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(54) **APPARATUS FOR TREATMENT OF FLOORS**

VORRICHTUNG ZUR BEHANDLUNG VON BODEN

APPAREIL POUR LE TRAITEMENT DE SOLS

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DescriptionDisclosureTechnical field

[0001] The present invention relates to an apparatus for treating floors, in particular a floor scrubber-dryer.

Prior art

[0002] Apparatuses for treating floors have long been known. In particular, apparatuses that can combine different treatment operations are known, which are able, for example, to suction, brush, scrub and dry floors.

[0003] Such apparatuses may have a very different structure, depending on use. For example, for industrial applications, floor treatment apparatuses can be very cumbersome and therefore difficult to operate. On the other hand, apparatuses designed for domestic use, which requires limited power, usually have a small footprint and are therefore more easily manageable.

[0004] Therefore, in particular in the industrial sector there is an increasing need to improve the maneuverability of such apparatuses, without prejudice to its power, neither its effectiveness.

[0005] For example, patent EP 3031378 illustrates a manually guided apparatus for the treatment of floors, in particular a scrubber dryer, comprising a floor-contact part and a guide part, mutually connected by means of an articulation assembly, able to arrange the rotating guide part in all directions around a vertical axis. In particular, the floor-contact part is provided with a pair of rotating tools made of brushes, arranged in such a way as to generate a permanent linear feed action. Furthermore, the floor-contact part is provided with a suction strip on the ground when the apparatus is in use, at the rear of the brushes. The apparatus comprises as well a support means arranged on the floor-contact part, made for supporting the same floor-contact part in an inclined transport or storage position, statically determined and therefore isostatic.

[0006] Another example of an apparatus for polishing floors is disclosed in the patent US 5, 177, 828.

[0007] However, apparatuses of the known type does not fully meet the needs of the specific sector, since in order to transport them from one environment to another or to bring them back to the storage location, it is necessary to maneuver them so that the tools on the ground are not damaged and, above all, do not interfere with the movement of the apparatus. The positioning of the apparatus in the transport position, in particular, may therefore result difficult, sometimes tiring for the operator.

[0008] For example, patent US 2,675,246 illustrates a mechanism for lifting and lowering the wheels adapted for use in floor polishing machines.

[0009] Likewise, apparatuses of the known type does not fully meet the requirements of the specific sector, since they require difficult operations to place them in a rest condition..

[0010] The object of the present invention is to solve the aforementioned problems, by devising a floor treatment apparatus which can be easily transported.

[0011] A further object of the invention is to provide an apparatus for treating floors which can be easily positioned in a rest condition.

[0012] Still another object of the invention is to provide a floor treatment apparatus which is of simple construction and functional, of versatile use, provided with definitely reliable operation and of relatively low cost.

[0013] The aforementioned objects are achieved, according to the present invention, by the floor treatment apparatus according to claim 1.

[0014] The apparatus for treatment of floors comprises a floor-contact part provided with at least one tool rotatable on a floor and a guide part provided with at least one handle. The floor-contact part is connected to the guide part by means of an articulation assembly.

[0015] The apparatus is preferably, but not limited to, a floor scrubber dryer. For this purpose, it may comprise a suction strip arranged at the rear of the at least one rotatable tool, according to a direction of travel of the apparatus.

[0016] The apparatus further comprises a lifting assembly for the floor-contact part, which carries activatable support means, and control means which can be alternatively operated in an inactive condition, at which the at least one rotatable tool is in contact with the floor and the support means are detached from the floor, in order to enable the treatment of the floor by the at least one rotatable tool, and in an active condition, in which the at least one rotatable tool is supported by support means, in a lifted position from said floor, thus placing the apparatus in a transport and/or resting condition.

[0017] In particular, in the aforesaid active condition of the control means, the rotatable tool is firmly supported by the aforementioned supporting means, remaining lifted from the floor, so as to protect it from interaction with the floor.

[0018] Basically, the provision of activatable support means enables the apparatus to be arranged in a condition in which the at least one tool is lifted off the floor and, therefore, does not support the weight of the apparatus itself. In this condition, the apparatus is easily movable, since the tool does not generate, with the respective operative surface, any movement-resistant friction, as well as being adapted for being stored in a rest condition.

[0019] Preferably, in the aforesaid active condition, the at least one rotatable tool has a respective operating surface raised parallel from the floor.

[0020] Preferably the support means are of the rolling type, so as to facilitate the transport of the apparatus in the activated condition.

[0021] Preferably, the control means are arranged in a position accessible to the operator, for example at the front, according to the direction of travel of the apparatus,

of the part on the ground.

[0022] According to the invention, the support means are carried by a movable frame, articulated to the structure of the floor-contact part. Preferably, the movable frame can oscillate from a first position, at which the support means are not activated by the control means and are therefore raised by the floor, and a second position, at which the support means are activated and then placed in contact with the floor, in a support condition.

[0023] Preferably, the movable frame is connected to the structure of the floor-contact part, by the interposition of elastic retaining means, for example of the type of a helical spring, to make the positioning in the aforementioned first position and second position stable.

[0024] Preferably, the control means are made up of a lever, which can be operated by a foot, by a simple pressure.

[0025] Preferably, the support means comprise a pair of support wheels arranged at a side of the said mobile frame and at least a third support wheel arranged on the opposite side.

[0026] Preferably, the support means comprise a pivoting wheel.

[0027] According to the invention, the movable frame is shaped like an articulated parallelogram.

Description of drawings

[0028] The details of the invention are more evident from the detailed description of a preferred embodiment of the floor treatment apparatus according to the invention, illustrated by way of example in the accompanying drawings, in which:

Figure 1 shows a schematic side view of an apparatus for treating floors according to the invention; Figures 2 and 3 show respectively a side sectional view of a portion of the same apparatus, in different operating conditions; Figure 4 shows a plan view of the same portion shown in Figures 2 and 3.

Best mode

[0029] With particular reference to these figures, the apparatus for the treatment of floors according to the invention has been indicated as a whole with numeral reference 1.

[0030] The apparatus 1 comprises a floor-contact part 2 and a guide part 3, mutually connected by means of an articulation assembly 4, which enables to orient the guide part 3 in different positions, with respect to the floor-contact part 2.

[0031] The guide part 3 is provided with at least one handle 3a.

[0032] The floor-contact part 2 comprises at least one rotatable tool 5, preferably a pair of tools 5, arranged in

such a way as to present a respective operative surface 5a facing the floor P to be treated and, in particular, in use, in contact with it.

[0033] The tools 5, if provided in pairs, are arranged side by side, on opposite sides with respect to the guide part 3, rotatable according to a rotation axis A substantially orthogonal to the floor, therefore for example substantially vertical when the tools are in use resting on a floor substantially horizontal, so that the operating surface 5a of each tool 5 is substantially parallel to the floor P to be treated and can interact with it. The tools 5, for example brushes, are driven in rotation by respective motor members 6, in the opposite direction.

[0034] Alternatively and in a known way, the axis of rotation A can be arranged slightly inclined with respect to an axis orthogonal to the floor P. In practice, the axes A of the tools 5 may have opposite and symmetrical inclinations with respect to a longitudinal median axis of the apparatus. As a result of the aforesaid inclination between the operative surface 5a of each tool 5 and the floor P a differentiated friction action is generated, greater at the portion which, as a result of the rotation, comes closer to the floor, such as to cause a resulting action different from zero, in the same direction for the pair of counter-rotating tools. This resulting action has a continuous propulsive effect.

[0035] The apparatus 1 preferably comprises a tank for a clean detergent, for example water, and a collecting tank for the dirty fluid, so as to perform the scrubber-dryer function. For example, the tank for the clean detergent can be integrated into the floor-contact part 2, while the tank for collecting the dirty fluid in the guide part 3.

[0036] In this case, then, the floor-contact part 2 also comprises, in a known way, a suction strip 7 (see the schematic view illustrated in Figure 4), arranged rearwardly, according to a direction of travel B, with respect to the tools 5.

[0037] The suction strip 7, known in the sector under the name of "squeegee", is placed, in use, in contact with the floor P, to contain and convey the dirty water deviated from the tools 5, following the interaction with the floor P.

[0038] More precisely, the suction strip 7 comprises at least one pair of stripes 8, preferably arranged curved peripherally to the floor-contact part 2, so as to substantially cover the working width of the tools 5. In particular, the pair of stripes 8 provides a front stripe and a rear stripe, with respect to the direction of travel B of the apparatus 1: the first is provided with slots for the leakage of the liquid to be collected, the second, instead, is continuous, therefore without slots, for the collection of the same liquid. A collection chamber for the dirty liquid is thus formed between the aforesaid stripes 8, which can be sucked. The stripes 8 are also supported by a frame 9 (see Figure 4) fixed to the structure 20 of the floor-contact part 2 and associated with a suction member 10 arranged, for example, on the same floor-contact part 2.

[0039] The suction strip 7 also comprises a suction opening 11, connected to at least one respective collec-

tion pipe 12, through which the dirty liquid is sucked from the collection chamber defined between the stripes 8 in the said collection tank.

[0040] The floor-contact part 2 further comprises a lifting assembly 13, configured to arrange the apparatus 1 in a transport or resting position, such as to protect the tools 5 from the interaction with the floor P.

[0041] The lifting assembly 13 comprises support means 14 which can be activated for supporting the floor-contact part 2 and control means 15 which can be actuated to activate the support means 14.

[0042] In practice, when the support means 14 are activated, the tools 5 are lifted from the floor P, preferably parallel to it, and supported together with the floor-contact part 2 by the support means 14.

[0043] The support means 14 are preferably of the rolling type, so as to enable, if activated, to support the floor-contact part 2 and facilitate the transportation of the apparatus 1.

[0044] The support means 14 are movably connected to the structure 20 carrying the operating members of the floor-contact part 2. In particular, the support means 14 are carried by the structure 20 so as to be moved, by actuation of the control means 15, alternately between an inactive position, spaced from the floor P, and an active support position resting on the floor P.

[0045] The support means 14 are carried by a movable frame 16 connected to the structure 20.

[0046] Preferably, the movable frame 16 is articulated so as to carry the support means 14 in an oscillatable manner according to an oscillating direction C, between the aforementioned inactive position and the aforementioned active position.

[0047] Preferably, the lifting assembly 13 comprises a plurality of support means 14, in particular wheels, for optimum transport in the aforementioned support and/or transport active position.

[0048] In the illustrated embodiment, for example, the support means 14 comprise at least one pair of supporting wheels 17 arranged at a side of the aforesaid movable frame 16, for example at the front of the travel direction B, and at least a third support wheel 18 arranged at the opposite side, for example, at the rear of the same direction. More precisely, the third wheel 18 is interposed between the tools 5 and the suction strip.

[0049] At least one of the support means 14 is preferably pivoting, so as to facilitate the guiding of the apparatus 1 in the transport condition. For example the rear wheel 18 can be pivoting. Furthermore, said wheel 18 may be smaller in size than the front wheels 17.

[0050] The movable frame 16, in particular, may comprise a first movable element 19, hinged to the structure 20 at a first oscillation axis 21. The same first movable element 19 carries the front wheels 17, rotatable about a first axis of rotation 22, which can be connected to the first element 19 itself and parallel to the first axis of oscillation 21.

[0051] The movable frame 16 may further comprise a

second movable element 23 hinged to the structure 20 at a second oscillation axis 24 parallel to the first oscillation axis 21. The same second mobile element 23 also carries the third rear wheel 18 rotatable about a second axis of rotation 25.

[0052] The first element 19 and the second element 23 of the movable frame 16 are mutually connected by means of a connecting element 26, for example shaped like a plate, preferably moulded, so as not to interfere with the operating components of the floor-contact part 2.

[0053] The connecting element 26 is articulated to the first movable element 19 and to the second movable element 23, at a first fulcrum 27 and at a second fulcrum 28, respectively, whose axes are parallel to the first oscillation axis 21 and to the second oscillation axis 24.

[0054] The first element 19, the second element 23 and the connecting element 26 can therefore be carried by the structure 20, so as to form an articulated parallelogram.

[0055] Preferably, the movable frame 16 is associated with the structure 20 of the floor-contact part 2 by interposing elastic retaining means 29, adapted for making the aforesaid active and inactive positions of the support means 14 stable. For example, the elastic means 29 can be made from a helical elastic spring, fixed at one end to the structure 20 and to the other to the first movable element 19 or to the second movable element 23 (see Figures 2 and 3).

[0056] The aforementioned control means 15 are fixed integral with the aforesaid movable frame 16, so as to activate the movement of the same frame 16, in order to arrange the support means 14 in the active or inactive position, depending on the case.

[0057] More specifically, the control means 15 can shape a lever, operable by the operator, fixed to the movable frame 16, for example to the first element 19, so as to be accessible to the front of the floor-contact part 2 of the apparatus 1. The lever, in particular, can be activated from the inactive condition 15a to the active condition 15b, by a simple pressure acting on the lever itself, on the contrast of the aforementioned elastic means 29. This action causes the movable frame 16 to oscillate about the first axis 21 and the second axis 24, respectively, and therefore causes the movement of the support means 14 from the inactive position to the active position. This compression action can be easily carried out, for example, with the sole foot.

[0058] The return to the inactive position occurs with a thrust on the opposite side of the same control lever, which also in this case can be easily made with one foot.

[0059] The operation of the apparatus for treating floors according to the invention is easily to understand from the foregoing description.

[0060] When the apparatus 1 is used for a work cycle, it is in the condition in which the floor-contact part 2 carries the tools 5, for example in the form of a pair of brushes, resting on the ground, so as to interact with the floor P. In the same working condition, the support means 14 of the lifting assembly 13 are arranged retractable, in the in-

active position, and thus spaced from the floor P.

[0061] At the end of the work cycle, the apparatus 1 must be moved from one environment to another, for example to be stored in a warehouse. In order to enable the movement of the apparatus, the operator actuates the control means 15 arranged, for example, in an accessible manner at the front of the floor-contact part 2. In particular, the operator pushes the control lever towards the floor P, causing the movable frame 16 carrying the supporting means 14 to move from the inactive position to the active support position.

[0062] In this case, the brushes 5 are lifted from the floor P and the apparatus 1 is thus easily transportable thanks to the support operated by the support means 14. Advantageously it is a rolling support. Moreover, during transport, the operator can easily guide the floor-contact part 2 by means of the guide part 3, which, thanks to the articulation assembly 4, can be maneuvered and oriented freely in all directions with respect to the direction orthogonal to the floor P.

[0063] When the destination of the apparatus 1 is reached, the operator acts again on the control means 15, in a direction opposite to the activation direction, pushing the same means on the opposite side. In particular, it is sufficient to raise the control lever with the foot to bring it back into the inactive condition 15a, at which the support means are separate from the floor P and the brushes 5, instead, are again placed on the floor P.

[0064] If, on the other hand, the apparatus is to be placed in a rest condition, the control means 15 remain or are actuated in the active condition 15b, at which the support means 14 keep the tools 5 lifted from the floor P, in such a way that the weight of the apparatus does not fall on them in the stopping condition.

[0065] In this condition, the guiding part 3 can be possibly locked, by suitable means, in a rest position, for example according to an orthogonal orientation with respect to the floor-contact part 2.

[0066] The apparatus for treating floors according to the invention therefore permits to achieve the purpose of enabling an easy support of the equipment both for transport and for parking.

[0067] This purpose is achieved mainly by the provision of the lifting assembly, which enables the operating tools of the apparatus to be lifted, while supporting the floor-contact part by means of preferably rolling support means.

[0068] The operator simply needs to act on the control means associated with the lifting assembly, conveniently accessible from the floor-contact part.

[0069] In this condition, in particular, the apparatus can be easily moved and guided towards the destination thanks to the freely orientable guide part in all directions. Likewise, the apparatus can be placed in a rest condition, which preserves the integrity of the tools without overloading them.

[0070] In fact, thanks to the support performed by the support means 14, in the rest condition the tools 5 do not

risk deformations resulting from the load of the apparatus.

[0071] In the practical implementation of the invention, the materials used, as well as the shape and size, may vary depending on needs.

[0072] Should the technical features mentioned in any claim be followed by reference signs, such reference signs were included strictly with the aim of enhancing the understanding of the claims and hence they shall not be deemed restrictive in any manner whatsoever on the scope of each element identified for exemplifying purposes by such reference signs.

15 Claims

1. Apparatus for the treatment of floors, in particular a floor scrubber dryer apparatus, comprising a floor-contact part (2) provided with at least one tool (5) rotatable on a floor (P) and a guide part (3) provided with at least one handle (3a), said floor-contact part (2) being connected to said guide part (3) by means of an articulation assembly (4), wherein said apparatus comprises a lifting assembly (13) for said floor-contact part (2), having support means (14) which can be activated, and control means (15) alternatively operable in an inactive condition (15a), at which said at least one rotatable tool (5) is in contact with said floor (P) and said support means (14) are detached from said floor (P), in order to enable the treatment of said floor (P) by said at least one rotatable tool (5), and in an active condition (15b), in which said activatable support means (14) support in a lifted position from said floor (P) said at least one rotatable tool (5), thus placing said apparatus (1) in a condition suitable for transport and resting, such as to protect said at least one tool (5) from the interaction with said floor (P), said guide part (3) being manoeuvrable and orientable freely in said active condition (15b) of said control means (15) through said articulation assembly (4) in order to facilitate the guiding of said apparatus (1) in said transporting condition, said lifting assembly (13) comprising a movable frame (16) carrying said support means (14) and connected to a structure (20) carrying said at least one tool (5) of said floor-contact part (2), said movable frame (16) being shaped like an articulated parallelogram, articulated in a pivotable manner to said structure (20) and being alternately movable between a first position, corresponding to said inactive condition (15a) of said control means, and a second position, corresponding to said active condition (15b) of said control means.
2. Apparatus according to claim 1, **characterized in that** said lifting assembly (13) comprises a plurality of said support means (14) which can be activated, so as to support firmly said at least one rotatable tool (5)

in said condition suitable for transport and rest.

3. Apparatus according to claim 1 or 2, **characterized in that** said activatable supporting means (14) are of the rolling type.
4. Apparatus according to claim 3, **characterized in that** said support means (14) comprise at least one pair of support wheels (17) arranged at one side with respect to said tool (5), and at least one third support wheel (18) arranged at the opposite side, so as to support said tool (5) in said lifted position from said floor (P), when said control means (15) are actuated in said active condition (15b).
5. Apparatus according to one of the preceding claims, **characterized in that** said movable frame (16) is connected to said structure (20) by interposing elastic retaining means (29), to make stable the positioning of said movable frame (16) in said first position and said second position.
6. Apparatus according to one of the preceding claims, **characterized in that** said movable frame (16) comprises a first movable element (19) hinged at a first oscillation axis (21) to said structure (20) and carrying said pair of support wheels (17) rotatable about a first rotation axis (22), and a second movable element (23) hinged to said structure (20) at a second oscillation axis (24) parallel to said first oscillation axis (21) and carrying said third wheel (18) rotatable about a second rotation axis (25), said first movable element (19) and said second movable element (23) being mutually connected by means of a connection member (26) at a first fulcrum (27) and a second fulcrum (28), respectively, having axes parallel to said first oscillation axis (21) and said second oscillation axis (24).
7. Apparatus according to one of the preceding claims, **characterized in that** said control means (15) are made up of a lever or a pedal, which can be operated from opposite sides by means of a compression action.
8. Apparatus according to one of the preceding claims, **characterized in that** said control means (15) are arranged in front of said floor-contact part (2), according to a direction of travel (B) of said apparatus (1), when it is in use.
9. Apparatus according to one of the preceding claims, **characterized in that** said support means (14) comprise at least one pivoting wheel (18) for facilitating the guiding of said apparatus (1) in said transport condition.
10. Apparatus according to one of the preceding claims,

characterized in that in said active condition (15b) of said control means (15), said at least one rotatable tool (5) has a respective operating surface (5a) lifted parallel from the floor (P).

11. Apparatus according to one of the preceding claims, **characterized in that** it is a floor scrubber dryer, comprising for this purpose a suction strip (7) or "squeegee", positioned at the rear part of said at least one rotatable tool (5), according to a direction of travel of said apparatus.

Patentansprüche

1. Einrichtung zur Behandlung von Böden, insbesondere eine Bodenscheuersaugenrichtung, die ein Bodenkontaktteil (2) umfasst, das mit mindestens einem Werkzeug (5) versehen ist, das auf einem Boden (P) drehbar ist, und ein Führungsteil (3), das mit mindestens einem Griff (3a) versehen ist, wobei das Bodenkontaktteil (2) mit dem Führungsteil (3) mittels einer Gelenkanordnung (4) verbunden ist, wobei die Einrichtung eine Hebeanordnung (13) für das Bodenkontaktteil (2) umfasst, die Stützmittel (14) aufweist, die aktiviert werden können, und Steuermittel (15), die alternativ in einem inaktiven Zustand (15a) betreibbar sind, in dem das mindestens eine drehbare Werkzeug (5) mit dem Boden (P) in Kontakt steht, und die Stützmittel (14) von dem Boden (P) gelöst sind, um die Behandlung des Bodens (P) durch das mindestens eine drehbare Werkzeug (5) zu ermöglichen, und in einem aktiven Zustand (15b), in dem die aktivierbaren Stützmittel (14) in einer angehobenen Position von dem Boden (P) das mindestens eine drehbare Werkzeug (5) stützen, wodurch die Einrichtung (1) in einen Zustand versetzt wird, der für den Transport und das Ruhen geeignet ist, um das mindestens eine Werkzeug (5) vor der Wechselwirkung mit dem Boden (P) zu schützen, wobei das Führungsteil (3) in dem aktiven Zustand (15b) der Steuermittel (15) durch die Gelenkanordnung (4) bewegbar und frei ausrichtbar ist, um das Führen der Einrichtung (1) in dem Transportzustand zu erleichtern, wobei die Hebeanordnung (13) einen bewegbaren Rahmen (16) umfasst, der die Stützmittel (14) trägt und mit einer Struktur (20) verbunden ist, die das mindestens eine Werkzeug (5) des Bodenkontaktteils (2) trägt, wobei der bewegbare Rahmen (16) wie ein gelenkiges Parallelogramm geformt ist, das in einer schwenkbaren Weise an der Struktur (20) angelenkt ist, wobei er abwechselnd zwischen einer ersten Position, die dem inaktiven Zustand (15a) der Steuermittel entspricht, und einer zweiten Position, die dem aktiven Zustand (15b) der Steuermittel entspricht, bewegbar ist.

2. Einrichtung nach Anspruch 1, **dadurch gekenn-**

- zeichnet, dass** die Hebeanordnung (13) eine Vielzahl der Stützmittel (14) umfasst, die aktiviert werden können, um das mindestens eine drehbare Werkzeug (5) in dem Zustand, der zum Transport und zur Ruhe geeignet ist, fest zu halten.
3. Einrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die aktivierbaren Stützmittel (14) vom rollenden Typ sind.
4. Einrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** die Stützmittel (14) mindestens ein Paar Stützräder (17), die an einer Seite in Bezug auf das Werkzeug (5) eingerichtet sind, und mindestens ein drittes Stützrad (18), das an der entgegengesetzten Seite eingerichtet ist, umfassen, um das Werkzeug (5) in der angehobenen Position von dem Boden (P) zu stützen, wenn die Steuermittel (15) in dem aktiven Zustand (15b) betätigt werden.
5. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der bewegbare Rahmen (16) mit der Struktur (20) durch Einfügen elastischer Haltemittel (29) verbunden ist, um die Positionierung des bewegbaren Rahmens (16) in der ersten Position und der zweiten Position stabil zu machen.
6. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der bewegbare Rahmen (16) ein erstes bewegbares Element (19), das an einer ersten Schwingungsachse (21) an der Struktur (20) angelenkt ist und das Paar von Stützrädern (17) trägt, die um eine erste Drehachse (22) drehbar sind, und ein zweites bewegbares Element (23) umfasst, das an der Struktur (20) an einer zweiten Schwingungsachse (24) angelenkt ist, die parallel zu der ersten Schwingungsachse (21) ist und das das dritte Rad (18) trägt, das um eine zweite Drehachse (25) drehbar ist, wobei das erste bewegbare Element (19) und das zweite bewegbare Element (23) mittels eines Verbindungselements (26) an einem ersten Drehpunkt (27) bzw. einem zweiten Drehpunkt (28), die Achsen aufweisen, die parallel zu der ersten Schwingungsachse (21) und der zweiten Schwingungsachse (24) sind, miteinander verbunden sind.
7. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Steuermittel (15) aus einem Hebel oder einem Pedal bestehen, der bzw. das von entgegengesetzten Seiten mittels einer Druckwirkung betätigt werden kann.
8. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Steuermittel (15) gemäß einer Bewegungsrichtung (B) der Einrichtung (1) vor dem Bodenkontaktteil (2) einge-

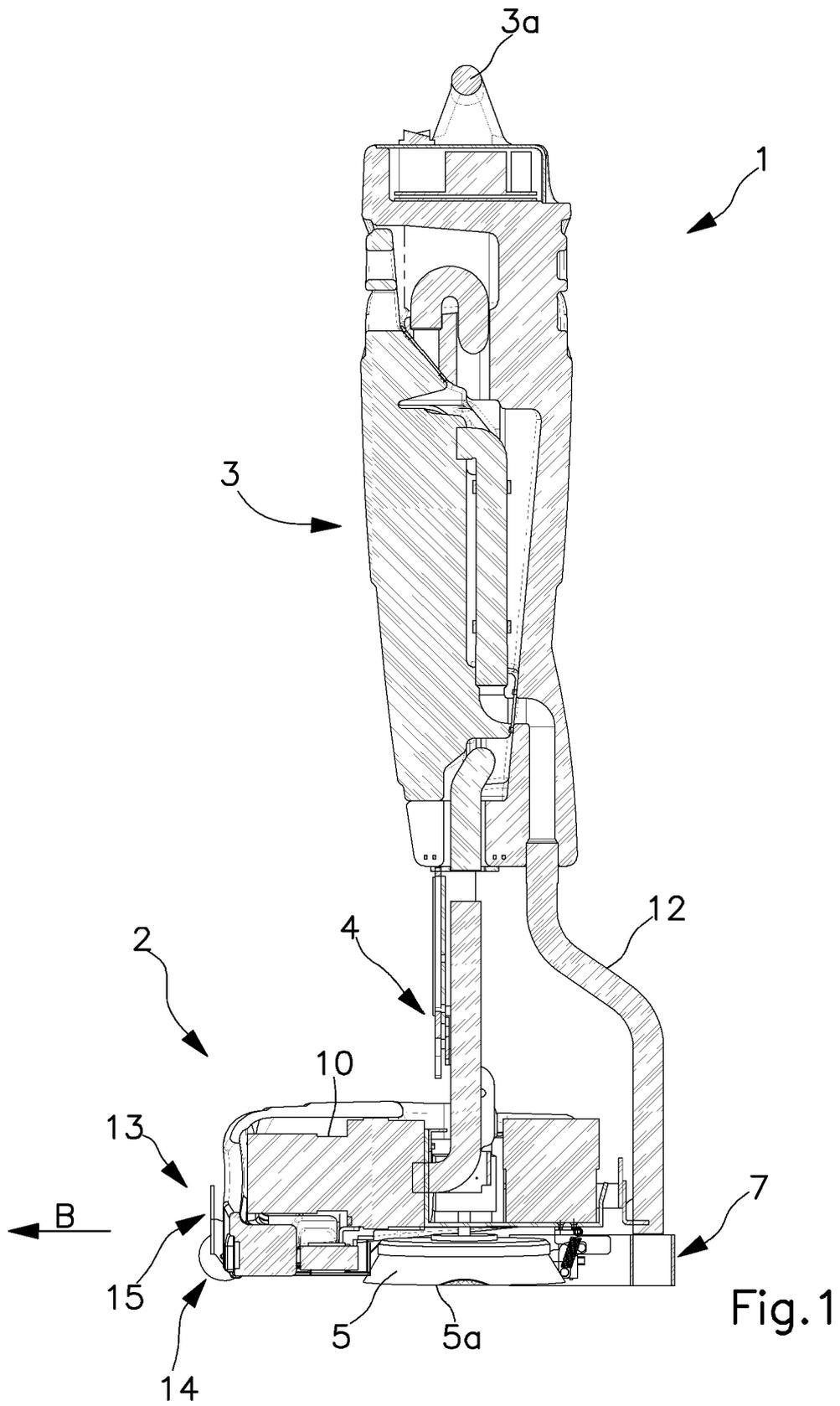
richtet sind, wenn diese in Verwendung ist.

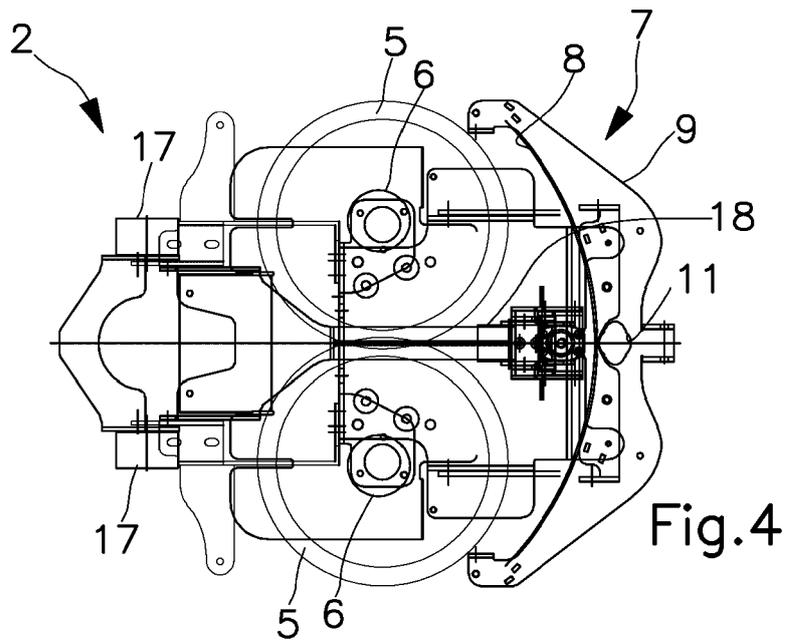
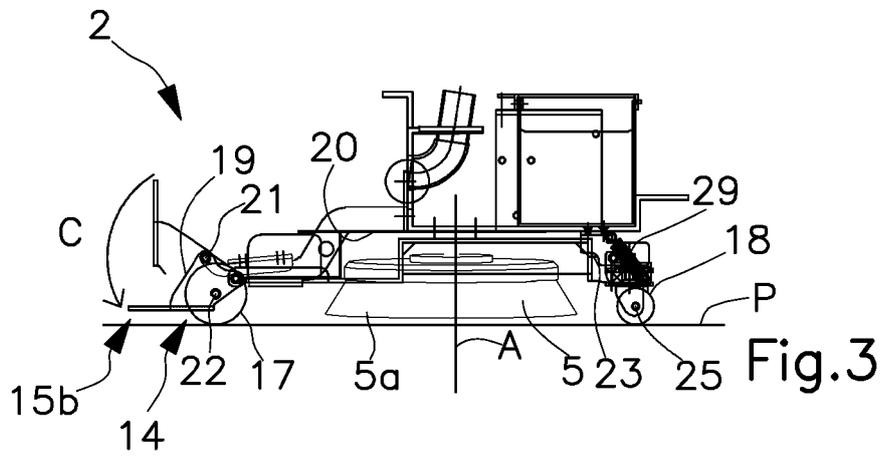
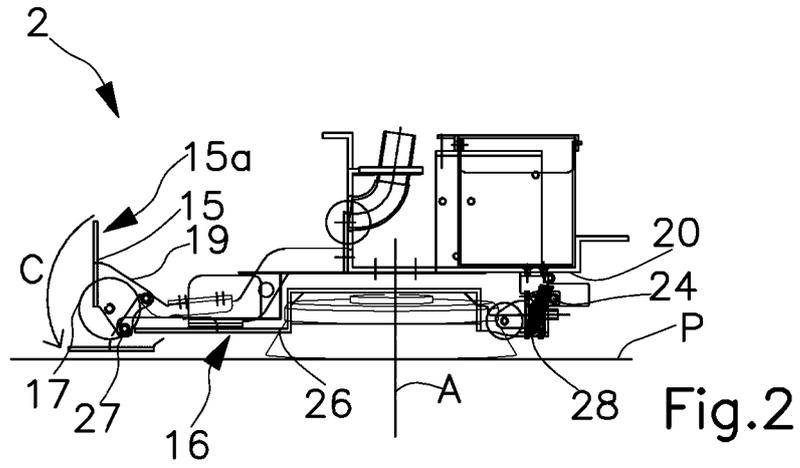
9. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Stützmittel (14) mindestens ein Schwenkrad (18) umfassen, um das Führen der Einrichtung (1) in dem Transportzustand zu erleichtern.
10. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** im aktiven Zustand (15b) der Steuermittel (15) das mindestens eine drehbare Werkzeug (5) eine jeweilige Arbeitsfläche (5a), die parallel von dem Boden (P) angehoben ist, aufweist.
11. Einrichtung nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** sie ein Bodenscheuersauger ist, der zu diesem Zweck eine Saugleiste (7) oder eine "Rake" umfasst, die an dem hinteren Teil des mindestens einen drehbaren Werkzeugs (5) gemäß einer Bewegungsrichtung der Einrichtung positioniert ist.

25 Revendications

1. Appareil pour le traitement de sols, en particulier une autolaveuse, comprenant une partie de contact avec le sol (2) pourvue d'au moins un outil (5) pouvant tourner sur un sol (P) et une partie de guidage (3) pourvue d'au moins une poignée (3a), ladite partie de contact avec le sol (2) étant reliée à ladite partie de guidage (3) au moyen d'un ensemble d'articulation (4), où ledit appareil comprend un ensemble de levage (13) pour ladite partie de contact avec le sol (2), ayant des moyens de support (14) qui peuvent être activés, et des moyens de commande (15) pouvant fonctionner en alternance dans un état inactif (15a), au niveau duquel ledit au moins un outil rotatif (5) est en contact avec ledit sol (P) et lesdits moyens de support (14) sont détachés dudit sol (P), afin de permettre le traitement dudit sol (P) par ledit au moins un outil rotatif (5), et dans un état actif (15b), où lesdits moyens de support activables (14) supportent dans une position relevée à partir dudit sol (P) ledit au moins un outil rotatif (5), plaçant ainsi ledit appareil (1) dans un état approprié pour le transport et le repos, de manière à protéger ledit au moins un outil (5) de l'interaction avec ledit sol (P), ladite partie de guidage (3) étant manœuvrable et orientable librement dans ledit état actif (15b) desdits moyens de commande (15) à travers ledit ensemble d'articulation (4) afin de faciliter le guidage dudit appareil (1) dans ledit état de transport, ledit ensemble de levage (13) comprenant un cadre mobile (16) portant lesdits moyens de support (14) et relié à une structure (20) portant ledit au moins un outil (5) de ladite partie de contact avec le sol (2), ledit cadre mobile

- (16) ayant la forme d'un parallélogramme articulé, étant articulé de manière pivotante sur ladite structure (20), et étant alternativement mobile entre une première position, correspondant audit état inactif (15a) desdits moyens de commande, et une seconde position, correspondant audit état actif (15b) desdits moyens de commande..
2. Appareil selon la revendication 1, **caractérisé en ce que** ledit ensemble de levage (13) comprend une pluralité desdits moyens de support (14) qui peuvent être activés, de manière à supporter fermement ledit au moins un outil rotatif (5) dans ledit état approprié pour le transport et le repos. 10
 3. Appareil selon la revendication 1 ou 2, **caractérisé en ce que** lesdits moyens de support activables (14) sont du type roulant. 15
 4. Appareil selon la revendication 3, **caractérisé en ce que** lesdits moyens de support (14) comprennent au moins une paire de roues de support (17) agencées d'un côté par rapport audit outil (5), et au moins une troisième roue de support (18) agencée du côté opposé, de manière à supporter ledit outil (5) dans ladite position relevée par rapport audit sol (P), lorsque lesdits moyens de commande (15) sont actionnés dans ledit état actif (15b). 20
 5. Appareil selon l'une des revendications précédentes, **caractérisé en ce que** ledit cadre mobile (16) est relié à ladite structure (20) par interposition de moyens de retenue élastiques (29), pour rendre stable le positionnement dudit cadre mobile (16) dans ladite première position et ladite seconde position. 25
 6. Appareil selon l'une des revendications précédentes, **caractérisé en ce que** ledit cadre mobile (16) comprend un premier élément mobile (19) articulé au niveau d'un premier axe d'oscillation (21) sur ladite structure (20) et portant ladite paire de roues de support (17) pouvant tourner autour d'un premier axe de rotation (22), et un second élément mobile (23) articulé sur ladite structure (20) au niveau d'un second axe d'oscillation (24) parallèle audit premier axe d'oscillation (21) et portant ladite troisième roue (18) pouvant tourner autour d'un second axe de rotation (25), ledit premier élément mobile (19) et ledit second élément mobile (23) étant mutuellement reliés au moyen d'un élément de liaison (26) au niveau d'un premier point d'appui (27) et d'un second point d'appui (28), respectivement, ayant des axes parallèles audit premier axe d'oscillation (21) et audit second axe d'oscillation (24). 30
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 7. Dispositif selon l'une des revendications précédentes, **caractérisé en ce que** lesdits moyens de commande (15) sont constitués d'un levier ou d'une pédale, qui peuvent être actionnés à partir de côtés opposés au moyen d'une action de compression.
 8. Appareil selon l'une des revendications précédentes, **caractérisé en ce que** lesdits moyens de commande (15) sont agencés devant ladite partie de contact avec le sol (2), selon une direction de déplacement (B) dudit appareil (1), lorsqu'il est utilisé. 5
 9. Appareil selon l'une des revendications précédentes, **caractérisé en ce que** lesdits moyens de support (14) comprennent au moins une roue pivotante (18) pour faciliter le guidage dudit appareil (1) dans ledit état de transport. 10
 10. Appareil selon l'une des revendications précédentes, **caractérisé en ce que**, dans ledit état actif (15b) desdits moyens de commande (15), ledit au moins un outil rotatif (5) a une surface de fonctionnement respective (5a) soulevée parallèlement du sol (P). 15
 11. Appareil selon l'une des revendications précédentes, **caractérisé en ce qu'**il s'agit d'une autolaveuse, comprenant à cet effet une bande d'aspiration (7) ou « raclette », positionnée au niveau de la partie arrière dudit au moins un outil rotatif (5), selon une direction de déplacement dudit appareil. 20





REFERENCES CITED IN THE DESCRIPTION

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