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(71) Applicant: **Besenzoni S.p.A.**
24067 Sarnico (Bergamo) (IT)

(72) Inventor: **Besenzoni, Giovanni**
24067 Sarnico (Bergamo) (IT)

(74) Representative: **De Gregori, Antonella et al**
Barzanò & Zanardo Milano S.p.A.
Via Borgonuovo 10
20121 Milano (IT)

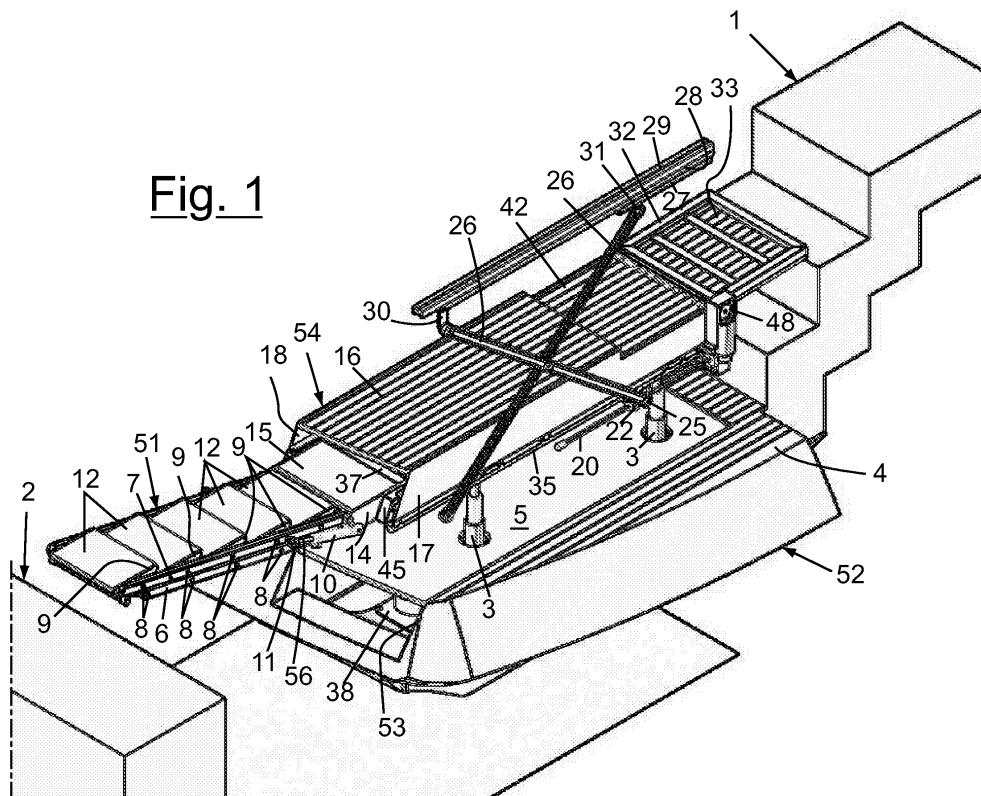
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(54) **Telescopic walkway for boats with integrable and entirely foldaway structure**

(57) A telescopic walkway for boats with integrable and entirely foldaway structure, of the type suitable for extending between at least one portion (1) of stern platform (52) of the boat and at least one mooring quay or wharf (2), comprising at least one profile (54), having substantially parallelepiped section and contained inside

the stern platform (52), which can be actuated to lift by means of a plurality of cylinders, possibly coupled with plunger pistons, or by means of a pantograph system; inside the parallelepiped profile (54) at least one ladder (51) is contained, able to slide horizontally and orientable upwards and downwards, which can be used both to go into the water and for mooring on the quay or wharf (2).

Fig. 1



Description

[0001] The present invention refers, in general, to a telescopic walkway for boats.

[0002] More specifically, the invention concerns a telescopic walkway, also able to be used as a ladder for entering the water (bathing ladder), which has a structure that can be completely integrable into the stern platform of the boat and folded away perfectly.

[0003] Amongst seacraft accessories, landing walkways are used to allow easy passage between boat and wharf.

[0004] They generally have a rectangular plan, with a width such as to allow a person to cross over and a length that allows the boat to be moored a safe distance from the wharf.

[0005] There are various types of construction and materials used to make the aforementioned walkways.

[0006] In particular, there are manual walkways and automatic walkways, according to whether they are lifted and rotated into crossing position between boat and wharf manually or with movement actuated by hydraulic cylinders or else by electrical actuations.

[0007] Moreover, the choice of materials depends upon technical-aesthetic and functional considerations and, for this purpose, stainless steels, corrosion-resistant light alloys, tempered crystal, teak wood and/or technological polymers are used.

[0008] To finish off the walkway, there can also be vertical shafts connected by cables (so-called "stanchions"), which act to help and support people that cross over the walkway.

[0009] Fold-away, generally automatic telescopic walkways are particularly used in seagoing since they take up a minimal bulk on the vessel; such walkways are made by dividing the total length of the walking surface into two or more portions of predetermined length, so that one or more of them can be inserted into another or into other contiguous portions.

[0010] This way of packing the portions of the walkway, as well as the fact that it is possible to telescopically insert one or more portions inside suitable housings built into the boat, allow the bulk to be substantially reduced during navigation.

[0011] The technique for building a conventional telescopic walkway is to foresee, on each portion of the walkway and for each side, a tubular element, carrying and able to be inserted telescopically in the one present in the portion nearby.

[0012] However, such an embodiment makes the telescopic walkway relatively heavy and bulky and these drawbacks cause further problems deriving from the overall weight of the boat, from the positioning restrictions of the same walkway on the boat and from the necessary use of cylinders having size and structural characteristics and costs of a certain significance.

[0013] Moreover, known telescopic walkways cannot be entirely integrated into certain portions of the casing

of the boat, and nor can they fold away perfectly.

[0014] The purpose of the present invention is, therefore, to avoid the aforementioned drawbacks and, in particular, to make a telescopic walkway for boats, which has a structure that can be entirely built into given portions of the hull of the boat (for example, at the stern platform of the boat), and that folds away perfectly.

[0015] Another purpose of the invention is to make a telescopic walkway for boats with simplified construction and limited weight.

[0016] Another purpose of the invention is to make a telescopic walkway for boats, which has an opening mechanism that is substantially simple to use.

[0017] A further purpose of the invention is to make a telescopic walkway for boats, with simplified construction, which is extremely reliable, simple and functional and with relatively low costs, compared to conventional solutions and in relation to the advantages obtained.

[0018] These and other purposes are accomplished by a telescopic walkway for boats that has built in structure and that folds away entirely, according to the attached claim 1; the further dependent claims include other detailed technical characteristics.

[0019] Further characteristics and advantages of the present invention shall become clearer from the following description, relative to a preferred but not limiting example embodiment and from the attached drawings, in which:

- figure 1 is an overall perspective view from above of a telescopic walkway for boats with integrable and entirely fold-away structure, in open position, according to the present invention;
- figure 2 is an overall perspective view of a telescopic walkway for boats with integrable and entirely fold-away structure, in partially open position, with the bathing ladder extended, according to the present invention;
- figure 3 is a partial perspective view from above of a telescopic walkway for boats with integrable and entirely fold-away structure, in completely closed position;
- figure 4 is a side view of the telescopic walkway for boats according to figure 1, according to the present invention;
- figure 5 is a plan view from above of the telescopic walkway for boats according to figure 1, according to the invention;
- figure 6 is a plan view from above of the telescopic walkway for boats according to figure 2, according to the invention;
- figure 7 is a section view carried out along the line VII-VII of figure 6;
- figure 8 is a plan view from above of the telescopic walkway for boats according to figure 3, according to the invention;
- figure 9 is a section view carried out along the line IX-IX of figure 8;

- figure 10 is a section view carried out along the line X-X of figure 8;
- figure 11 is an enlarged section view carried out along the line XI-XI of figure 8.

[0020] With reference to the aforementioned figures, a part of the stern platform 52 of a boat is indicated with 1, from which it is possible to access the tilting footboard 33, equipped with a tubular frame 32, a tilting hinge 36 and a geared motor 48 for rotation and resting upon the fixed rear footboard 42, and at the fixed front footboard 16 of the telescopic walkway, object of the present invention, which, through the further footboard 15 and the support planes (treads) 12, equipped with transversal plates 40, of the steps of the ladder or "bathing ladder" 51, allows both access to the water and a mooring quay or wharf (schematised and indicated with 2 in the attached figures) to be reached, to carry out the disembarkation or boarding and/or tender or jet ski haulage operations.

[0021] Moreover, the support planes 12 of the steps of the ladder 51 are firmly connected to the bottom and top sides 6 and 7, through a transversal reinforcement tube 39 and respective pins 8, which fix in position the relative side plates 9 of the steps and, according to preferred embodiments of the invention, the aforementioned support planes 12 of the steps of the bathing ladder 51, just like the footboard 15, 16, 42 and 33, are made from teak wood.

[0022] Advantageously, the telescopic walkway made according to the present invention can be entirely housed inside the stern platform 52, as illustrated in the attached figures.

[0023] In particular, it is foreseen to use a panel 4 and a central plate 5, usually made from teak wood, to cover the top of the space 53 of the stern platform 52, from which a series of oleodynamic cylinders 3 project, coupled with respective plunger pistons (of which, in the example case described and illustrated in the attached figures, there are four and they are made with six stages), suitable for the vertical actuation (for lifting and subsequently lowering) the profile 54, having substantially parallelepiped section and defined at the top by the transversal top plate 37 and at the side by the steel sides 17 and 18, inside of which the ladder 51 can fold and slide.

[0024] The lifting cylinders 3 are fixed at the bottom to a base plate 38 welded onto the bottom of the space 53 of the stern platform 52 and they are further fixed to the profile 54 through a bottom transversal attachment profile 34, in turn associated with the bottom transversal flat structure 35 of the profile 54.

[0025] In alternative embodiments with respect to what has been described, the oleodynamic cylinders 3 can be replaced or coupled with a pantograph system for the actuation of the profile 54.

[0026] The ladder or bathing ladder 51 can be moved inside and outside the profile 54, thanks to the actuation of respective side plates 14, which translate on matching

guides 45, preferably made from plastic material and, in particular, polyethylene, of a trolley arranged inside the profile 54; moreover, the ladder 51 can also be orientated upwards and/or downwards, thanks to the actuation of the stems 56, coupled with the relative oleodynamic cylinders 10 and fixed, through the pins 11 and 13, to the base and to the sides of the ladder 51.

[0027] As can clearly be seen in the attached figure 11, the guides 55 are contained inside respective C-shaped profiles, left and right, respectively indicated with reference numerals 44 and 49, and the trolley defined by the guides 55 can slide forwards thanks to the actuation of the worm screw 19 able to be actuated by means of the geared motor 47.

[0028] Moreover, the front and rear teak footboards 16 and 42 are mounted on the respective support profiles 41 and 43, in turn positioned inside the profile 54.

[0029] The unity of the telescopic walkway, according to the invention, is completed by a structure of tubes 26, positioned like a pantograph, to support, through respective plates 30, 31, the horizontal tube 28, coated with a cover 29, preferably made from teak wood, supporting the stanchions, in turn moved open by a geared motor 46, which acts upon the worm screw 20.

[0030] In particular, the opening of the stanchions is carried out thanks to the sliding of the plate 31 inside a polyethylene guide 50, in turn inserted in the sliding tube 27, and the forward motion of the ferrule 25, associated with the pin 24, inside the guide 21, in turn supported by the angular profile 22 and by the draft 23. From what has been described and from the attached figures, it is clear that the telescopic walkway according to the invention is highly reliable and adjustable into various positions.

[0031] In particular, from a completely closed position, according to which the aforementioned walkway is completely integrated inside the stern platform 52 and is therefore perfectly folded away (as shown in figures 3 and 8-11), it is possible to foresee, through independent motorised actuations, that just the bathing ladder 51 sticks out (as shown in figures 2 and 5-7), just as, in addition to the bathing ladder 51 sticking out or independently of it, it is possible to foresee the lifting of the entire profile 54 (thanks to the lifting of the cylinders 3 or of a suitable pantograph) and, therefore, of the walking plane 16 and of the footboard 33, as well as the lifting of the horizontal tube 28 of the stanchions (thanks to the moving of the support tubes 26 and as illustrated in detail in figures 1 and 4).

[0032] In addition to all this, the bathing ladder 51 can be orientated downwards to go into the water and/or upwards, with simultaneous suitable orientation of the treads 12 of the steps, thanks to the moving of the stem 56 of the oleodynamic cylinder 10 (see figures 1 and 2 for a quick comparison), until a correct inclination with the mooring quay or wharf 2 is found.

[0033] From the description that has been made the characteristics of the telescopic walkway, object of the present invention, are clear, just as its advantages are

also clear, including:

- simple and reliable use;
- the possibility of completely building the walkway into the stern platform of the boat, so as to obtain a structure that folds away perfectly;
- orientability and possibility of multiple use of the bathing ladder, which can be orientated according to needs, in order to constitute a connection element with the mooring quay or wharf;
- compactness of the structure.

[0034] In the embodiment step modifications can be made to the telescopic walkway for boats of the invention, consisting, for example, of a different composition of the actuations used to move the various elements of the walkway, which can interchangeably or simultaneously be hydraulic and/or electrical.

[0035] Finally, it is clear that numerous other variants can be brought to the telescopic walkway in question, without for this reason departing from the novelty principles inherent to the inventive idea, just as it is clear that, in the practical embodiment of the invention, the materials, shapes and sizes of the illustrated details can be whatever, according to requirements, and they can be replaced with others that are technically equivalent.

Claims

1. Telescopic walkway for boats with integrable and entirely foldaway structure, of the type suitable for extending between at least one portion (1) of stern platform (52) of the boat and at least one mooring quay or wharf (2), **characterised in that** it comprises at least one profile (54), having substantially parallelepiped section and contained inside the stern platform (52), which can be actuated through lifting means (3), said profile (54) being at least partially hollow inside to contain at least one ladder or bathing ladder (51), able to slide horizontally and orientable upwards or downwards, suitable for being used both to go into the water and for mooring on said quay or wharf (2).
2. Telescopic walkway according to claim 1, **characterised in that** said lifting means (3) comprise a plurality of cylinders (3), possibly coupled with plunger pistons, or else a pantograph system.
3. Telescopic walkway according to claim 1, **characterised in that** said profile (54) comprises at least one top tilting footboard (33), able to be used to rest on said portion (1) of stern platform (52) and able to be moved in rotation, by means of at least a first driving device (48), on at least a first portion of top fixed footboard (42) of the profile (54).
4. Telescopic walkway according to claim 1, **characterised in that** said profile (54) comprises at least one further portion of top fixed footboard (16).
5. Telescopic walkway according to claim 1, **characterised in that** said ladder (51) has at least one footboard (15) and a plurality of support planes (12) of a series of respective steps, equipped with transversal plates (40).
6. Telescopic walkway according to claim 5, **characterised in that** said support planes (12) of the steps of the ladder (51) are firmly connected to side support structures (6, 7), through respective pins (8), which fix the relative side plates (9) of the steps in position.
7. Telescopic walkway according to claim 1, **characterised in that** said profile (54) is positioned, at rest, at a central plate (5) and on the same surface of a panel (4) suitable for covering the top of said stern platform (52).
8. Telescopic walkway according to claim 1, **characterised in that** said profile (54) can be actuated vertically, to lift it and lower it, by means of said cylinders (3), fixed at the bottom to at least one base plate (38), arranged on the bottom of a space (53) inside said stern platform (52), and connected to said profile (54) through at least one bottom transversal attachment profile (34), in turn associated with a bottom transversal flat structure (35) of the profile (54).
9. Telescopic walkway according to claim 1, **characterised in that** said ladder (51) can be actuated to go into or out from said profile (54), by means of respective side plates (14), which slide on matching guides (45) of a trolley, in turn able to slide by means of at least one second actuation device (47).
10. Telescopic walkway according to claim 1, **characterised in that** said ladder (51) can be orientated upwards and/or downwards, thanks to the actuation of respective cylinders (10), fixed to the base and at the side to the ladder (51).
11. Telescopic walkway according to claim 1, **characterised in that** at the side of said profile (54) there is a tubular pantograph structure (26) to support at least one horizontal profile (28), supporting stanchions, in turn moved open by at least a third actuation device (46).
12. Telescopic walkway according to claim 1, **characterised in that** said walkway, in completely closed position, is completely built into said stern platform (52) and can fold away perfectly, whereas independent motorised actuations can, alternatively or in combination with each other, determine the translation

and/or the orientation of said ladder (51), the lifting or lowering of said profile (54) and the lifting or lowering of the stanchions.

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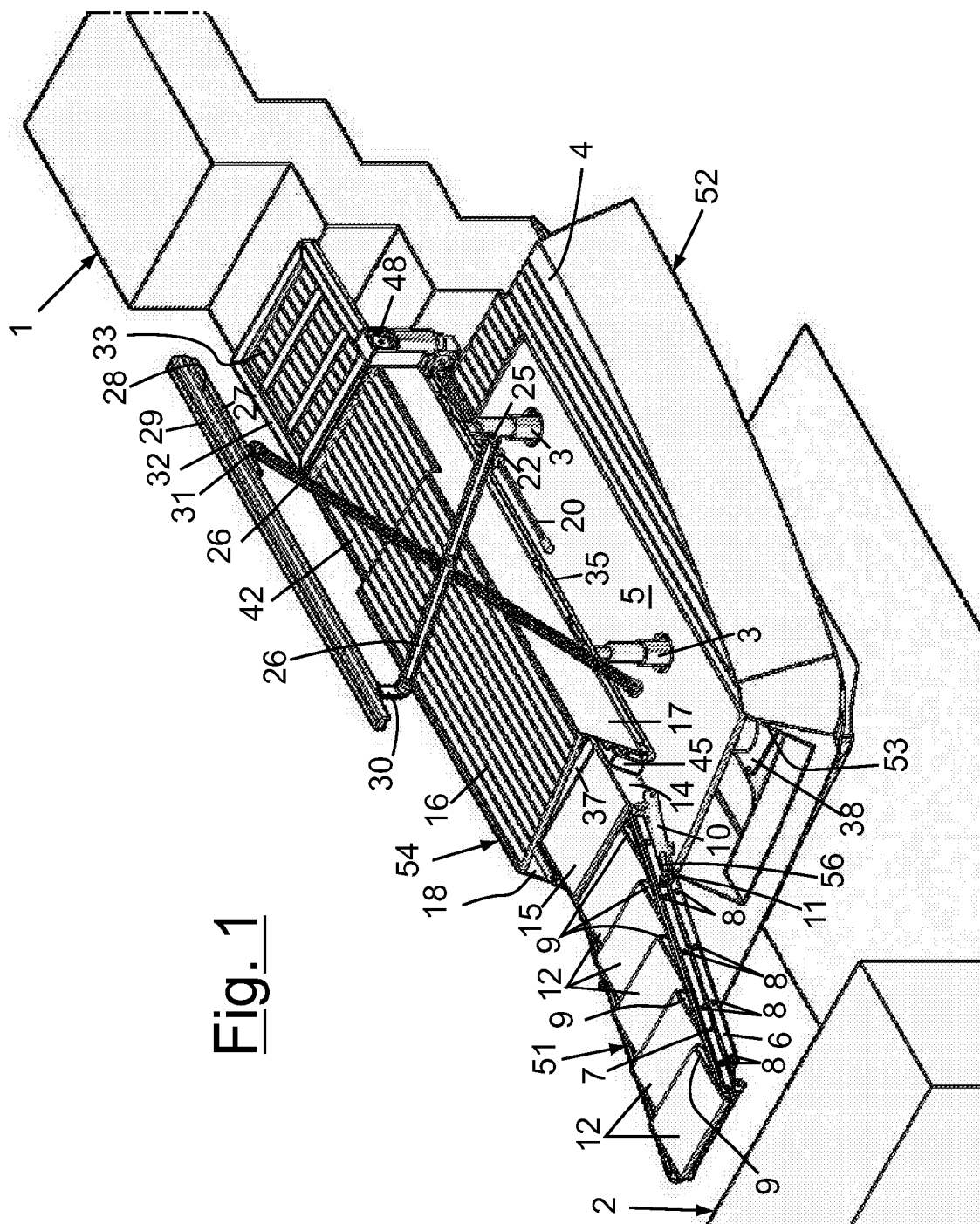
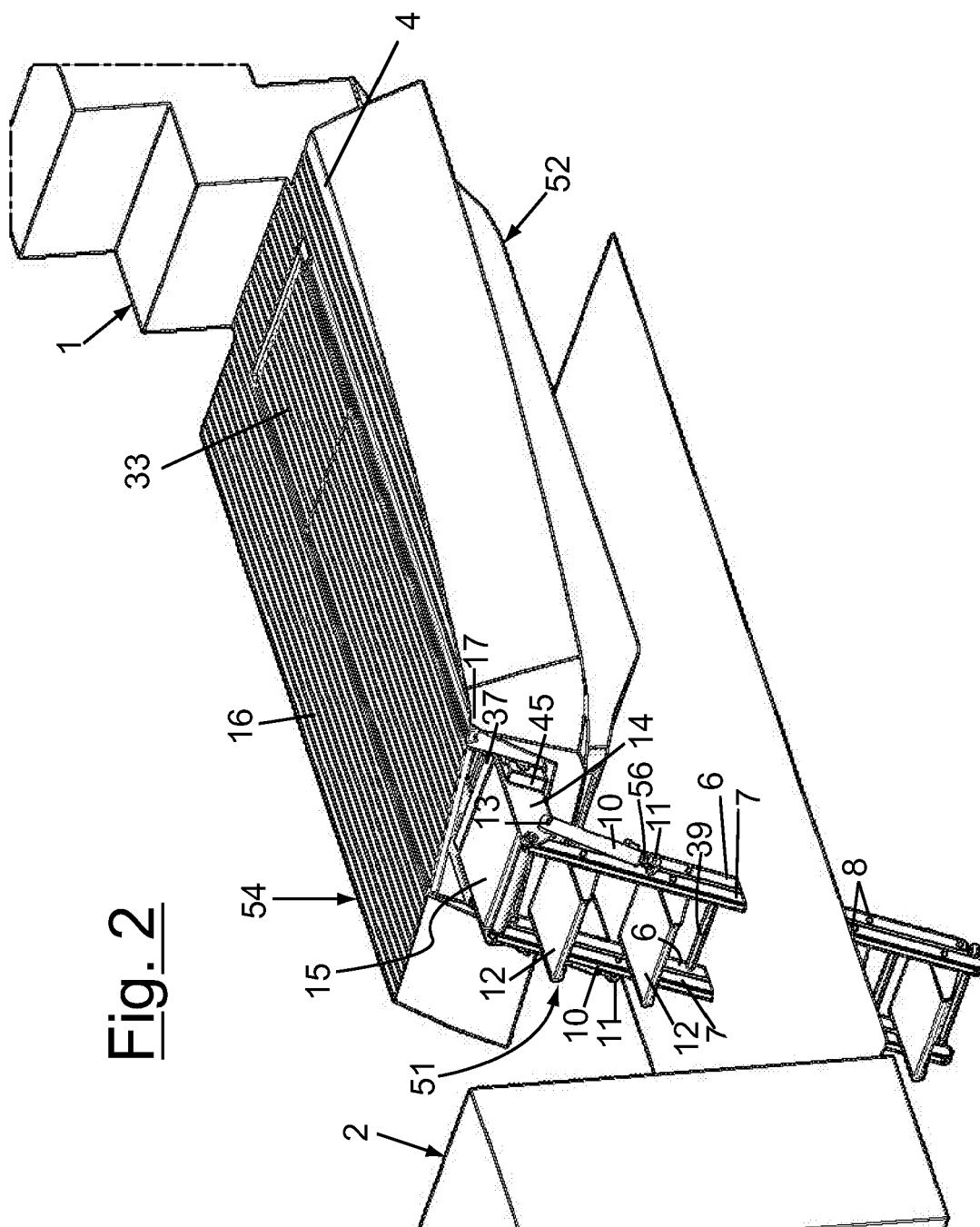
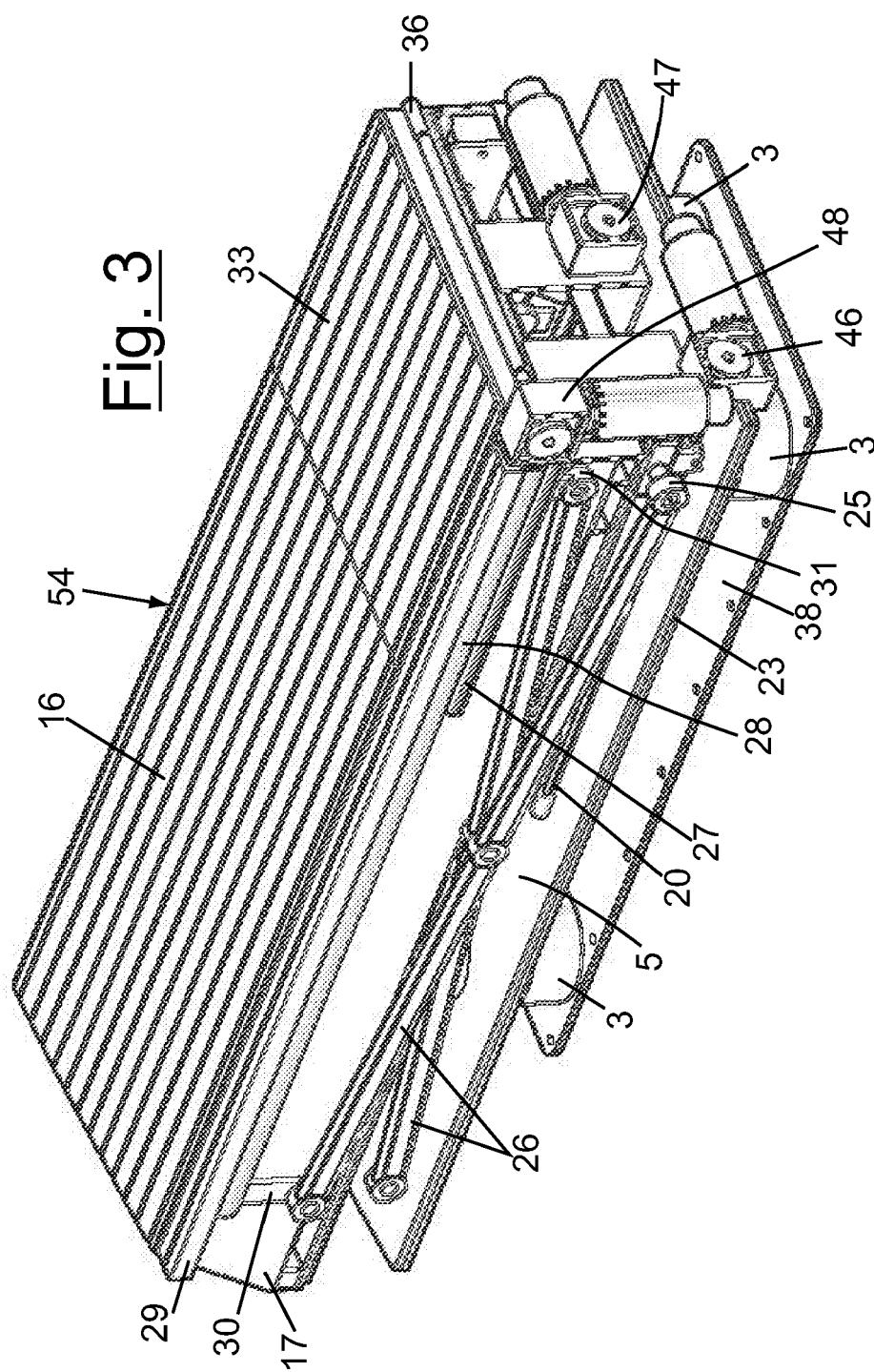


Fig. 1

Fig. 2





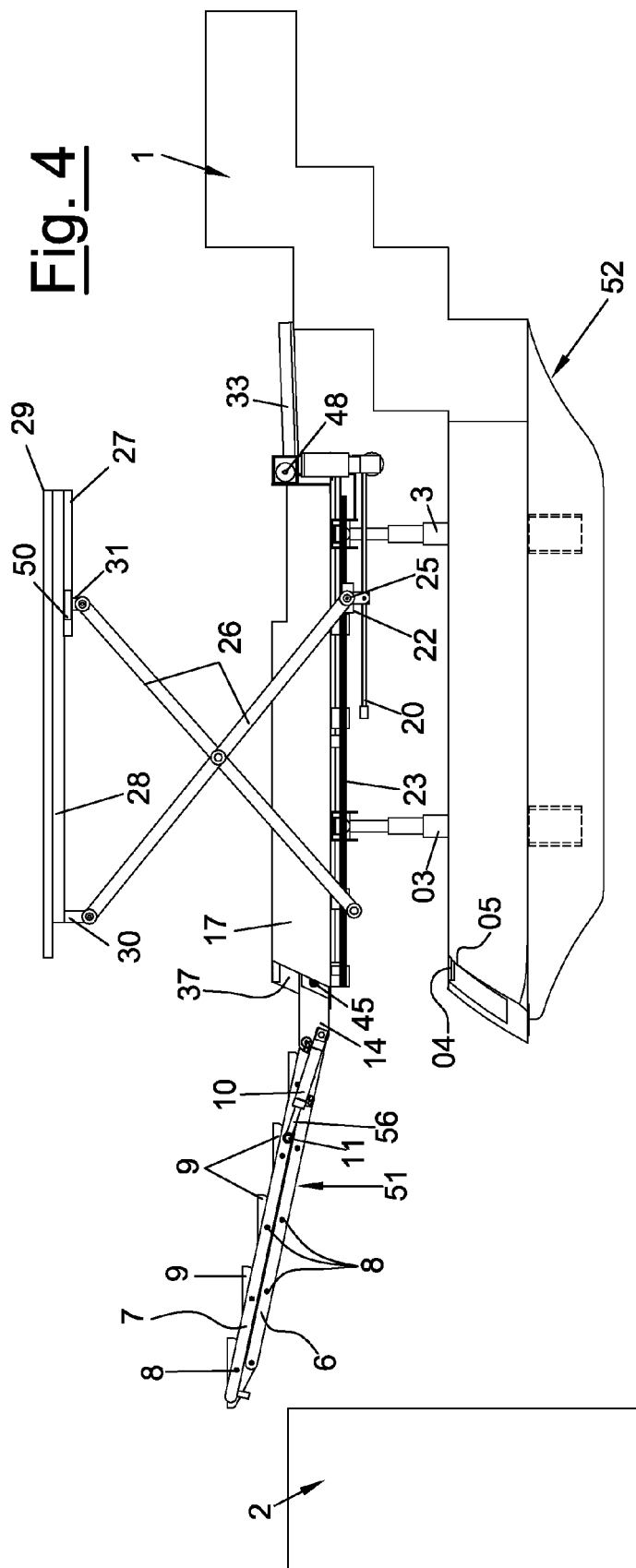
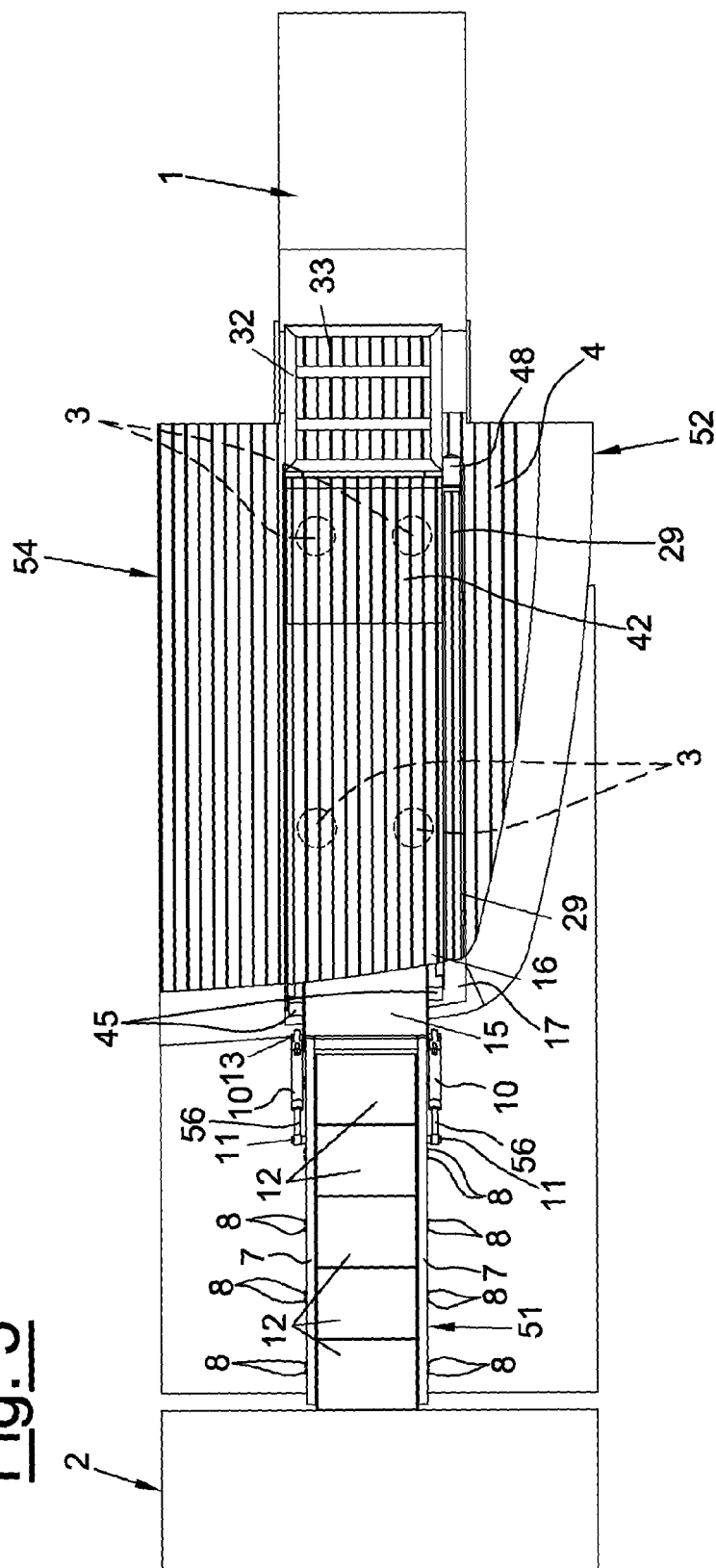


Fig. 5



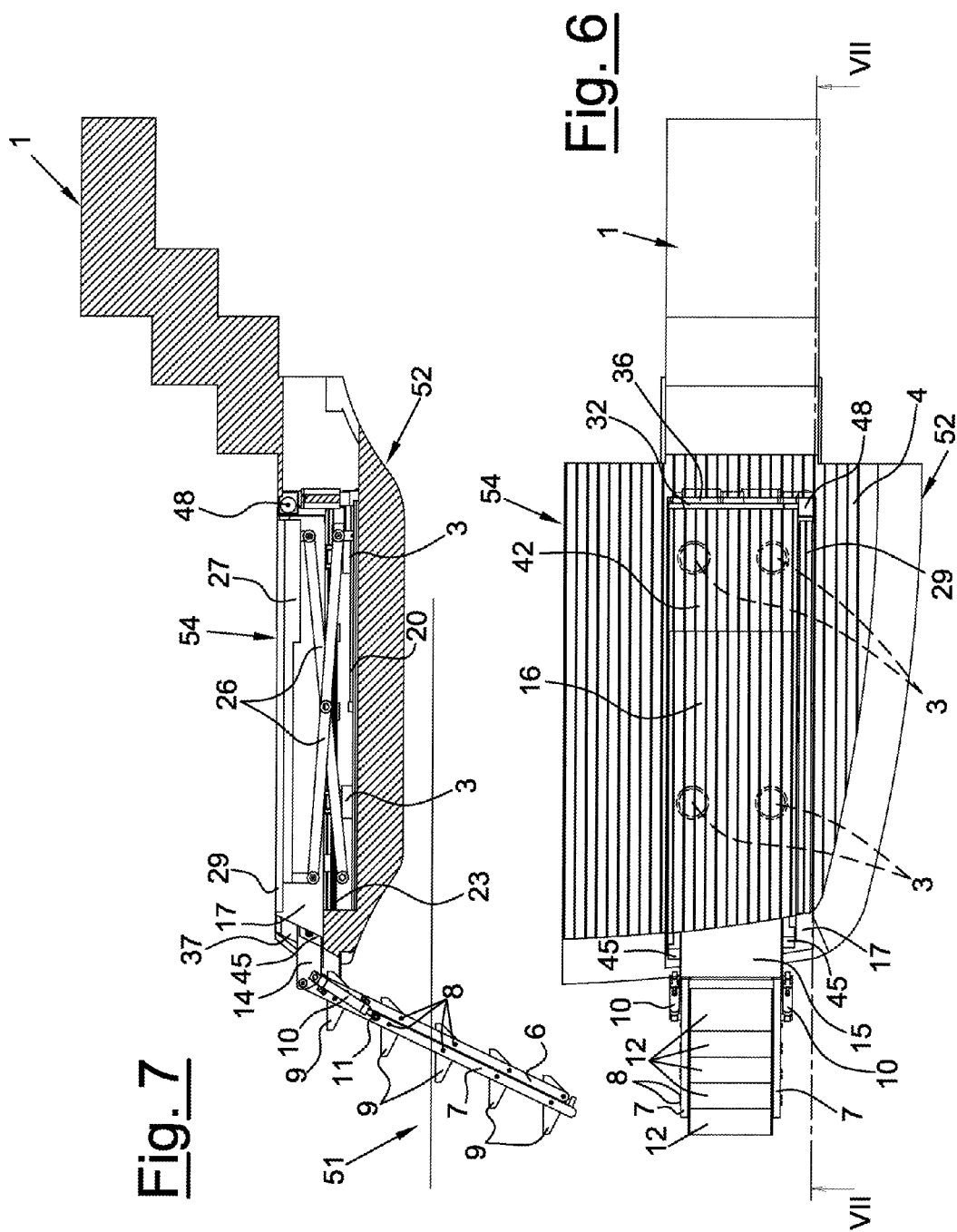


Fig. 9

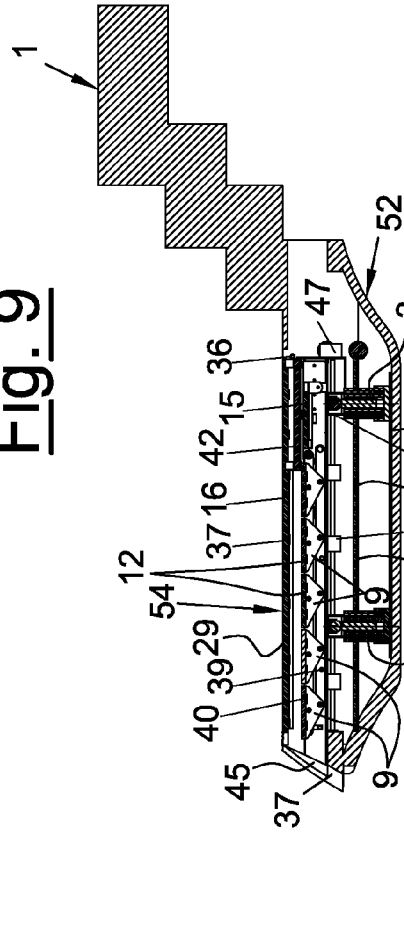


Fig. 8

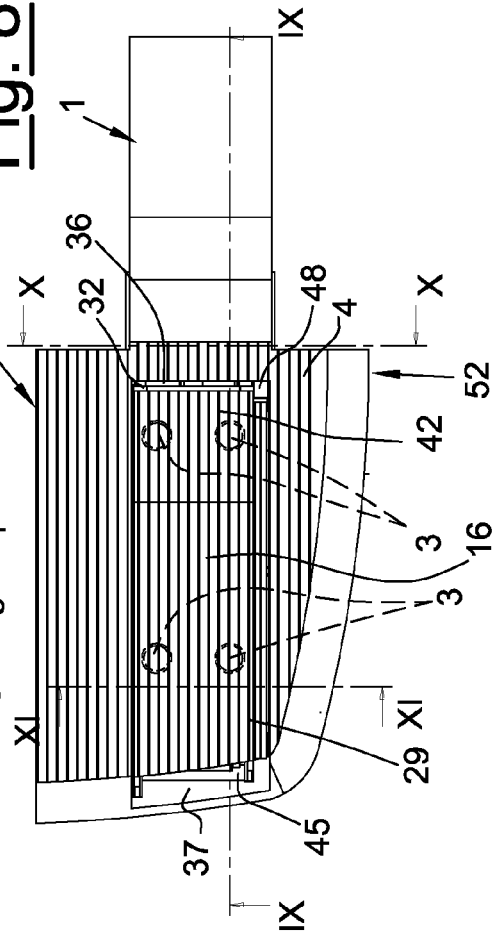
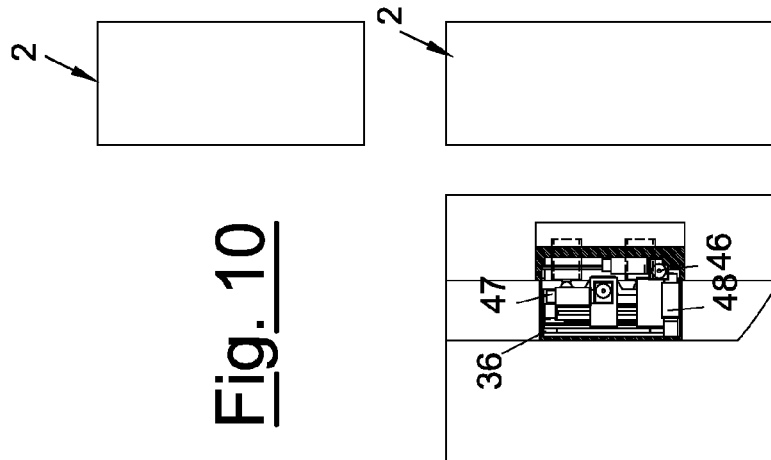
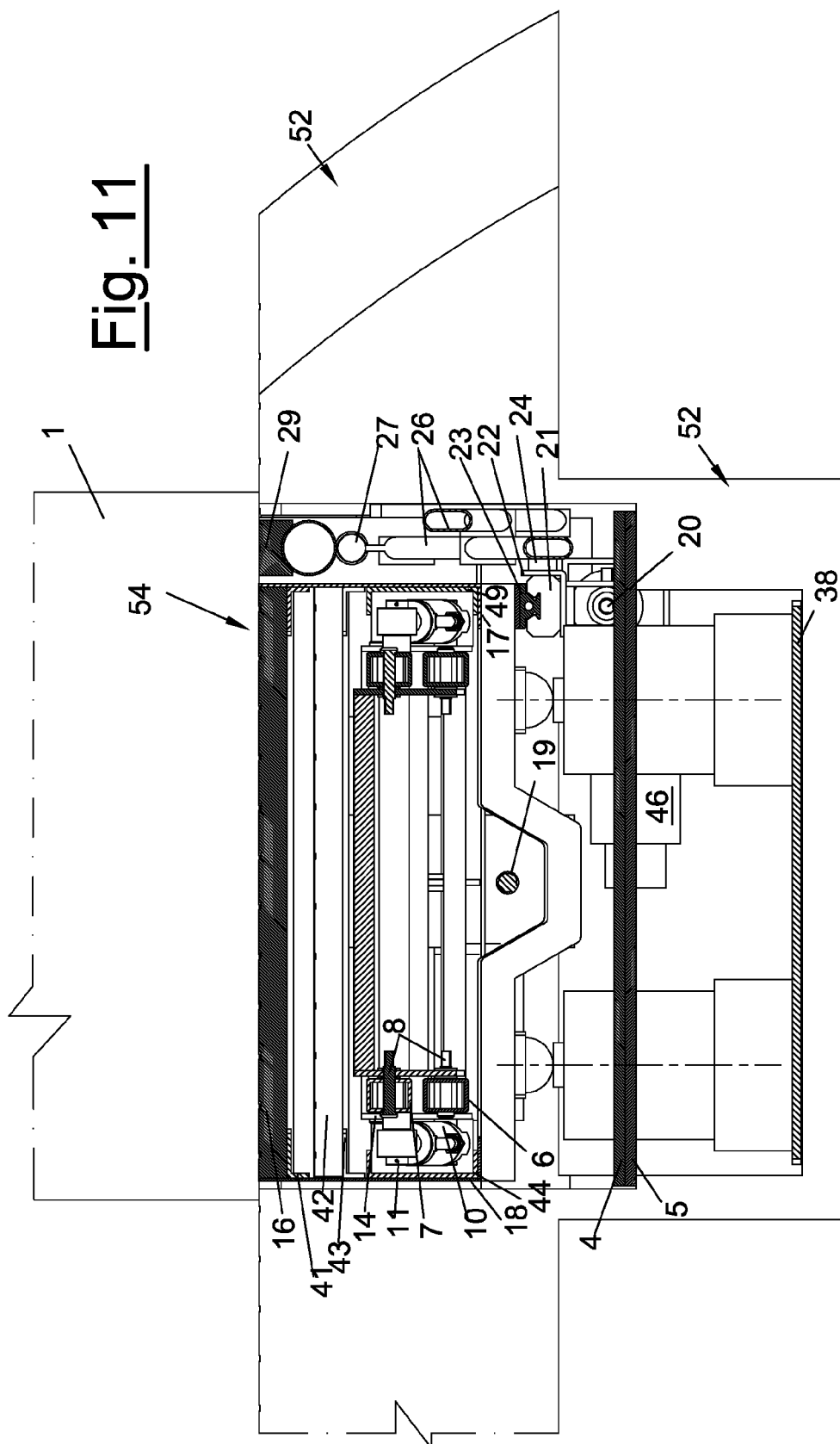


Fig. 10







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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 27 June 2007	Examiner Brumer, Alexandre
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EP 07 10 7799

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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