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Remarks:

This application was filed on 14-11-2009 as a divisional application to the application mentioned under INID code 62.

(54) **Squeezing out device for a flat mop cover**

(57) A squeezing out device according to the invention has nip roller means (17, 17') movable between an open position in which an additional part (3') of the mop cover (3) extending beyond the mop holder (4) can be inserted between the nip rolls (17, 17'), and a closed position in which the additional part (3') of the mop cover (3) will be squeezed out by pulling it through the nip rolls

(17, 17') while simultaneously moving the part of the mop cover (3) mounted on the mop holder (4) under pressure over the squeeze out surface (9), and the squeeze out device is provided with a twin bucket or two buckets next to each other with one bucket (6) for the squeeze out structure (8) and the other bucket (7) for the nip roller means (17, 17').

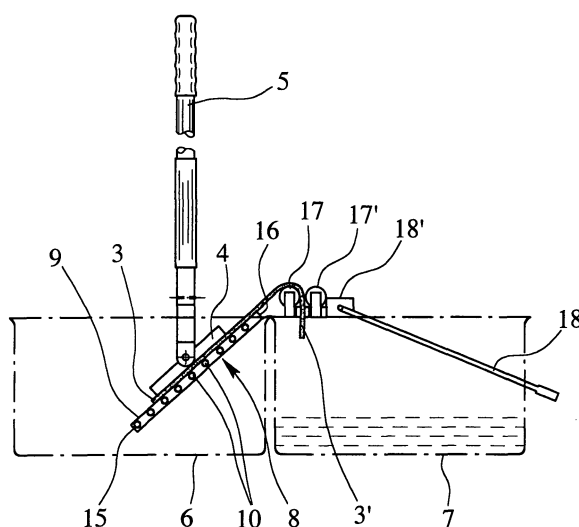


Fig. 2

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.

[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 forming the starting point of the invention (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 forming the starting point of the invention (DE 196 48 956 A1) 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 defines a generally flat squeeze out surface with a plurality with a plurality of openings, wherein the squeeze out surface is inclined from the horizontal and has no border at a lower longitudinal edge thereof, and wherein the squeeze out surface is formed by a plurality of squeeze out formations like rods, wherein adjacent to the opposite, upper longitudinal edge of the squeeze out surface there is provided a nip roller means extending generally parallel to said longitudinal edge.

[0010] It is the object of the present invention to provide a simple and easy to use squeeze out device that is able to remove excess liquid from the flat mop cover with a higher efficiency and in a way easy to operate by cleaning personnel.

[0011] For a larger mop cover, the double size mop cover mentioned above, claim 1 defines a squeezing out device that solves above mentioned problem in a highly efficient way.

[0012] This squeezing out device provides for a stationary squeeze out surface on the one hand adapted to squeeze out the part of the mop cover that is mounted on the mop holder, together with nip roller means for the part of the mop cover extending beyond the surface of the mop holder.

[0013] For this squeezing out device movable squeeze out formations are not helpful, here a stationary squeeze out surface is appropriate. Here the mop holder with the mop cover is moved over a squeeze out surface so that simultaneously the loose part of the mop cover is pulled through the nip roller means squeezing out liquid from this part in a traditional way.

[0014] Now, follows a description of a preferred embodiment of the invention by way of example and with reference to the drawings. In the drawings

Fig. 1 shows a squeezing out device in general in a first position,

Fig. 2 shows a preferred third embodiment of the invention in a top plan view.

[0015] 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.

[0016] The system further comprises a bucket 6 that is positioned on the trolley 1. In Fig. 1 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.

[0017] Fig. 1 shows 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.

[0018] 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.

[0019] Fig. 2 shows an embodiment of the invention that is specifically adapted to a flat mop cover 3 of larger size, a size extending beyond the surface of the mop holder 4.

[0020] In this construction it is provided that the squeeze out surface 9 has no border at one longitudinal edge 15 thereof, adjacent to the opposite longitudinal edge 16 of the squeeze out surface 9 there is provided a nip roller means 17, 17' extending generally parallel to said longitudinal edge 16, the nip roller means 17, 17' is movable between an open position in which an additional part 3' of the mop cover 3 extending beyond the mop holder 4 can be inserted between the nip rolls 17, 17' and a closed position in which the additional part 3' of the mop cover 3 will be squeezed out by pulling it through the nip rolls 17, 17' while simultaneously moving the part of the mop cover 3 mounted on the mop holder 4 under pressure over the squeeze out surface 9.

[0021] The nip roller means 17, 17' are operating in the usual way and are here provided with a stationary nip roll 17 and a movable nip roll 17' which is manually operated and moved towards the stationary nip roll 17. Fastening means can be provided to fasten the movable nip roll 17' in a specific distance from the stationary nip roll 17 to define a gap between both nip rolls 17, 17' adapted to the thickness of the additional part 3' of the flat mop cover 3.

[0022] In this embodiment it is preferable that the squeeze out surface 9 is inclined from the horizontal preferably at an angle of about 45°. Further it is preferable that the nip roller means 17, 17' is positioned adjacent to the upper longitudinal edge 16 of the squeeze out sur-

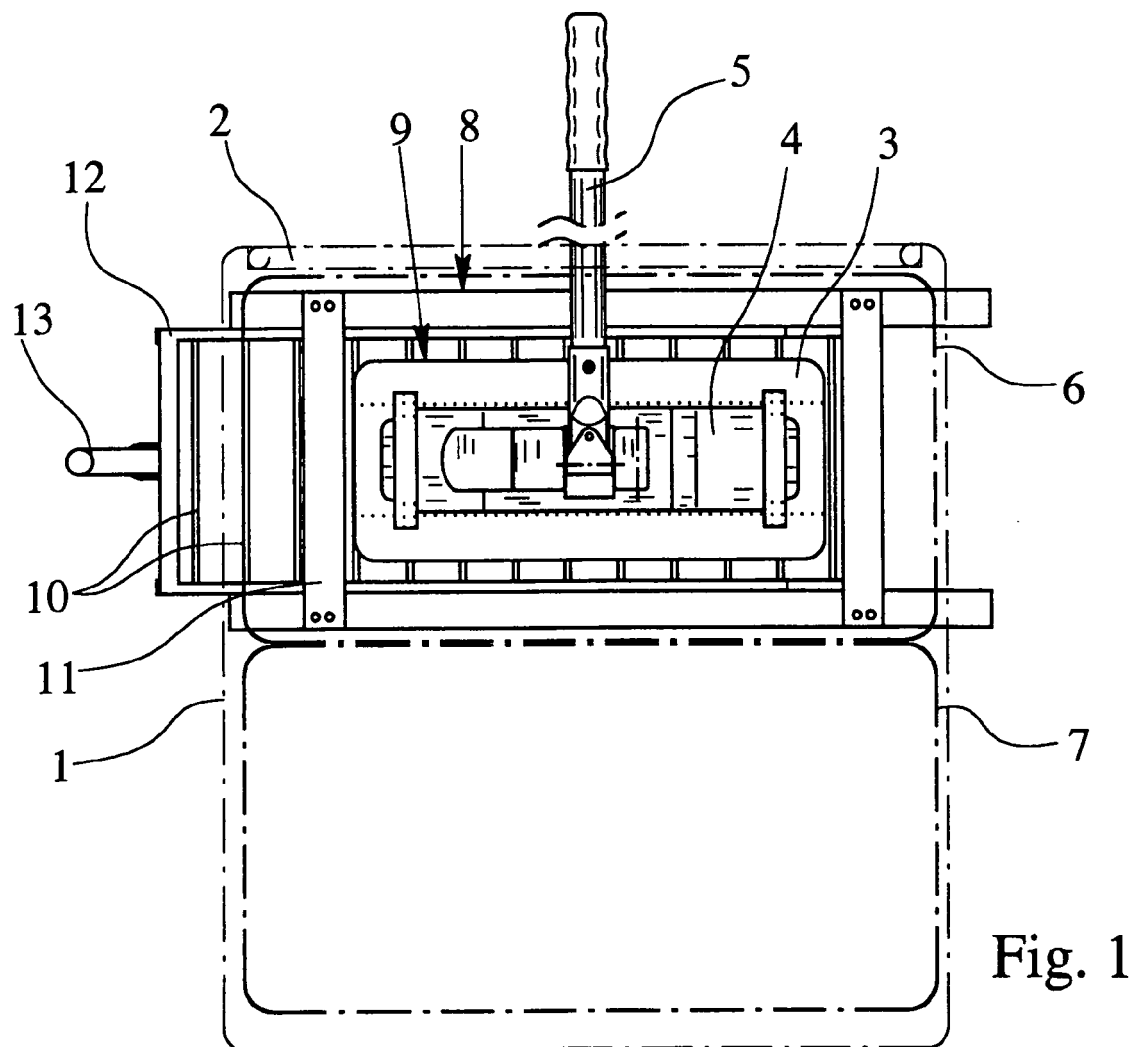
face 9. The advantage of this specific construction is that the squeeze out movement is a movement directed downwardly.

[0023] In this embodiment the nip roller means 17, 17' is provided with a foot operated pedal 18 and a gear transmission 18' to press the nip roll 17' towards the stationary nip roll 17. So the hands of an operator are free for the handle 5 of the mop holder 4 to push the handle 5 downwards moving the mop cover 3 over the squeeze out formations 10 on the squeeze out surface 9 downwardly into the bucket 6 while the foot operated pedal 18 keeps the nip roll 17' in a position insuring proper squeezing of the additional part 3' of the flat mop cover 3.

[0024] In the present and preferred embodiment it is provided that there are two buckets 6, 7 next to each other with one bucket 6 for the squeeze out structure 8 and the other bucket 7 for the nip roller means 17, 17'.

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 squeezing out structure (8) that defines a generally flat squeeze out surface (9) with a plurality of openings, wherein the squeeze out surface (9) is inclined from the horizontal preferably at an angle of about 45° and has no border at at least a lower longitudinal edge (15) thereof, 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 adjacent to the opposite, upper longitudinal edge (16) of the squeeze out surface (9) there is provided a nip roller means (17, 17') extending generally parallel to said longitudinal edge (16),
characterized in that
the nip roller means (17, 17') is movable between an open position in which an additional part (3') of the mop cover (3) extending beyond the mop holder (4) can be inserted between the nip rolls (17, 17'), and a closed position in which the additional part (3') of the mop cover (3) will be squeezed out by pulling it through the nip rolls (17, 17') while simultaneously moving the part of the mop cover (3) mounted on the mop holder (4) under pressure over the squeeze out surface (9), and
the squeeze out device is provided with a twin bucket or two buckets next to each other with one bucket (6) for the squeeze out structure (8) and the other bucket (7) for the nip roller means (17, 17').



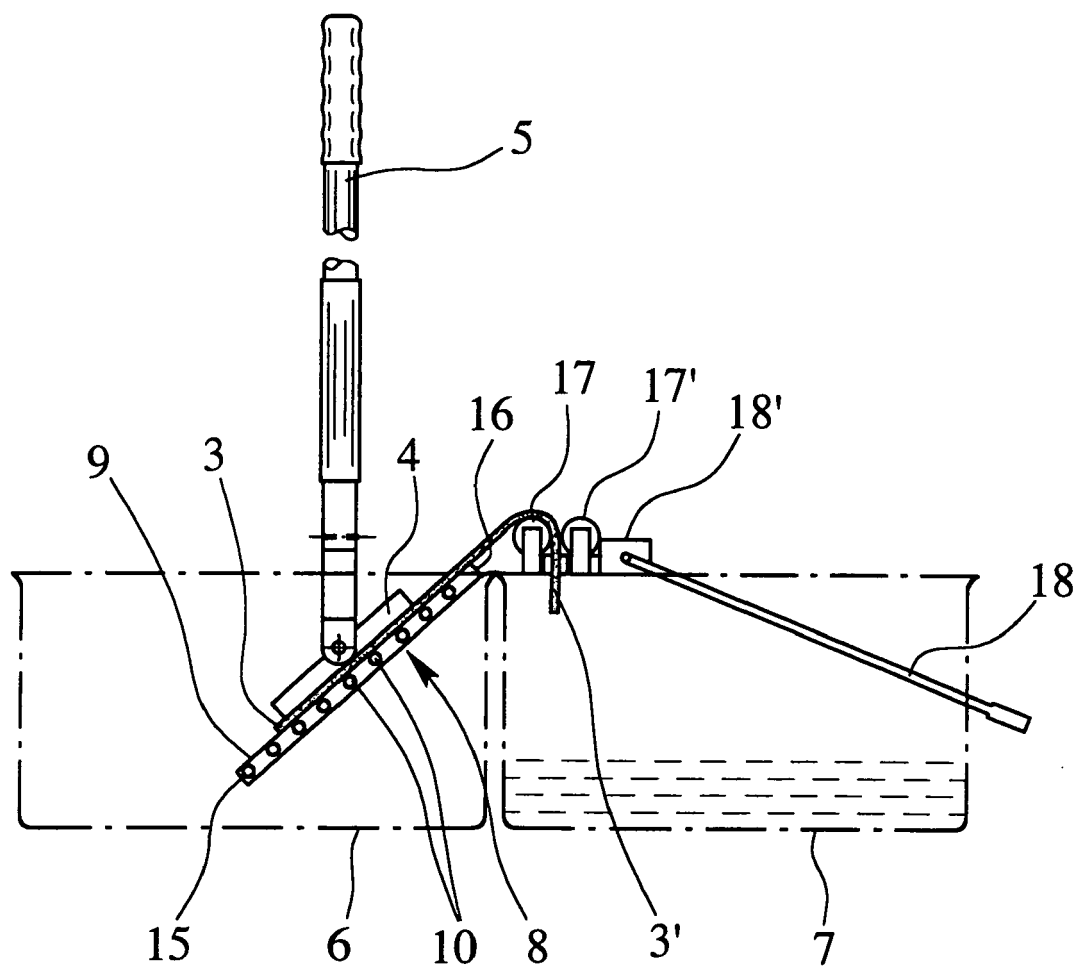


Fig. 2



EUROPEAN SEARCH REPORT

Application Number
EP 09 01 4261

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 196 48 956 A1 (MONDOTRADE AG [CH] MONDOTRADE AG SIEBNEN [CH]) 10 June 1998 (1998-06-10) * the whole document *	7	INV. A47L13/59 A47L13/60
A	FR 1 356 255 A (SCHOCH GERARD) 27 March 1964 (1964-03-27) * the whole document *	7	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47L
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 January 2010	Examiner Ureta, Rolando
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 01 4261

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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11-01-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 19648956	A1	10-06-1998	NONE
FR 1356255	A	27-03-1964	NONE

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 9900050 A1 [0005]
- WO 2005013793 A1 [0008]
- DE 19648956 A1 [0009]