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(54) Cradle

(57) This invention relates to a cradle (10) for a building structure (11), the cradle (10) comprising a workstation (12), means (13) for moving the workstation, at least one attachment member (14) capable of attaching the workstation (12) to at least one substantially vertical track (16) and at least one guide member (18) capable of guiding the workstation (17) relative to at least one substantially vertical track (16) when the workstation (12) is moved. The invention also relates to a cradle system, a method of maintaining or carrying out remedial work on a building structure and a building having a cradle system.

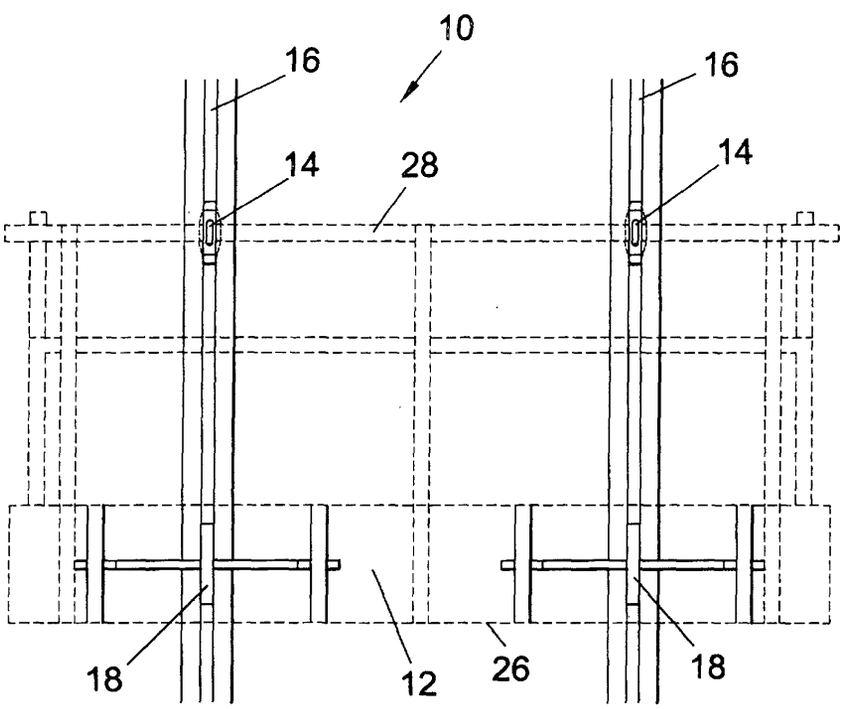

Fig. 1

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Description

FIELD OF INVENTION

[0001] This invention relates to a cradle for a building structure. In particular, though not exclusively, this invention relates to a cradle for a building structure which allows maintenance or remedial work to be undertaken to be carried out.

BACKGROUND TO INVENTION

[0002] Previous systems to provide a cradle such as a temporary cradle to perform maintenance or the like on a building have suffered from not being secured properly to the building and therefore tending to sway in the wind. This is unsatisfactory as it does not provide a stable workstation for persons to work on. Furthermore, there is a tendency for the temporary workstation to "knock" against the building which may cause damage to an outer surface or cladding of the building.

[0003] Temporary cradles differ from permanent cradles in that they can be detached from a building and even attached to another. As there is no need for a permanent cradle construction on every building, there is therefore a substantial cost saving if temporary cradles can be used.

[0004] It is an object of at least one aspect of the present invention to obviate or at least mitigate one or more of the aforementioned problems.

[0005] It is a further object of the present invention to provide a temporary cradle which is securely attachable to a building and does not tend to sway in the wind.

[0006] It is a yet further object of the present invention to provide a temporary cradle which is relatively quick and easy to instal.

SUMMARY OF INVENTION

[0007] According to a first aspect of the present invention there is provided a cradle for a building structure, the cradle comprising:

a workstation;
at least one attachment member capable of attaching the workstation to at least one substantially vertical track; and
at least one guide member capable of guiding the workstation relative to at least one substantially vertical track when the workstation is moved.

[0008] Preferably, at least part of the/each at least one attachment member is capable of being releasably retained in an at least one substantially vertical track.

[0009] Preferably, the at least one attachment member ("shoe") is capable of releasably attaching the workstation to an at least one substantially vertical track. In this way a "temporary" cradle may be provided.

[0010] Preferably, at least one of the at least one attachment members and at least one of the at least one guide members respectively attach the workstation and guide the workstation relative to a same at least one substantially vertically mounted track.

[0011] Preferably, at least one guide member is provided below at least one attachment member.

[0012] Preferably, there are provided two guide members and two attachment members.

[0013] Preferably, the workstation comprises a platform preferably comprising a floor and guard rails there around.

[0014] Preferably, the guide member is a wheel rotatably mounted relative to the workstation.

[0015] Preferably, the/each wheel is rotatably mounted on a respective frame member extending from a side of the workstation.

[0016] Preferably, the at least one attachment member is attached to the workstation by a non-rigid member.

[0017] Preferably, the non-rigid member is a flexible member such as a belt, e.g. a nylon belt, which may be tied or otherwise attached to a portion of the workstation and to an eye of the attachment member.

[0018] According to a second aspect of the present invention there is provided a cradle system comprising:-

a cradle comprising:

a workstation;
means for moving the workstation;
at least one attachment member capable of attaching the workstation to at least one substantially vertical track; and
at least one guide member capable of guiding the workstation relative to at least one substantially vertical track when the workstation is moved; the cradle system further comprising at least one substantially vertically mountable track.

[0019] Preferably, the means for moving the workstation comprises a hoist and an associated cable(s) depending from the workstation.

[0020] Preferably, the track(s) are substantially vertically mounted on a building structure.

[0021] Preferably, the/each track has a substantially T-shaped slot, a base of the T-shaped slot being at a surface of the/each track.

[0022] Preferably, the at least one attachment member is capable of being releasably retained in a track.

[0023] Preferably, the at least one attachment member is provided at least partly within the substantially T-shaped track.

[0024] Preferably, the at least one attachment member may be received within a substantially T-shaped track by inserting the attachment member in a first orientation into the track and then turning the attachment

member to a second orientation, e.g. through 90°.

[0025] Alternatively, the at least one attachment member may be inserted into a track at a bottom or top of the track.

[0026] Preferably, the/each at least one attachment member is engagingly received within an innermost part of a substantially T-shaped track.

[0027] Preferably, adjacent tracks are in substantially parallel spaced relation, and preferably are spaced by around 11m.

[0028] Preferably, the workstation is around 12m in width.

[0029] According to a third aspect of the present invention there is provided a method of maintaining or carrying out remedial work upon a building structure comprising the steps of:

(a) providing a cradle system, the cradle system comprising:-

a cradle comprising:

a workstation;
at least one attachment member capable of attaching the workstation to at least one substantially vertical track; and
at least one guide member capable of guiding the workstation relative to at least one substantially vertical track when the workstation is moved; the cradle system further comprising:

means for moving the workstation; and
at least one substantially vertical mountable track; and

(b) installing said cradle system on said building structure.

[0030] The cradle may be selectively moved, e.g. to clean windows and/or repair or replace cladding on an outer surface of the building structure.

[0031] According to a fourth aspect of the present invention there is provided a building having at least one substantially vertical track.

[0032] The track(s) may be temporarily (i.e. removably) mounted relative to the building structure, e.g. using substantially flat tiles on the building.

[0033] Alternatively, the/each track may be formed in the building e.g. during its initial construction, such as in cladding of the building.

[0034] Preferably, the building has an outer cladding system. More preferably, the outer cladding is formed from pre-fabricated tiles. It is further preferred that at least a portion of the tracks are formed in the tiles.

[0035] According to a fifth aspect of the present invention there is provided a building having a cradle system, the cradle system comprising:-

a cradle comprising:

a workstation;
at least one attachment member capable of attaching the workstation to at least one substantially vertical track; and
at least one guide member capable of guiding the workstation relative to at least one substantially vertical track when the workstation is moved;
means for moving the workstation;
the cradle system further comprising at least one substantially vertical mountable track.

[0036] Preferably, the building has an outer cladding. More preferably, the outer cladding is formed from prefabricated tiles. It is further preferred if the tracks are formed in the tiles.

BRIEF DESCRIPTION OF DRAWINGS

[0037] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a front sectional view of a cradle system according to an embodiment of the present invention;
Figure 2 is a side sectional view of the cradle system shown in Figure 1;
Figure 3 is a perspective view of two tracks, two guide members and two attachment members forming parts of the cradle system shown in Figures 1 and 2;
Figure 4 is a side sectional view of an attachment means shown in Figure 3;
Figure 5 is a bottom view of the attachment means shown in Figure 4;
Figure 6 is an end view of the attachment means shown in Figure 4;
Figure 7 is a perspective view of one of the guide members shown in Figures 1, 2, and 3;
Figure 8 is a perspective view of one of the guide members shown in Figures 1, 2, 3, and 7 attached to a cradle;
Figure 9 is an end view of a track forming part of the cradle system; and
Figure 10 is a view of a building with the cradle system shown in Figures 1 and 2 attached.

DETAILED DESCRIPTION OF DRAWINGS

[0038] As shown in Figures 1 and 2 there is provided a cradle, generally designated 10, for a building structure 11 the cradle 10 comprising a workstation 12; means 13 for moving the workstation 12; at least one attachment member 14 (generally known as a "shoe") capable of attaching the workstation 12 to at least one

substantially vertical track 16; and at least one guide member 18 capable of guiding the workstation 12 relative to at least one substantially vertical track 16 when the workstation 12 is moved.

[0039] As further shown in Figure 3 the guide member 18 fits partly inside the vertical track 16.

[0040] Figures 4, 5 and 6 show that the attachment member 14 has a flat shoe member 22 and a U-shaped member 24.

[0041] Figure 7 shows one guide member 18 and means 30 by which it attaches to the cradle 10. The means 30 is a double belt forming a loop which is attached to the cradle 10 using a shackle 21.

[0042] Figure 8 shows the guide member 18 attached to the cradle 10.

[0043] Figure 9 is an end view of the vertical track 16 having a T-shaped inner channel.

[0044] Figure 10 shows the cradle 10 attached to a building structure 11 with hoist means 13 used to raise and lower the cradle 10.

[0045] At least part of the/each at least one attachment member 14 is capable of being releasably retained in an at least one substantially vertical track 16.

[0046] The at least one attachment member 14 is capable of releasably attaching the workstation 12 to an at least one substantially vertical track 16. In this way a "temporary" cradle may be provided.

[0047] At least one of the at least one attachment members 14 and one of the at least one guide members 18 respectively attach the workstation 12 and guide the workstation 12 relative to a same at least one substantially vertically mounted track 16.

[0048] At least one guide member 18 is below at least one attachment member 14.

[0049] As shown in Figures 1 and 3 there are provided two guide members 18 and two attachment members 14.

[0050] The means 13 for moving the workstation 12 comprises a hoist 15 and an associated cable(s) 17 depending from the workstation 12.

[0051] The workstation 12 comprises a platform preferably comprising a floor 26 and guard rails 28 there around.

[0052] The at least one attachment member 14 is capable of being releasably retained in the track 16.

[0053] The guide member 18 as shown in Figures 2 and 3 is a rotatable wheel.

[0054] The/each wheel is rotatably mounted on a respective frame member 20 extending from a side of the workstation 12.

[0055] The at least one attachment member 14 is attached to the workstation 12 by a non-rigid member 30 using an eye 31 on the workstation 12 and shackle 21.

[0056] The non-rigid member 30 is a belt such as a nylon belt which may be tied or otherwise attached to a portion of the workstation 12 and to an eye of the attachment member 14.

[0057] As shown in Figures 1 and 2 there is provided a cradle system comprising: a cradle 10 and at least one substantially vertical mountable track 16.

[0058] The tracks 16 are substantially vertically mounted on a building structure 11.

[0059] The/each track 16 has a substantially T-shaped slot, a base of the T-shaped slot being at a surface of the/each track 16.

[0060] The at least one attachment member 14 is capable of being releasably retained in a track 16.

[0061] The at least one attachment member 14 is provided at least partly within the substantially T-shaped track 16.

[0062] The at least one attachment member 14 is received within a substantially T-shaped track 16 by inserting the attachment member 14 in a first orientation into the track 16 and then turning the attachment member 14 to a second orientation, e.g. through 90°.

[0063] Alternatively, the at least one attachment member 14 is inserted into the T-shaped track 16 at the bottom or top of the track 16.

[0064] The/each at least one attachment member 14 is engagingly received within at least within an innermost part of a substantially T-shaped track 16.

[0065] As shown in Figures 1 and 3 adjacent tracks 16 are in substantially parallel spaced relation, and preferably are spaced by around 11m.

[0066] Preferably, the workstation 12 is around 12m in width.

[0067] A weight of about 300kg can be taken on each cradle 12.

[0068] The present invention also provides a method of maintaining or carrying out remedial work upon a building structure 11 using a cradle system, the cradle system comprising:- cradle 10 comprising: and two substantially vertical mounted tracks 16.

[0069] The cradle system may be used to clean windows and repair or replace cladding on an outer surface of the building structure 11.

[0070] There is also provided a building 11 having at least one substantially vertical track 16.

[0071] The track(s) are temporarily (i.e. removably) mounted relative to the building structure 11, e.g. using substantially flat tiles 34 on the building 11.

[0072] Alternatively, the/end track 16 is formed in the building 11 e.g. during its initial construction.

[0073] The building 11 has an outer cladding system wherein the outer cladding is formed from pre-fabricated tiles 34. The tracks 16 are formed in the tiles 34.

[0074] There is also provided a building 11 having a cradle system.

[0075] The building 11 has an outer cladding system wherein the outer cladding is formed from pre-fabricated tiles 34. The tracks 16 are formed in the tiles.

Claims

1. A cradle (10) for a building structure, the cradle (10)

comprising:

a workstation (12);
at least one attachment member (14) capable of attaching the workstation (12) to at least one substantially vertical track (16); and
at least one guide member (18) capable of guiding the workstation (12) relative to at least one substantially vertical track (16) when the workstation (12) is moved.

2. A cradle (10) according to claim 1 wherein at least part of the/each at least one attachment member (14) is capable of being releasably retained in an at least one substantially vertical track (16).

3. A cradle (10) according to claim 1 wherein the/each at least one attachment member (14) is capable of releasably attaching the workstation (12) to an at least one substantially vertical track (16).

4. A cradle (10) according to any preceding claim wherein the cradle (10) is a temporary cradle.

5. A cradle (10) according to any preceding claim wherein at least one of the at least one attachment members (14) and at least one of the at least one guide members (18) respectively attach the workstation (12) and guide the workstation (12) relative to at least one substantially vertically mounted track (16).

6. A cradle (10) according to any preceding claim wherein at least one guide member (18) is provided below at least one attachment member (14).

7. A cradle (10) according to any preceding claim wherein there are provided two guide members (18) and two attachment members (14).

8. A cradle (10) according to any preceding claim wherein the workstation (12) comprises a platform.

9. A cradle (10) according to claim 8 wherein the platform comprises a floor (26) and guard rails (28) there around.

10. A cradle (10) according to any preceding claim wherein the guide member (18) is a wheel rotatably mounted relative to the workstation (12).

11. A cradle (10) according to claim 10 wherein the/each wheel is rotatably mounted on a respective frame member (20) extending from a side of the workstation (12).

12. A cradle (10) according to any preceding claim wherein the at least one attachment member (14) is attached to the workstation (12) by a non-rigid member (30).

13. A cradle (10) according to claim 12 wherein the non-rigid member (30) is a flexible member.

14. A cradle (10) according to any of claims 12 or 13 wherein the non-rigid member (30) is tied or otherwise attached to a portion of the workstation (12) and to an eye (31) of the attachment member (14).

15. A cradle system comprising:-

a cradle (10) comprising:

a workstation (12);
at least one attachment member (14) capable of attaching the workstation (12) to at least one substantially vertical track (16); and
at least one guide member (18) capable of guiding the workstation (12) relative to at least one substantially vertical track (16) when the workstation (12) is moved; the cradle system further comprising:

means for moving the workstation (12); and
at least one substantially vertically mountable track (16).

16. A cradle system according to claim 15 wherein the means for moving the workstation (12) comprises a hoist (13) and an associated cable(s) depending from the workstation.

17. A cradle system according to any of claims 16 or 17 wherein the track(s) are substantially vertically mounted on a building structure (11).

18. A cradle system according to any of claims 15 to 17 wherein the/each track (16) has a substantially T-shaped slot, a base of the T-shaped slot being at a surface of the/each track (16).

19. A cradle system according to any of claims 15 to 18 wherein the at least one attachment member (14) is capable of being releasably retained in a track (16).

20. A cradle system according to any of claims 15 to 19 wherein the at least one attachment member (14) is provided at least partly within the substantially T-shaped track.

21. A cradle system according to any of claims 15 to 19 wherein the at least one attachment member (14) is received within a substantially T-shaped track by

inserting the attachment member (14) in a first orientation into the track (16) and then turning the attachment member (14) to a second orientation, e. g. through 90°.

22. A cradle system according to any of claims 15 to 20 wherein the at least one attachment member (14) is inserted into a track (16) at a bottom or top of the track (16).

23. A cradle system according to any of claims 18 to 22 wherein the/each at least one attachment member (14) is engagingly received within an innermost part of the substantially T-shaped track (16).

24. A cradle system according to any of claims 15 to 23 wherein adjacent tracks (16) are in substantially parallel spaced relation.

25. A cradle system according to claim 24 wherein the adjacent tracks (16) are spaced by around llm.

26. A cradle system according to any of claims 15 to 25 wherein the workstation (12) is around 12m in width.

27. A method of maintaining or carrying out remedial work upon a building structure (11) comprising the steps of:

(a) providing a cradle system, the cradle system comprising:-

a cradle (10) comprising:

a workstation (12);
at least one attachment member (14) capable of attaching the workstation (12) to at least one substantially vertical track (16); and
at least one guide member (18) capable of guiding the workstation (12) relative to at least one substantially vertical track (16) when the workstation (12) is moved; the cradle system further comprising:

means for moving the workstation (12); and
at least one substantially vertical mountable track (16); and

(b) installing said cradle system on said building structure (11).

28. A method according to claim 27 which is selectively moved eg. to clean windows and/or repair or replace cladding on an outer surface of the building structure (11).

29. A building (11) having at least one substantially vertical track (16).

30. A building (11) according to claim 29 wherein the track(s) are temporarily (i.e. removably) mounted relative to the building structure (11), e.g. using substantially flat tiles on the building (11).

31. A building (11) according to any of claims 29 or 30 wherein the/each track (16) is formed in the building (11) e.g. during its initial construction, such as in cladding of the building (11).

32. A building (11) according to any of claims 29 to 31 wherein the building (11) has an outer cladding system.

33. A building (11) according to claim 32 wherein the outer cladding is formed from pre-fabricated tiles.

34. A building (11) according to any of claims 29 to 33 wherein at least a portion of the tracks (16) are formed in the tiles.

35. A building (11) having a cradle system, the cradle system comprising:-

a cradle (10) comprising:

a workstation (12);
at least one attachment member (14) capable of attaching the workstation to at least one substantially vertical track (16); and
at least one guide member (18) capable of guiding the workstation (12) relative to at least one substantially vertical track (16) when the workstation (12) is moved;
the cradle system further comprising:

means for moving the workstation (12); and
at least one substantially vertical mountable track (16).

36. A building (11) according to claim 35 wherein the building (11) has an outer cladding.

37. A building (11) according to claim 36 wherein the outer cladding is formed from pre-fabricated tiles.

38. A building (11) according to any of claims 35 to 37 wherein the tracks (16) are formed in the tiles.

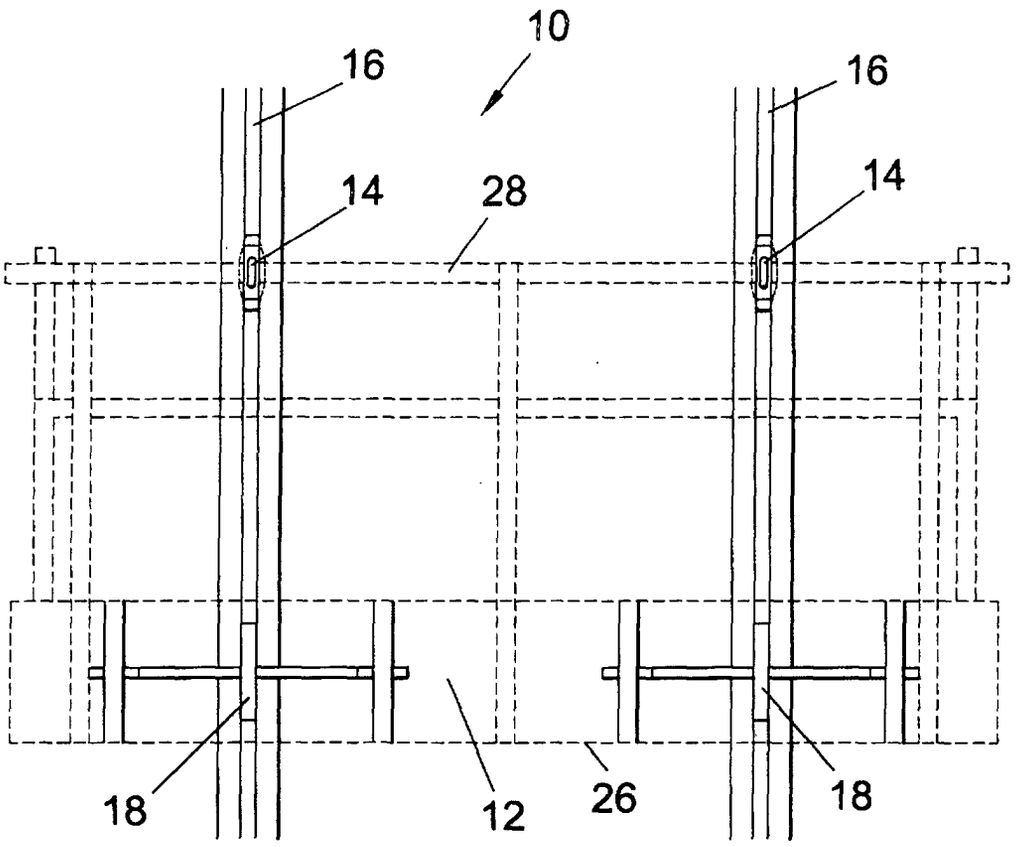

Fig. 1

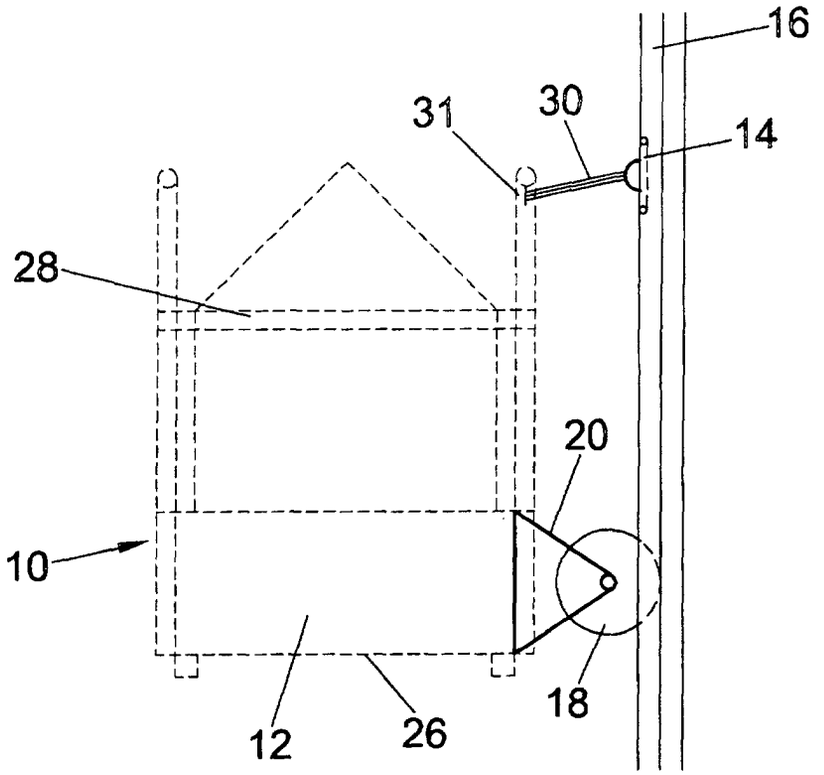

Fig. 2

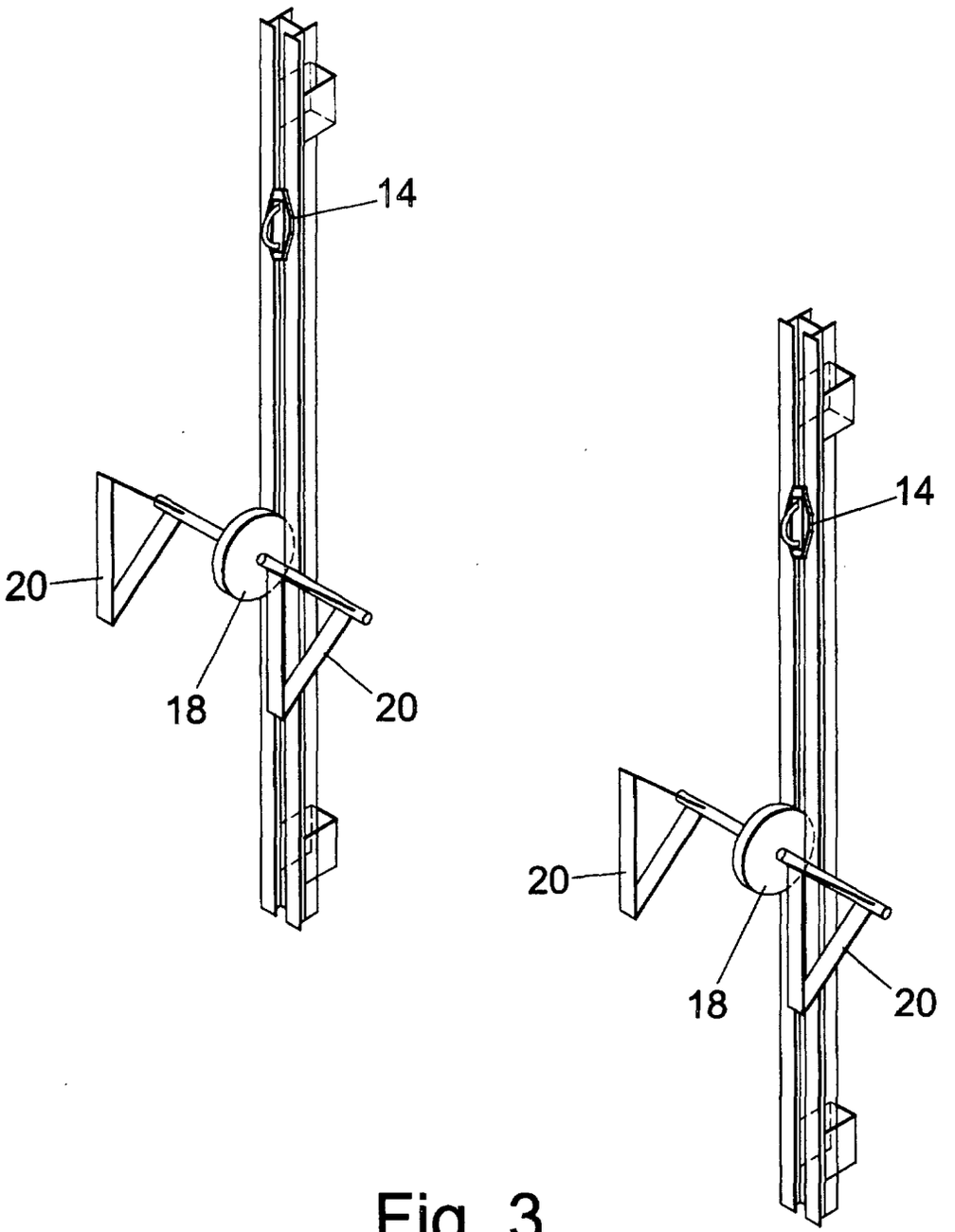

Fig. 3

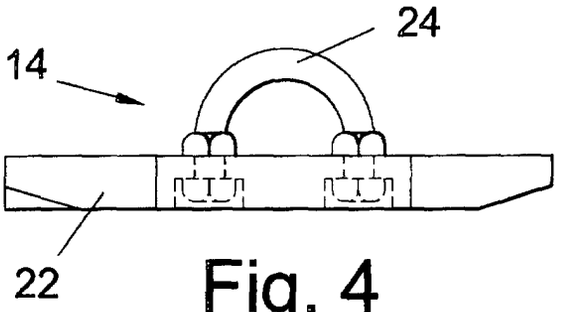

Fig. 4

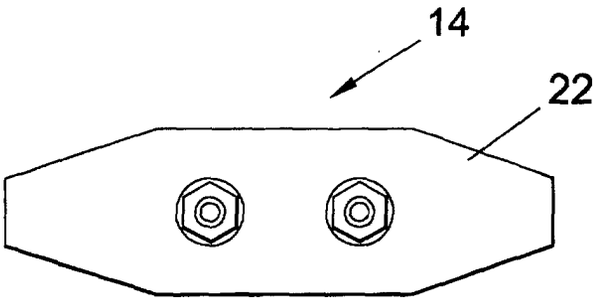

Fig. 5

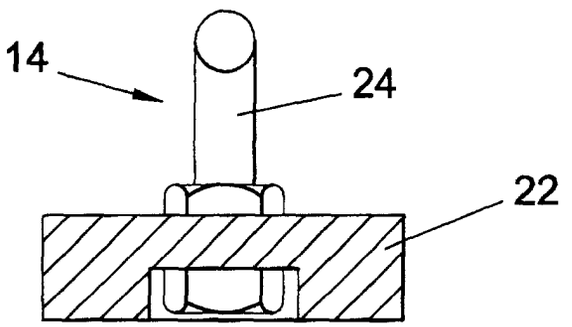

Fig. 6

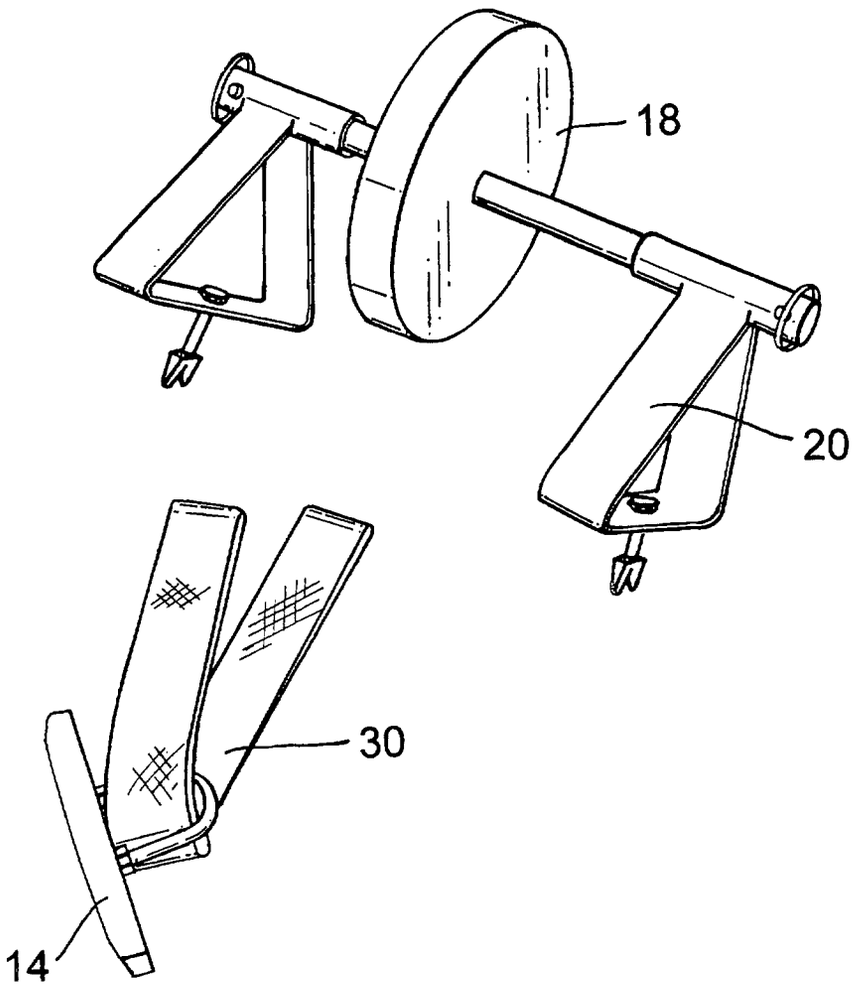

Fig. 7

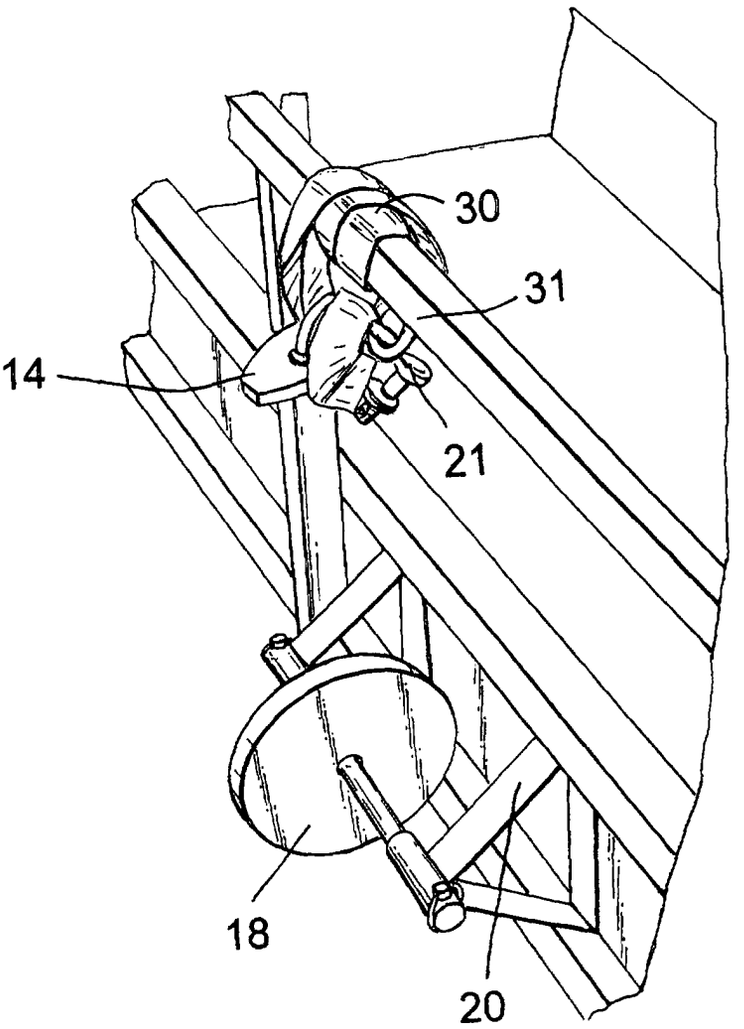

Fig. 8

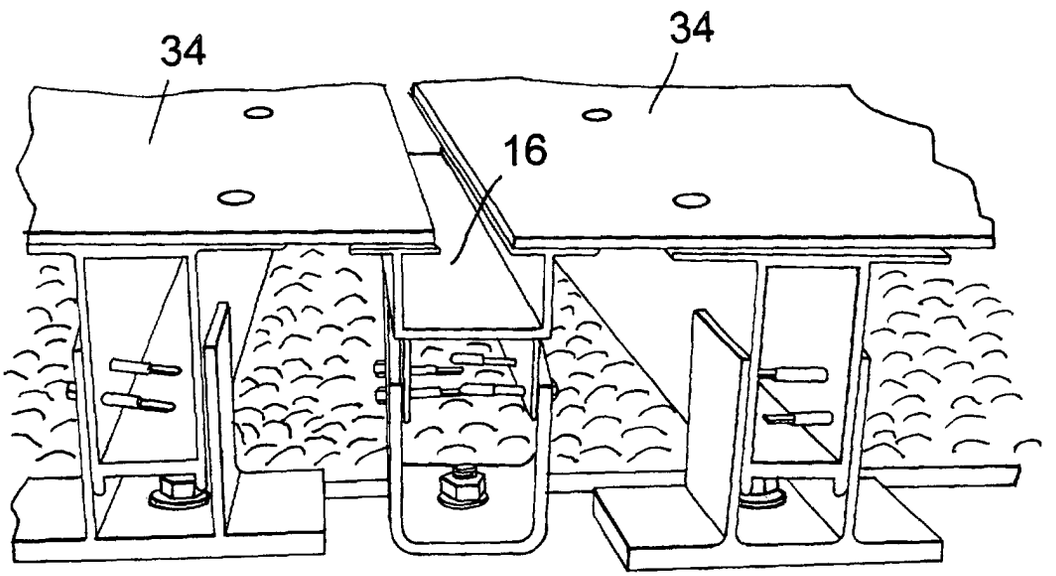

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Fig. 9

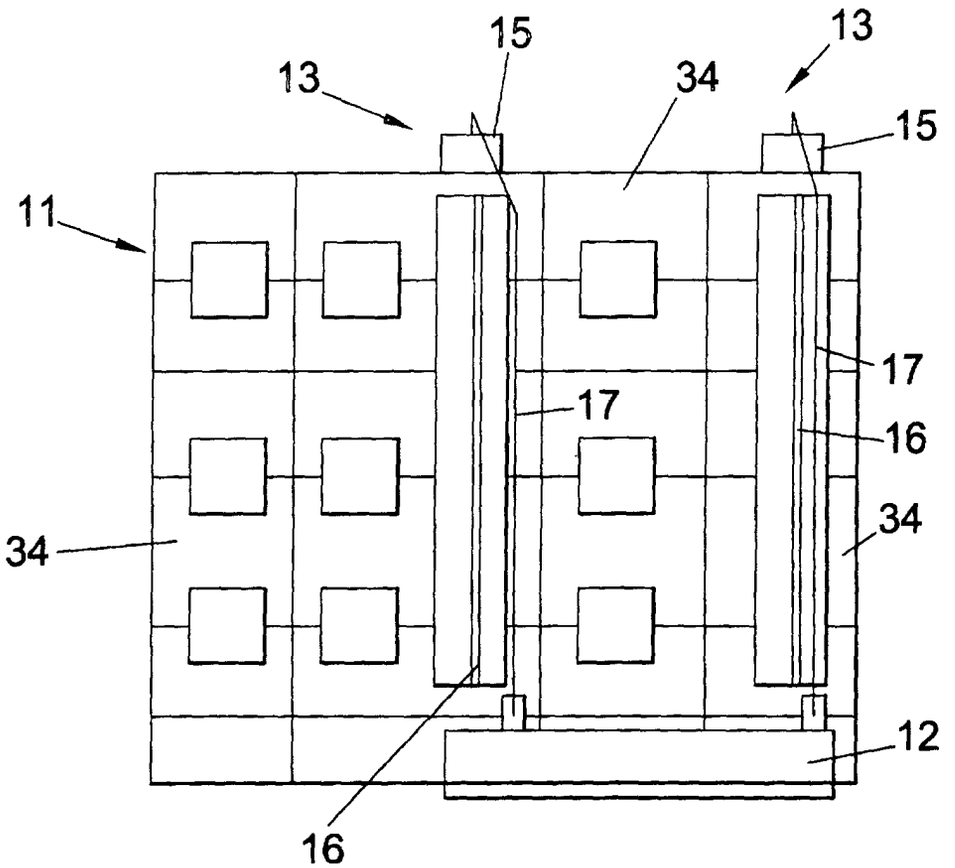

Fig. 10