July 2, 1946. E. T. LINDEROTH 2,403,105

BRUSHING APPARATUS

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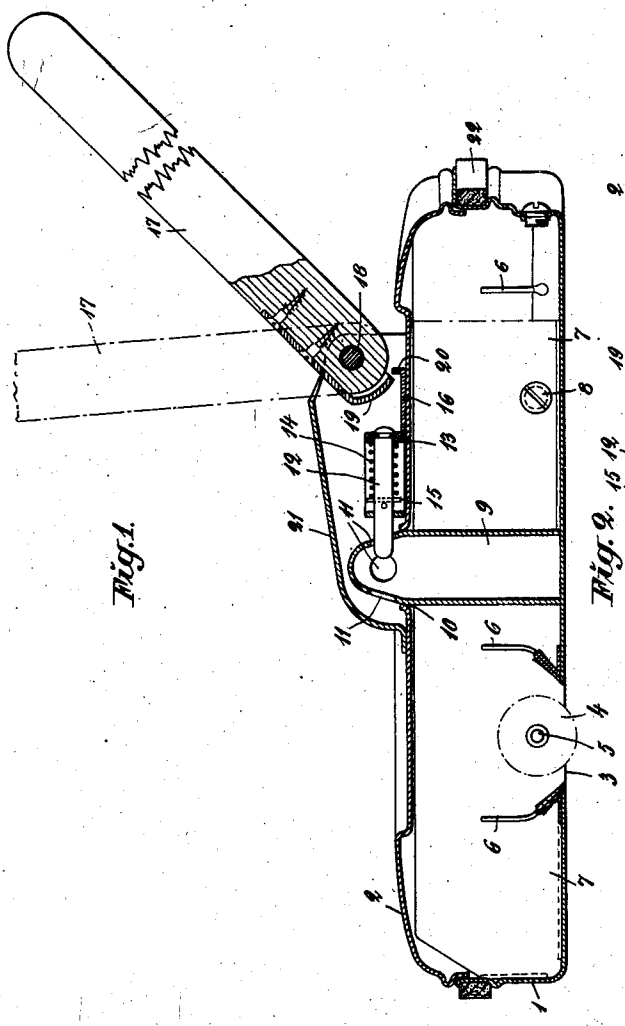


Fig. 1.

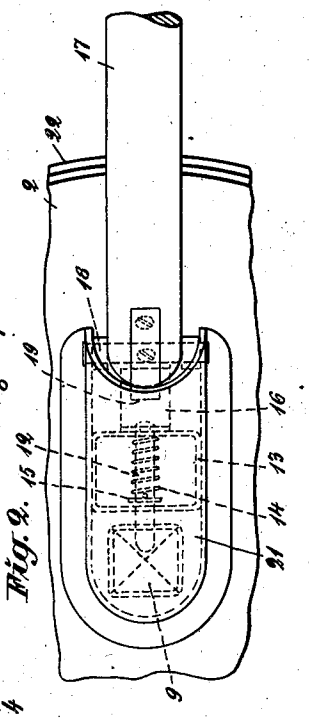


Fig. 2.

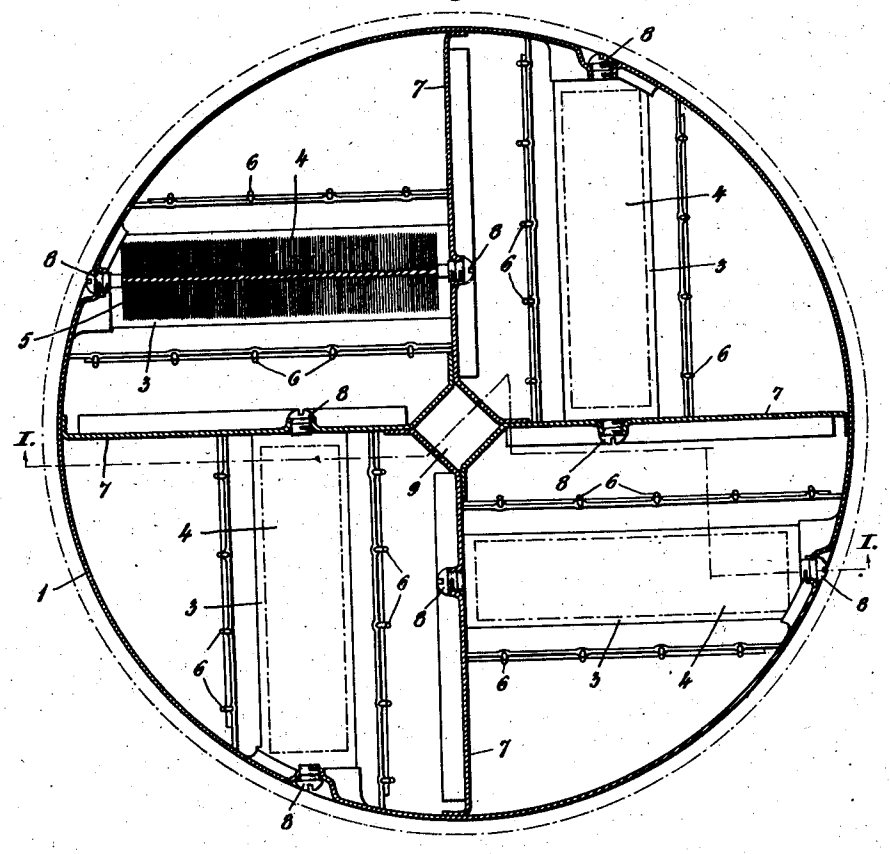
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Fig. 3.



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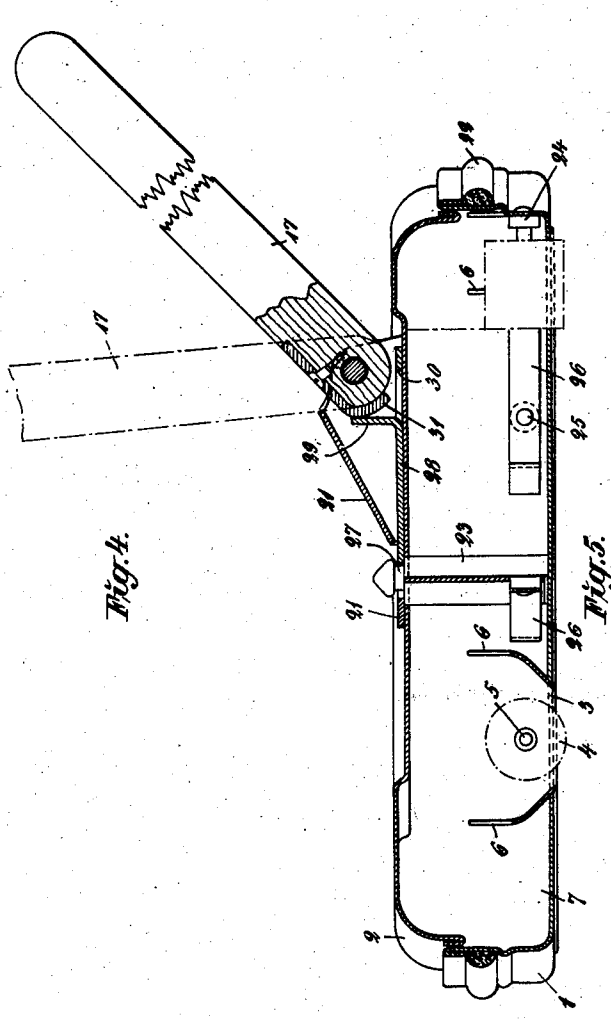


Fig. 4.

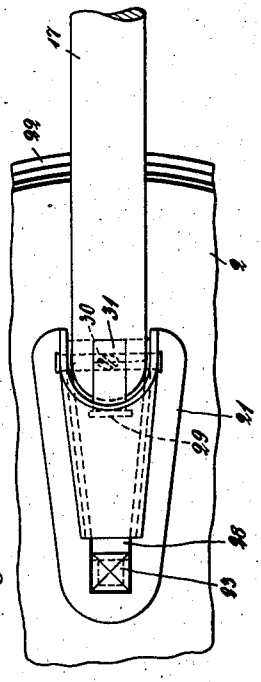


Fig. 5.

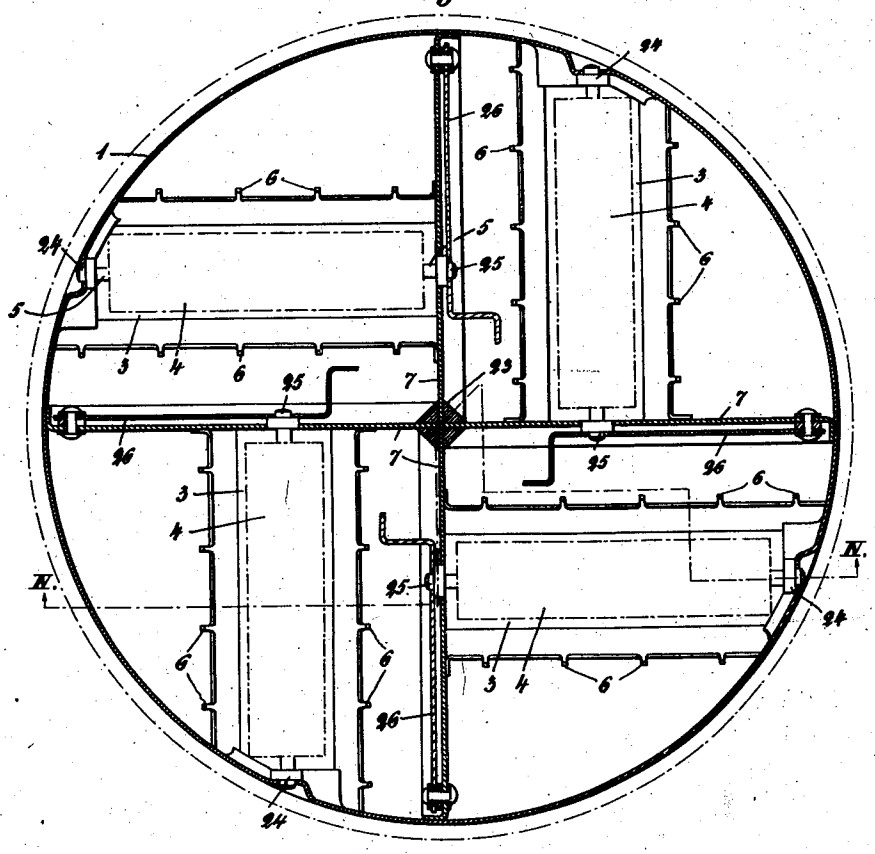
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Fig. 6.



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BRUSHING APPARATUS

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Application January 30, 1945, Serial No. 575,225
In Sweden January 21, 1944

6 Claims. (Cl. 15—1)

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The present invention relates to improvements in such brushing and cleaning apparatus which are provided with a dust collecting receptacle, a removable cover for said receptacle, and a handle for moving the brushing apparatus along the object to be cleaned, said handle being pivoted in a vertical plane to the cover.

The object of the invention is to develop a simple and practical device for locking the cover to the dust collecting receptacle, when the apparatus is in operation, and which locking device may be released and applied automatically solely by turning the handle in said vertical plane, when the cover is to be removed or replaced respectively. According to the invention this is effected by providing the locking device with releasing means cooperating with abutment means on the handle, which abutment means are adapted to engage said releasing means to unlock the locking device when the handle is turned, suitably upwardly, from its position of operation, and to apply the locking device when the handle is turned in the opposite direction.

According to preferred embodiments of the invention said locking device comprises a displaceable locking member slidably mounted on top of the cover and engaging in the locking position a stationary locking member connected to the receptacle, suitably to the bottom of the receptacle, said displaceable locking member being provided with suitable abutment means adapted to cooperate with the abutment means of the handle to bring said locking members out of and into engagement with one another respectively, when the handle is turned in the aforementioned way.

Other features of the invention and its mode of action will be more closely set forth below in connection with a detailed description of two embodiments of the invention illustrated by way of example on the accompanying drawings.

Fig. 1 shows a vertical section, taken along the line I—I in Fig. 3, of a brushing and cleaning apparatus provided with an embodiment of the locking device according to the invention. Fig. 2 shows a plan view of the locking device in Fig. 1. Fig. 3 shows a horizontal section through the dust collecting receptacle in Fig. 1.

Fig. 4 shows a vertical section, taken along the line IV—IV in Fig. 6, of a slightly modified brushing and cleaning apparatus provided with a second embodiment of the locking device. Fig. 5 shows a plan view of the locking device in Fig. 4. Fig. 6 shows a horizontal section through the dust collecting receptacle in Fig. 4.

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In the embodiment according to Figs. 1–3, 1 designates the suitably circular dust collecting receptacle of a brushing and cleaning apparatus, the receptacle being provided with a cover 2. In the bottom of the receptacle 4 rectangular openings 3 are provided, in each of which a brush roller 4 is provided, which brush rollers are rotatably journalled in the receptacle with the roller axis 5 extending in the longitudinal direction of the opening. The openings 3 are inside the receptacle bordered by screens and pins 6 or the like projecting upwardly from the bottom.

The receptacle is further suitably divided in four equally large compartments by means of partitions 7 which also serve as bearing supports for the interior ends of the axes of the brush rollers 4. The bearings may consist of screws 8 or the like being screwed into the wall and partitions of the receptable. The partitions 7 form at their central junction a rectangular hollow pin 9 which, when the cover 2 is placed on the receptacle, projects upwardly through a correspondingly shaped hole 10 in the cover. Holes 11 are provided in the portion of the pin 9 protruding above the cover 2. A displaceable locking member 12 adapted as a plunger may engage any one of the holes 11. The plunger 12 is displaceably mounted in a bracket 13 which in some suitable manner is secured to the top side of the cover 2. The plunger is actuated by a spring 14 placed between a rear wall of the bracket 13 and a stop ring 15 on the plunger, whereby the spring will tend to press the plunger forwardly towards the pin 9. At its rear end the plunger 12 is provided with an abutment member 16. The handle 17 of the apparatus is pivoted to the cover 2 in a vertical plane about a pin 18 secured to a bracket 21 which is fastened to the cover. The lower end of the handle 17 is provided with an abutment member 19 adapted to make engagement with an upstanding projection 20 on the abutment member 16 when the handle is turned upwardly to the position indicated by chained lines in Fig. 1 from the position of operation indicated by full lines, and in doing so to pull the plunger out of engagement with the stationary locking member 9.

The bracket 21 serving as a holder and bearing for the handle 17 is suitably also adapted as an abutment for the handle so that the latter may be turned only slightly past the vertical position. This has the advantage that the cover 2 with the handle 17 may be placed on the floor or some other support without tilting.

The receptacle 1 is around its circumference

suitably provided with a rubber ring 22 or the like to protect furniture and the like with which the apparatus may collide when being used.

In Figs. 1 and 2, the cover 2 is shown placed in operating position on the receptacle with the parts of the locking device in the locking position, the plunger 12 being entered through one of the holes 11 in the pin 9, whereby the cover is secured to the receptacle. If the cover is to be removed for the purpose of emptying the receptacle, the handle 17 is turned upwardly, for example to the position indicated by chained lines. In this turning motion the abutment member 19 at the lower end of the handle will engage the projection 20 of the abutment member 16 and pull the projection 20 with the member 16 and the plunger 12 so far to the rear that the plunger 12 will be released from engagement with the pin 9, whereupon the cover 2 may be lifted and removed from the receptacle by means of the handle. If the cover then is to be replaced, the same has to be lowered in such a way that the pin 9 will protrude through the opening 10 in the cover.

Then the handle 17 is turned downwardly, whereby the projection 20 is released so that the spring 14 displaces the plunger 20 into engagement with one of the holes 11 in the pin 9.

As described above, the cover may be removed and applied very comfortably and solely by turning the handle in the one or the other direction.

In the embodiment according to Figs. 4–6, the numerals designate corresponding parts as the same numerals in Figs. 1–3. Thus, 1 designates the dust collecting receptacle, 2 the cover, 3 the openings in the bottom of the receptacle, 4 the brush rollers, 5 the axes of the brush rollers, and 6 the screens and pins projecting upwardly from the bottom. The receptacle is also in this case divided in four compartments by partitions 7, the central junction of which is formed as a suitably solid pin 23. The brush rollers 4 are at the circumference of the receptacle journalled in bearings 24 and at their interior ends in bearings 25, which are supported by resilient arms 26. By this arrangement the removal and exchange of the brush rollers 4 is highly facilitated. The pin 23 projects upwardly through a correspondingly shaped opening in the cover 2, and its part protruding above the cover is provided with a groove 27 that may run all around its circumference. The groove 27 is adapted to cooperate with a plate-shaped locking member 28 slidably mounted on the top side of the cover. The rear portion of the locking member is provided with an upwardly projecting abutment member 29 and an abutment edge 30.

In the same manner as in the first embodiment a handle 17 is pivotally journalled in a bracket 21 secured to the cover. An abutment member 31 is attached to the lower end of the handle 17. The member 31 is so shaped that it will act like a cam-disc when cooperating with the abutment 29. The lower free end of the abutment 31 will engage the abutment edge 30, when the handle is turned to a substantially vertical position as indicated by chained lines in Fig. 4.

When the handle 17 is in the position indicated by full lines, the fore edge of the plate-shaped locking member 28 is kept inserted in the groove 27 on the pin 23 due to the pressure of the abutment 31 against the abutment 29. If the connection between the locking member 28 and the pin 23 is to be released, the handle 17 is turned upwardly to the position indicated by the chained lines, whereby the lower end of the abutment 31 engages the edge 30 and pulls the locking member 28 so far to the rear that the fore edge of the locking member 28 is wholly withdrawn from the groove 27 on the pin 23, whereupon the cover may be removed.

Also in this case the bracket 21 is so adapted that the handle 17 may not be turned upwardly farther than slightly past the vertical position, whereby the above mentioned advantages are reached. 22 designates also in this case a protecting rubber ring.

The invention is of course not limited only to the above described and illustrated embodiments, but may be modified in various respects without departing from the idea of the invention.

Having now particularly described the nature of my invention and the manner of its operation what I claim is:

1. In a brushing apparatus provided with a dust collecting receptacle, a removable cover for said receptacle and a handle for moving the brushing apparatus along the object to be cleaned, the handle being pivoted in a vertical plane to the cover, means to unlock and lock said cover, said means comprising a stationary member connected to the receptacle, said stationary member engaging in locking position with a displaceable locking member on the cover, said displaceable locking member being provided with means adapted to engage with means on the handle when the handle is turned from its position of operation to release said stationary member and said displaceable locking member from one another and to permit said members to engage when the handle is turned in the opposite direction.

2. In a brushing apparatus provided with a dust collecting receptacle, a removable cover for said receptacle, and a handle for moving the brushing apparatus along the object to be cleaned, the handle being pivoted in a vertical plane to the cover, means to unlock and lock said cover, said means comprising a stationary member connected to the receptacle and extending above the cover, said stationary member engaging in locking position with a displaceable locking member on the top of the cover, said displaceable locking member being provided with means adapted to engage with means on the handle when the handle is turned from its position of operation to release said stationary member and said displaceable locking member from one another and to permit said members to engage when the handle is turned in the opposite direction.

3. In a brushing apparatus provided with a dust collecting receptacle, a removable cover for said receptacle, and a handle for moving the brushing apparatus along the object to be cleaned, the handle being pivoted in a vertical plane to the cover, means to unlock and lock said cover, said means comprising a stationary member connected to the bottom of said receptacle and projecting upwardly through an opening in the cover, the portion of said member protruding above the cover being provided with at least one hole for the engagement in locking position with a displaceable locking member mounted on the top of the cover, said displaceable locking member being provided with means adapted to engage with means on the handle when the handle is turned from its position of operation to release said stationary member and said displaceable locking member from one another and to permit said members to engage when the handle is turned in the opposite direction.

4. In a brushing apparatus provided with a dust collecting receptacle, a removable cover for said receptacle, and a handle for moving the brushing apparatus along the object to be cleaned, the handle being pivoted in a vertical plane to the cover, means to unlock and lock said cover, said means comprising a stationary member connected to the bottom of said receptacle and projecting upwardly through an opening in the cover, the portion of said member extending above the cover being provided with a groove for the engagement in locking position with a displaceable locking member mounted on the top of the cover, said displaceable locking member being provided with means adapted to engage with means on the handle when the handle is turned from its position of operation to release said stationary member and said displaceable locking member from one another and to permit said members to engage when the handle is turned in the opposite direction.

5. In a brushing apparatus provided with a dust collecting receptacle, a removable cover for said receptacle, and a handle for moving the brushing apparatus along the object to be cleaned, the handle being pivoted in a vertical plane to the cover, means to unlock and lock said cover, said means comprising a stationary member connected to the bottom of said receptacle and projecting upwardly through an opening in the cover, the portion of said member protruding above the cover being provided with at least one hole for the engagement in locking position with a displaceable locking member mounted on the top of the cover, said displaceable locking member being provided with means adapted to engage with means on the handle when the handle is turned from its position of operation to release said stationary member and said displaceable locking member from one another and to permit

said members to engage when the handle is turned in the opposite direction, said displaceable locking member being kept in locking position by means of a spring to counteract the releasing effected by said turning of the handle and to automatically effect the reengagement of the said members when the handle is turned to its position of operation.

6. In a brushing apparatus provided with a dust collecting receptacle, a removable cover for said receptacle, and a handle for moving the brushing apparatus along the object to be cleaned, the handle being pivoted in a vertical plane to the cover, means to unlock and lock said cover, said means comprising a stationary member connected to the bottom of said receptacle and projecting upwardly through an opening in the cover, the portion of said member extending above the cover being provided with a groove for the engagement in locking position with a displaceable locking member mounted on the top of the cover, said displaceable locking member being provided with means adapted to engage with means on the handle when the handle is turned from its position of operation to release said stationary member and said displaceable locking member from one another and to permit said members to engage when the handle is turned in the opposite direction, said displaceable locking member being provided with two abutments, said means of the handle being adapted to engage one of the abutments of the said displaceable locking member to move the latter from the locking position when the handle is turned upwardly from its position of operation, and to engage the second abutment of the said displaceable locking member to move the latter to the locking position when the handle is turned downwardly to its position of operation.

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