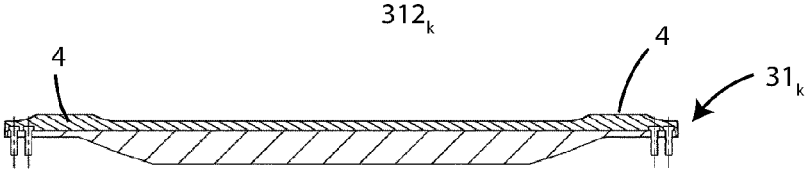

Fig. 4

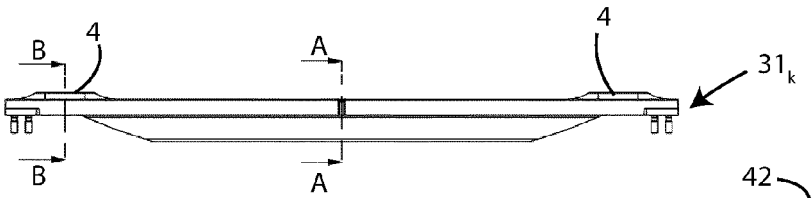

Fig. 5

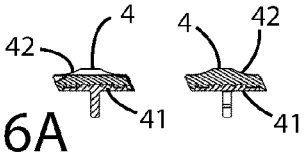

Fig. 6A
Sez. A-A

Fig. 6B
Sez. B-B

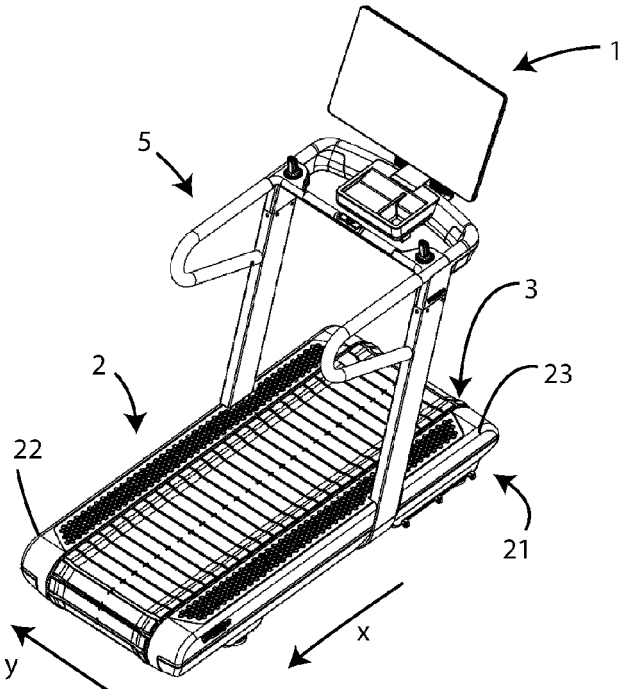

Fig. 7

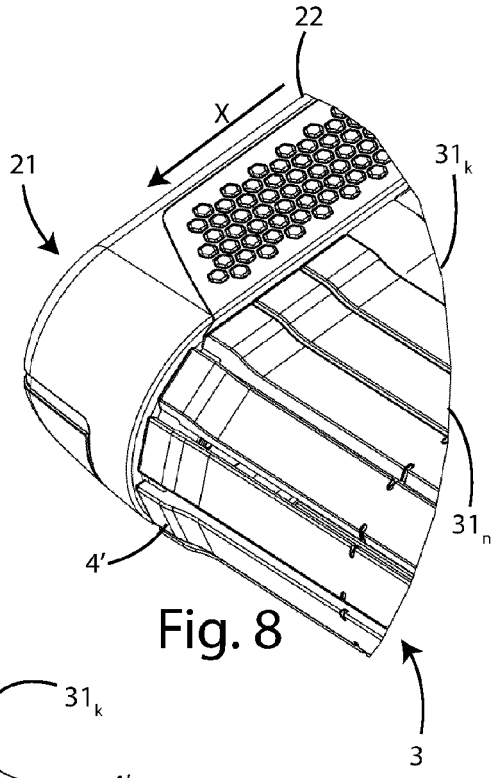

Fig. 8

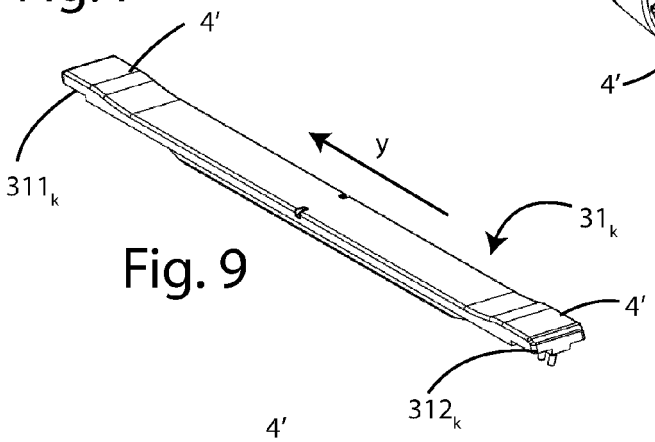

Fig. 9

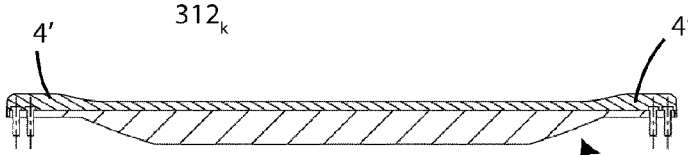

Fig. 10

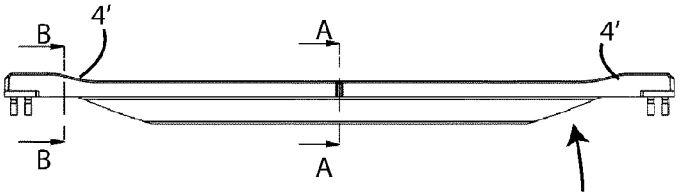

Fig. 11

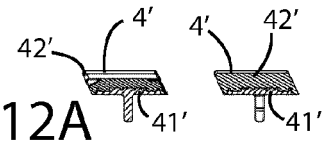

Fig. 12A
Sez. A-A

Fig. 12B
Sez. B-B

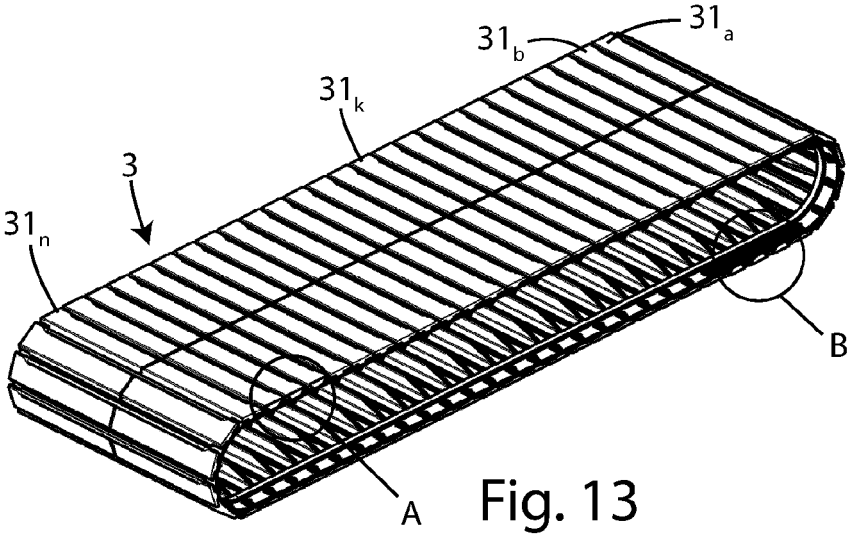

Fig. 13

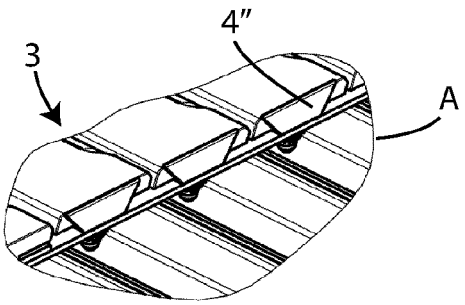

Fig. 14a

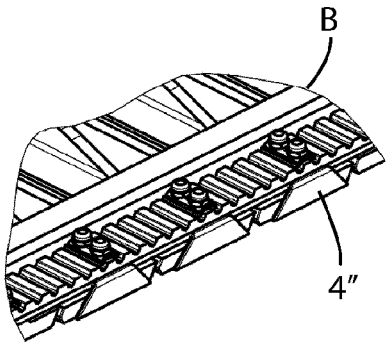

Fig. 14b

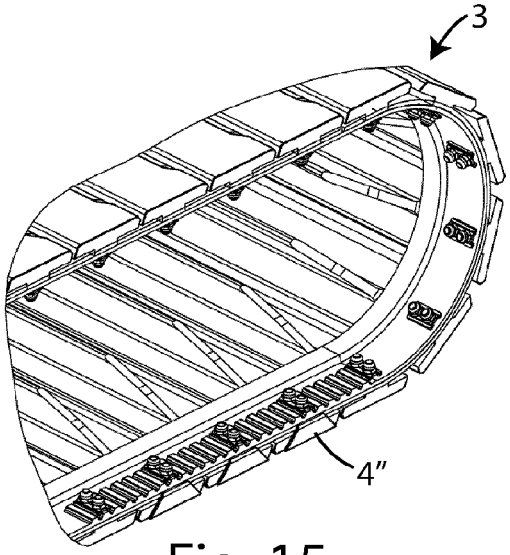

Fig. 15

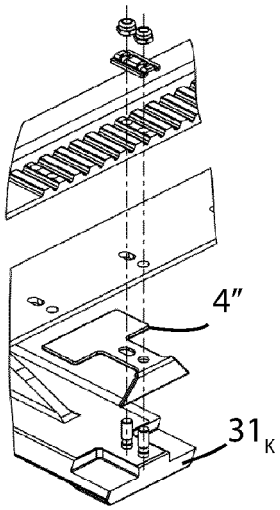

Fig. 16

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EUROPEAN SEARCH REPORT

Application Number
EP 21 15 6721

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2018/126249 A1 (CONSIGLIO JOHN [US] ET AL) 10 May 2018 (2018-05-10) * paragraph [0080]; figures 1-40 *	1-10	INV. A63B22/02 A63B71/06
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X	KR 102 062 492 B1 (JANG BO YONG [KR]) 3 January 2020 (2020-01-03) * paragraph [0017] - paragraph [0081]; figures 1-11 *	1-6,8,9	
X	EP 2 977 086 A1 (TECHNOGYM SPA [IT]) 27 January 2016 (2016-01-27) * paragraph [0026] - paragraph [0034]; figure 1 *	1-9	
X	US 2018/104534 A1 (ERKELENZ BERND [DE] ET AL) 19 April 2018 (2018-04-19) * paragraph [0026]; figures 1-7 *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC) A63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	29 June 2021	Jekabsons, Armands

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

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