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(54) **SQUEEZING OUT DEVICE FOR A FLAT MOP COVER**

AUSWRINGVORRICHTUNG FÜR EINE FLACHMOPPABDECKUNG

DISPOSITIF D'ESSORAGE POUR COUVRE-SERPILLIÈRE PLAT

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Description

[0001] The present invention relates to a squeezing out device for removing liquid from a flat mop cover mounted on a mop holder of a mopping device according to the preamble of claim 1.

[0002] The invention generally relates to the field of floor cleaning and floor treatment carried out by the use of a mopping device. A mop cover of a mopping device needs to be frequently rinsed and again charged with water or a cleaning solution and then has to be pressed or wrung to remove excess liquid from the flat mop cover. Many prior art systems use a mop press or wringer to remove excess liquid from the mop cover.

[0003] Flat mop covers mounted on a mop holder of a mopping device are widely used. The mop cover is usually an elongate rectilinear flat member with a backing textile forming a top side with attachment means for attachment on a plate-like mop holder. A bottom side of the backing textile is the mopping side and normally has a trimming. The mop cover can be pressed to squeeze out excess liquid after rinsing, see e.g. EP 1374752 A.

[0004] Cleaning personnel normally uses a trolley with a bucket or other container for a liquid like water or a cleaning solution and some kind of squeeze out device fixedly mounted to the container to squeeze out the mop cover to the practical amount of liquid to be carried to the floor to be cleaned.

[0005] A first prior art squeezing out device (WO 99/00050 A1) already provides a squeeze out structure which defines a generally flat squeeze out surface with a plurality of openings. The squeeze out surface is inclined from the horizontal preferably at an angle of about 45° within the squeeze out structure that is fixedly positioned on top of or within the bucket. The squeeze out surface itself is formed by a plurality of three dimensional squeeze out formations, in particular rods, rolls, balls, or the like which together define the plurality of openings therebetween.

[0006] Instead of only pressing the mop cover towards the squeeze out surface this prior art squeezing out device provides for a means that enables movement of the mop holder with the mop cover attached thereto on the squeeze out formations back and forth, preferably sideways. This means is a mop handle engagement means above the squeeze out surface with an arrangement by which the user may apply pressure against the squeeze out surface. For enhanced liquid removal the mop cover on the mop holder may be moved from left to right and right to left in a reciprocating movement while maintaining a slight backward pressure to insure that the mop cover remains pressed against the squeeze out formations. So removal of liquid from the mop cover is not only done by exerting pressure, but also by using a lateral relative movement between the mop cover and the squeeze out formations.

[0007] In this prior art the squeeze out formations are preferably rolls or balls that are as such rotatably mount-

ed within a squeeze out frame structure. However it is disclosed that they may be stationary as well.

[0008] From further prior art a mop cover has become recently available (WO 2005/013793 A1) which comprises an additional part extending beyond the mop holder. This double size mop cover can be used for specific cleaning tasks in particular with a wet/dry cleaning combination.

[0009] The prior art DE 94 13 604 U1 discloses a squeezing out device for removing liquid from a flat mop cover mounted on a mop holder of a mopping device, comprising a bucket for a liquid like water or a cleaning solution and a squeezing out structure that comprises a squeeze out frame mounted in a fixed position relative to the bucket for positioning the mop holder of the mopping device. Said squeezing out structure also defines a generally flat squeeze out surface with a plurality of openings, wherein the squeeze out surface is formed by a plurality of squeeze out formations like a grid. The squeeze out formations are positioned within a separate carrier structure being moveable relating to the squeeze out frame.

[0010] It is an object of the present invention to provide a simple and easy to use squeezing out device for removing excess liquid from flat mop covers with a higher efficiency and in a way easy to operate by cleaning personnel.

[0011] Above mentioned object of the present invention is met by a squeezing out device with the features of claim 1.

[0012] This squeezing out device realizes the relative movement between the mop cover and the squeeze out formations with a still stationary mop holder. With such stationary positioning of the mop holder the pressure exerted on the squeeze out surface may be kept at a high and constant level. In spite of this a relative movement between the squeeze out formations and the mop cover that increases the squeeze out efficiency is realized, namely by the carrier structure that is movable relative to the squeeze out frame.

[0013] The carrier structure may be a frame that is movable back and forth relative to the squeeze out frame or may be a continuous conveyor means similar to a conveyor belt, which conveyor means carries the squeeze out formations and is guided by guide pulleys in a continuous revolving movement.

[0014] Further improvements and specifications of this version of the squeeze out device according to the invention are the subject matter of further dependent claims.

[0015] Now, follows a description of preferred embodiments of the invention by way of example and with reference to the drawings. In the drawings

Fig. 1 shows a first embodiment of the invention in a first position,

Fig. 2 shows the squeezing out device according to

Fig. 1 in a second position, however without a mop holder,

Fig. 3 shows the first embodiment in a schematic side view,

Fig. 4 shows a second embodiment of the invention in a schematic side view like Fig. 3.

[0016] In Fig. 1 there is indicated a trolley 1 for a mopping system. The trolley 1 is provided with castors at each corner thereof and with an upstanding frame 2. In Fig. 1 there can be seen a mopping device with a flat mop cover 3 mounted on a mop holder 4. A handle 5 is attached to the top side of the mop holder 4 by means of a handle socket and a universal joint. This is a typical construction of such flat mop holder 4 which is widely disclosed in the prior art.

[0017] The system further comprises a bucket 6 that is positioned on the trolley 1. In the embodiment shown in Fig. 1 and 2 there are two buckets 6, 7 arranged next to each other. One bucket 7 is for clean water or a cleaning solution, whereas the other bucket 6 is for squeezed out liquid and waste water. Instead of the buckets 6, 7 other types of containers can be used.

[0018] Fig. 1 and 2 show a squeeze out structure 8 on top of the first bucket 6. This squeeze out structure 8 defines a generally flat squeeze out surface 9 with a plurality of openings. As the mopping device has been removed in Fig. 2 the openings are clearly visible.

[0019] The squeeze out surface 9 is formed by a plurality of squeeze out formations 10. The squeeze out formations 10 can be formed by a large part like a sieve, a grid, a perforated plate structure or the like. In the present embodiment the squeeze out formations 10 are formed by rods extending parallel to each other, the distance between the rods defining the openings of the squeeze out surface 9. From prior art documents squeeze out formations 10 as rods, rolls, balls, or the like are known.

[0020] Now, as can be seen in Fig. 1 and 2, this first version of a squeezing out device according to the invention is **characterized in that** the squeeze out structure 8 comprises a squeeze out frame 11 mounted in a fixed position relative to the bucket 6 for positioning the mop holder 4 of the mopping device, the squeeze out formations 10 are positioned within a separate carrier structure 12, the carrier structure 12 is movable relative to the squeeze out frame 11 so that the mop holder 4 with the flat mop cover 3 can remain stationary on the squeeze out surface 9 within the squeeze out frame 11, whilst the squeeze out formations 10 are moved relative to the mop cover 3. As already explained in the introductory part of the description, in this system the mop holder 4 can be pressed with constant and high pressure against the squeeze out surface 9. Nevertheless, an efficient relative movement between the squeeze out formations 10 and the mop cover 3 is realized, here by movement of the squeeze out formations 10 relative to the stationary mop

cover 3 which is positioned within the squeeze out frame 11.

[0021] In the present embodiment it is provided that the carrier structure 12 is a frame that is movable back and forth, preferably sideways, by means of an actuating lever 13, pivotally mounted to the squeeze out structure 8 and/or the bucket 6 and/or the trolley 1.

[0022] In the present embodiment the manual actuating lever 13 can be seen on the left side. Fig. 1 shows the left position of the carrier structure 12 relative to the squeeze out frame 11, Fig. 2 shows the right position thereof. The actuating lever 13 is directly coupled to the carrier structure 12. However, there may be a transmission between the actuating means 13 on the one hand and the carrier structure 12 on the other hand wherever this is appropriate. Of course, the complete structure may be motorized as well which would substantially improve the handling. However, a motorized system is difficult to apply with a trolley 1 as shown here.

[0023] Fig. 3 shows a schematic side view of the above.

[0024] An alternative of a carrier structure 12 that is movable sideways back and forth by means of a manual actuating means may be a continuous conveyor means guided by guide pulleys 14. This is shown as an embodiment of Fig. 4 in a side view, highly schematical. Here a manual crank drive 13' is coupled through a gear transmission 13" to the left guide pulley 14. The carrier structure 12 is constructed by two parallel running conveyor chains with rods as squeeze out formations 10 extending between those conveyor chains.

[0025] Above mentioned alternative construction allows for a continuous squeezing out of liquid from the flat mop cover 3. The driving means can be a manual crank drive with the actuating lever as shown, however a foot operated pedal drive as well as a motor drive is an appropriate means as well.

[0026] In the prior art document mentioned above (WO 99/00050 A1) the preferred embodiment shows squeeze out formations 10 that are rotatably mounted within a frame structure. Extensive tests have shown, however, that in the present embodiment it might be more efficient that the squeeze out formations 10 as such are stationarily mounted within the carrier structure 12.

[0027] Finally, it is shown that in this embodiment it is preferable that the squeeze out surface 9 is oriented generally horizontally.

Claims

1. Squeezing out device for removing liquid from a flat mop cover (3) mounted on a mop holder (4) of a mopping device, comprising a bucket (6) or other container for a liquid like water or a cleaning solution and a squeeze out structure (8) that comprises a squeeze out frame (11) mounted in a fixed position relative to the bucket (6) for posi-

tioning the mop holder (4) of the mopping device and defines a generally flat squeeze out surface (9) with a plurality of openings,

wherein the squeeze out surface (9) is formed by a plurality of squeeze out formations (10) like a grid, a perforated plate structure, rods, rolls, balls, or the like, and

wherein the squeeze out formations (10) are positioned within a separate carrier structure (12) being movable relative to the squeeze out frame (11),

characterized in that

the separate carrier structure (12) is moveable so that the mop holder (4) with the flat mop cover (3) can remain stationary on the squeeze out surface (9) within the squeeze out frame (11), whilst the squeeze out formations (10) are moved relative to the mop cover (3).

2. Device according to claim 1, **characterized in that** the carrier structure (12) is a frame that is movable back and forth, preferably sideways, by means of an actuating lever (13), pivotally mounted to the squeeze out structure (8) and/or the bucket (6) and/or a trolley for the bucket (6).
3. Device according to claim 1, **characterized in that** the carrier structure (12) is a continuous conveyor means guided by guide pulleys (14).
4. Device according to claim 3, **characterized in that** the conveyor means (12) is driven by a manual crank drive (13') or a foot operated pedal drive or a motor drive.
5. Device according to any one of the preceding claims, **characterized in that** the squeeze out formations (10) as such are stationarily mounted within the carrier structure (12).
6. Device according to any one of the preceding claims, **characterized in that** the squeeze out surface (9) is oriented generally horizontally.

Patentansprüche

1. Auswringvorrichtung zum Entfernen von Flüssigkeit aus einer flachen Moppabdeckung (3), die an einem Mopphalter (4) einer Moppvorrichtung angebracht ist, mit einem Eimer (6) oder einem anderen Behälter für eine Flüssigkeit wie Wasser oder eine Reinigungslösung und einer Auswringstruktur (8), die einen Auswringrahmen (11) aufweist, der in einer festgelegten Position bezüglich des Eimers (6) angebracht ist, um den Mopphalter (4) der Moppvorrichtung zu positionieren, und eine allgemein flache Auswringfläche (9) mit mehreren Öffnungen definiert,

wobei die Auswringfläche (9) aus mehreren Auswringausbildungen (10) wie einem Gitter, einer perforierten Plattenstruktur, Stäben, Rollen, Kugeln o. A. gebildet ist,

und

wobei die Auswringausbildungen (10) in einer getrennten Trägerstruktur (12) positioniert sind, die bezüglich des Auswringrahmens (11) beweglich ist,

dadurch gekennzeichnet, dass

die getrennte Trägerstruktur (12) so beweglich ist, dass der Mopphalter (4) mit der flachen Moppabdeckung (3) stationär auf der Auswringfläche (9) im Auswringrahmen (11) bleiben kann, während die Auswringausbildungen (10) bezüglich der Moppabdeckung (3) bewegt werden.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass**

die Trägerstruktur (12) ein Rahmen ist, der mittels eines Betätigungshebels (13), der schwenkbar an der Auswringstruktur (8) und/oder am Eimer (6) und/oder an einem Karren für den Eimer (6) montiert ist, hin- und her-, vorzugsweise seitlich, bewegt werden kann.

3. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass**

die Trägerstruktur (12) ein Endlosfördermittel ist, das von Laufrollen (14) geführt wird.

4. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass**

das Fördermittel (12) von einem manuellen Kurbelgetriebe (13') oder einem mit dem Fuß betätigten Pedalgetriebe oder einem motorischen Antrieb angetrieben wird.

5. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Auswringausbildungen (10) als solche stationär in der Trägerstruktur (12) angebracht sind.

6. Vorrichtung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Auswringfläche (9) allgemein horizontal ausgerichtet ist.

Revendications

1. Dispositif d'essorage pour éliminer le liquide d'un couvre-serpillière plat (3) monté sur un porte-serpillière (4) d'un dispositif de nettoyage à la serpillière, comprenant un seau (6) ou un autre récipient pour un liquide tel que de l'eau ou une solution nettoyante et une structure d'essorage (8) qui comprend un cadre d'essorage (11) monté dans une position fixe par rapport au seau (6) pour positionner le porte-serpillière (4)

du dispositif de nettoyage à la serpillière et qui définit une surface d'essorage (9) généralement plane avec une pluralité d'ouvertures, la surface d'essorage (9) étant formée par une pluralité de formations d'essorage (10) telles qu'une grille, une structure de plaque perforée, des barres, des rouleaux, des boules, ou similaires, et les formations d'essorage (10) étant positionnées à l'intérieur d'une structure de support séparée (12) mobile par rapport au cadre d'essorage (11),

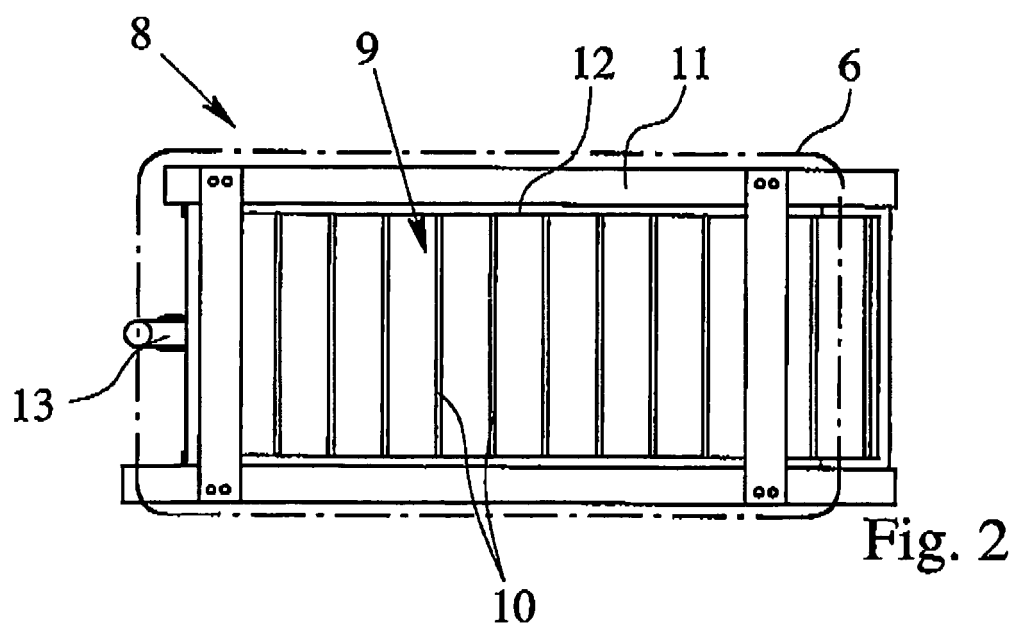
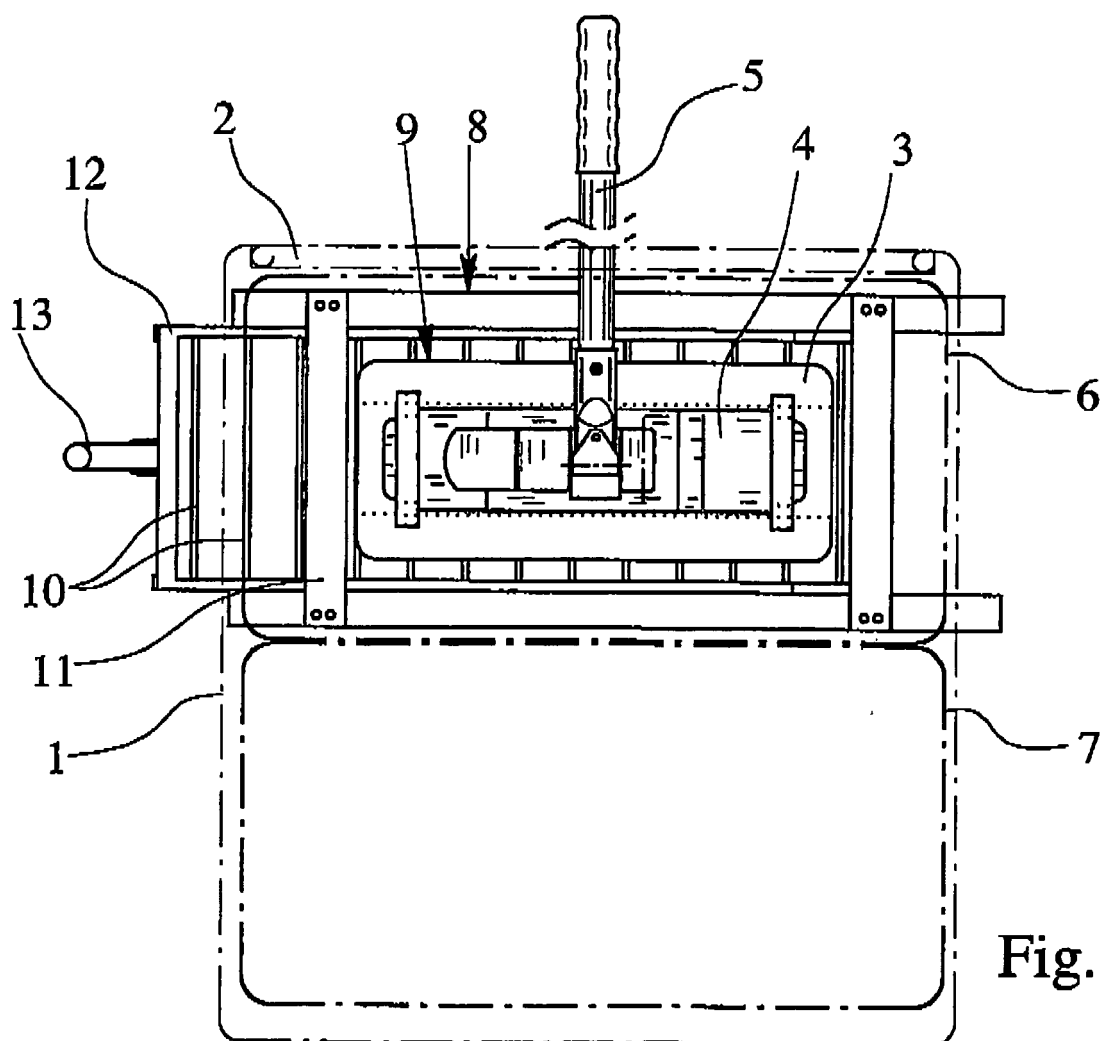
caractérisé en ce que

la structure de support séparée (12) est mobile de telle sorte que le porte-serpillière (4) avec le couvre-serpillière plat (3) puissent rester stationnaires sur la surface d'essorage (9) dans le cadre d'essorage (11), tandis que les formations d'essorage (10) sont déplacées par rapport au couvre-serpillière (3).

2. Dispositif selon la revendication 1, **caractérisé en ce que** la structure de support (12) est un cadre qui est déplaçable d'avant en arrière, de préférence latéralement, au moyen d'un levier d'actionnement (13), monté à pivotement sur la structure d'essorage (8) et/ou le seau (6) et/ou un chariot pour le seau (6).
3. Dispositif selon la revendication 1, **caractérisé en ce que** la structure de support (12) est un moyen de transport continu guidé par des poulies de guidage (14).
4. Dispositif selon la revendication 3, **caractérisé en ce que** le moyen de transport (12) est entraîné par un entraînement à manivelle manuel (13') ou un entraînement à pédale à commande au pied ou un entraînement à moteur.
5. Dispositif selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les formations d'essorage (10) en tant que telles sont montées de manière stationnaire dans la structure de support (12).
6. Dispositif selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la surface d'essorage (9) est orientée généralement horizontalement.

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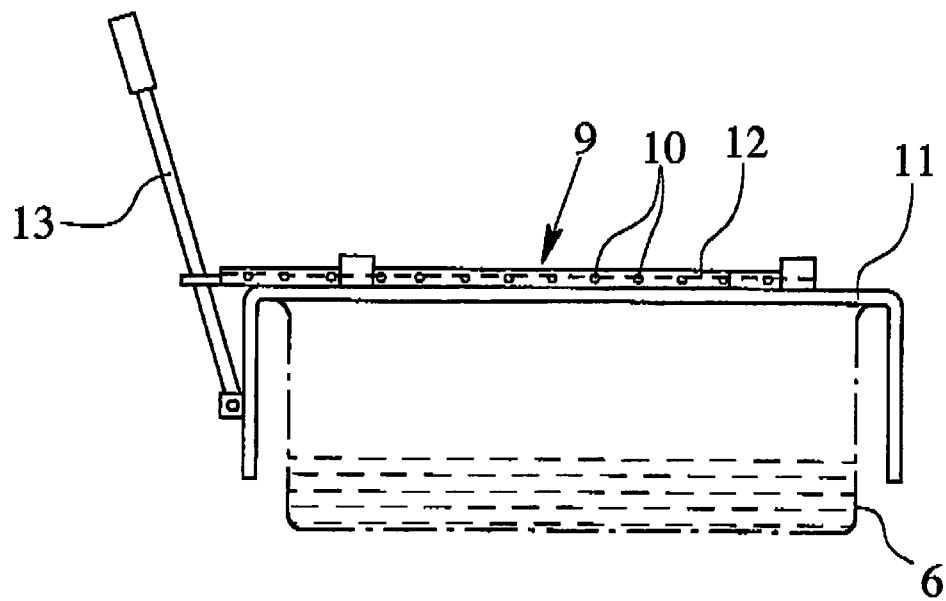


Fig. 3

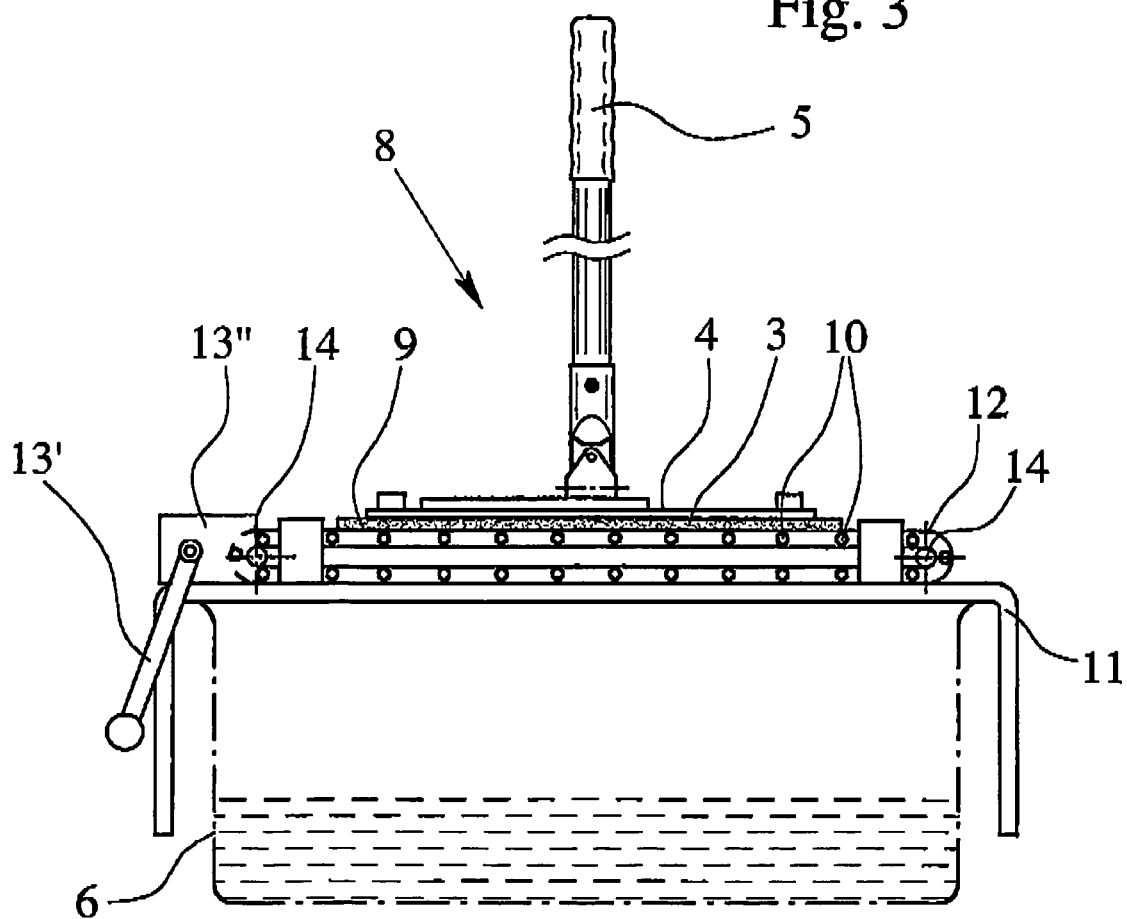


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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