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**WALKER et al.**(10) **Pub. No.: US 2016/0066756 A1**(43) **Pub. Date: Mar. 10, 2016**(54) **HANDHELD CLEANING DEVICE**(71) Applicant: **BLACK & DECKER INC.**, Newark,  
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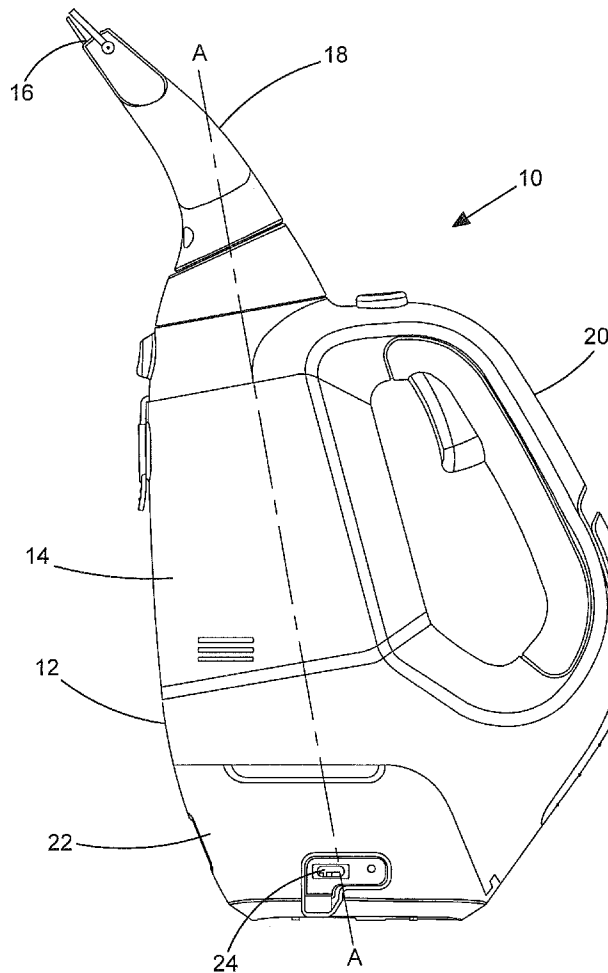
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**ABSTRACT**

A handheld cleaning device comprising a housing having a handle for gripping the device; a motor-fan assembly for generating an air flow; a cleaning head comprising a suction nozzle in fluid communication with the motor-fan assembly and a cleaning accessory mounted on the cleaning head; and a fluid tank in fluid communication with the suction nozzle and the motor-fan assembly for receiving fluid from the suction nozzle in the air flow; wherein the cleaning head is rotatably mounted on the housing and the cleaning head is rotatable about a longitudinal axis of the housing between a first position in which the suction nozzle is in an operable position and a second position in which the cleaning accessory is in an operable position.

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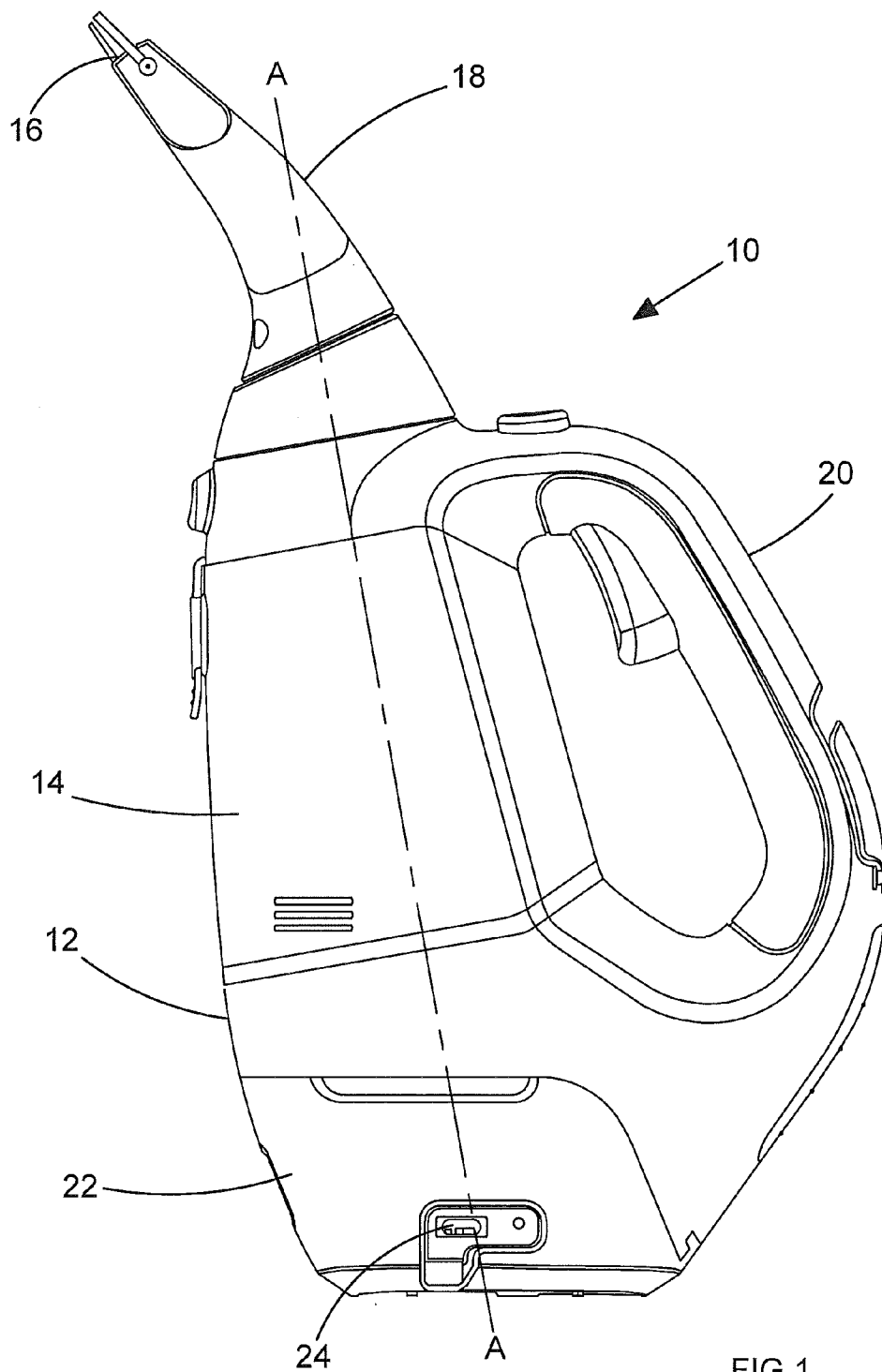


FIG.1

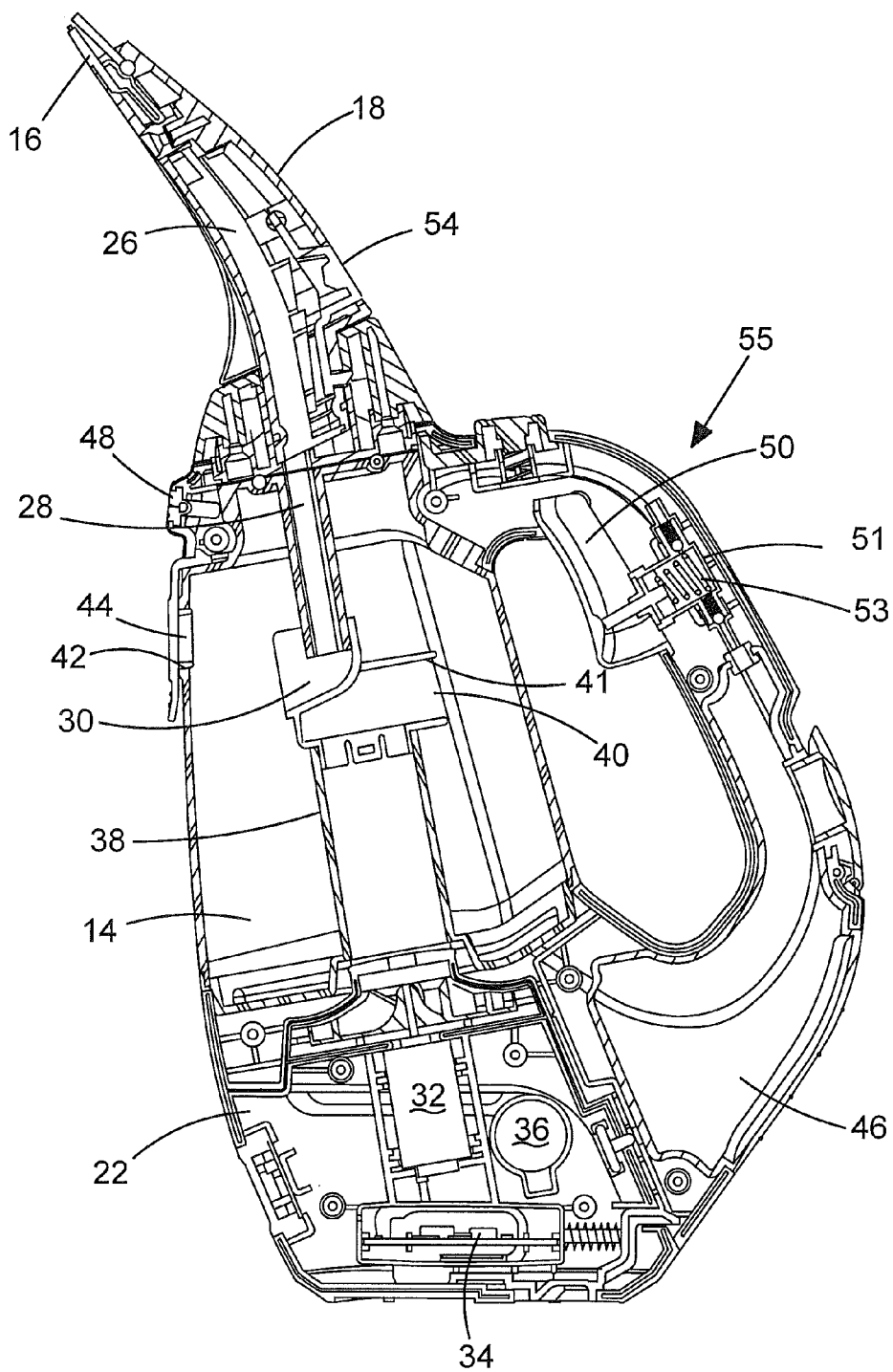


FIG.2

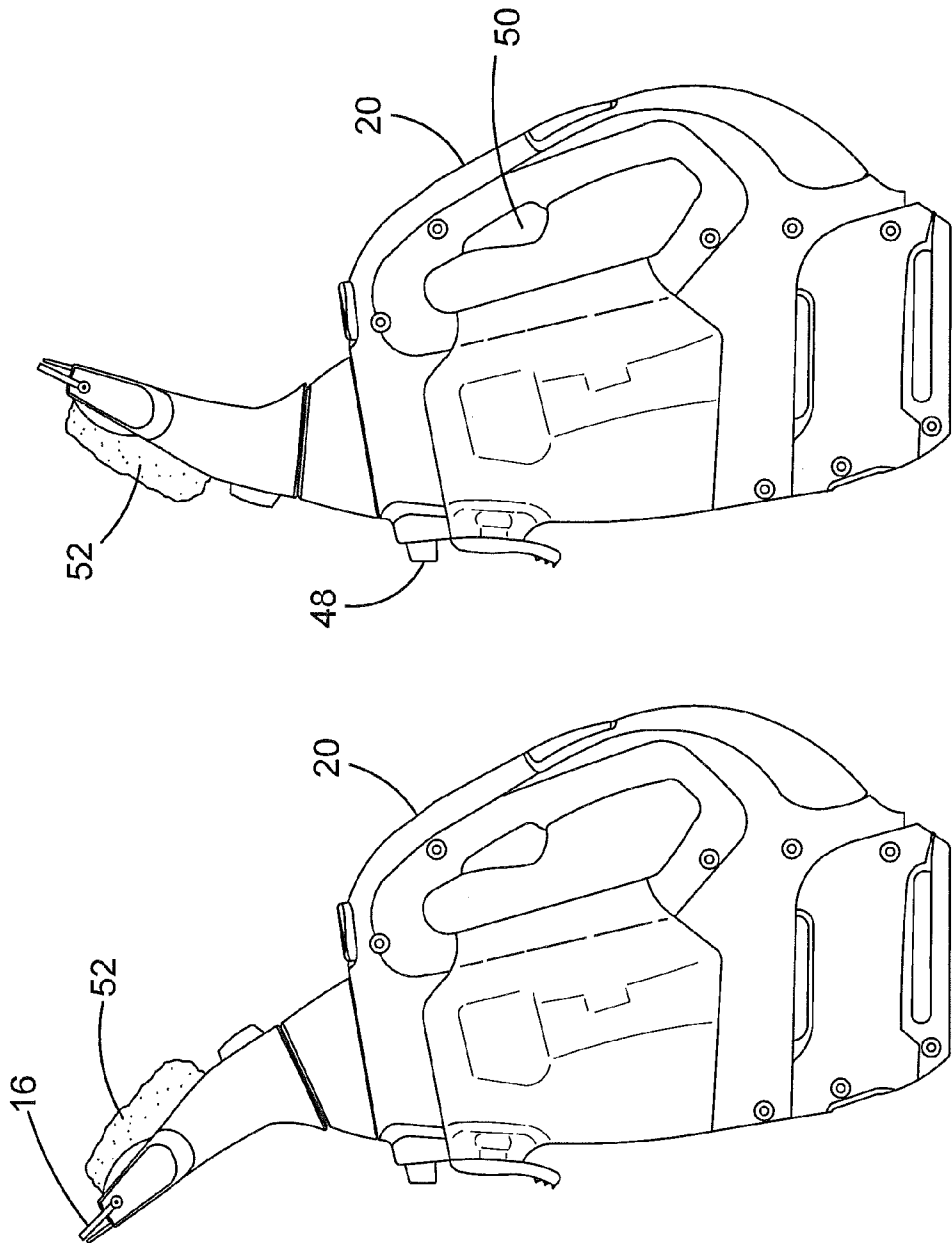


FIG.4

FIG.3

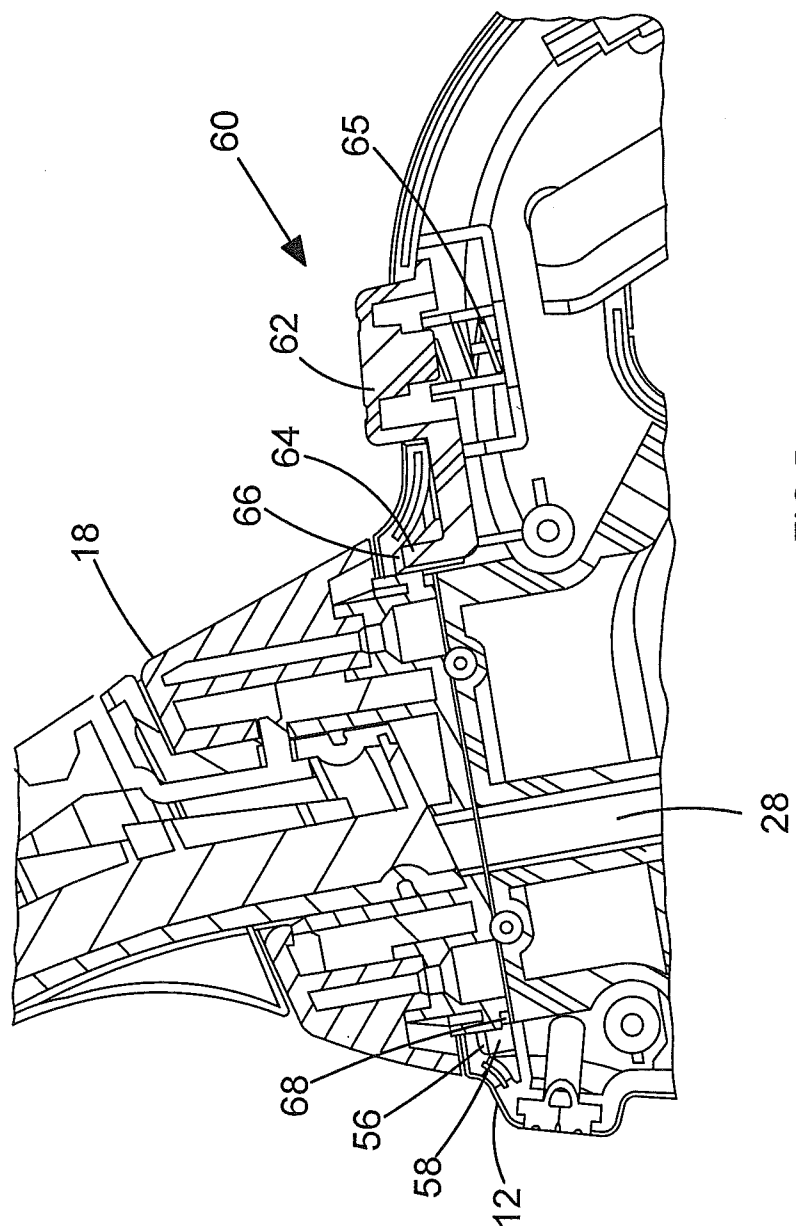


FIG. 5

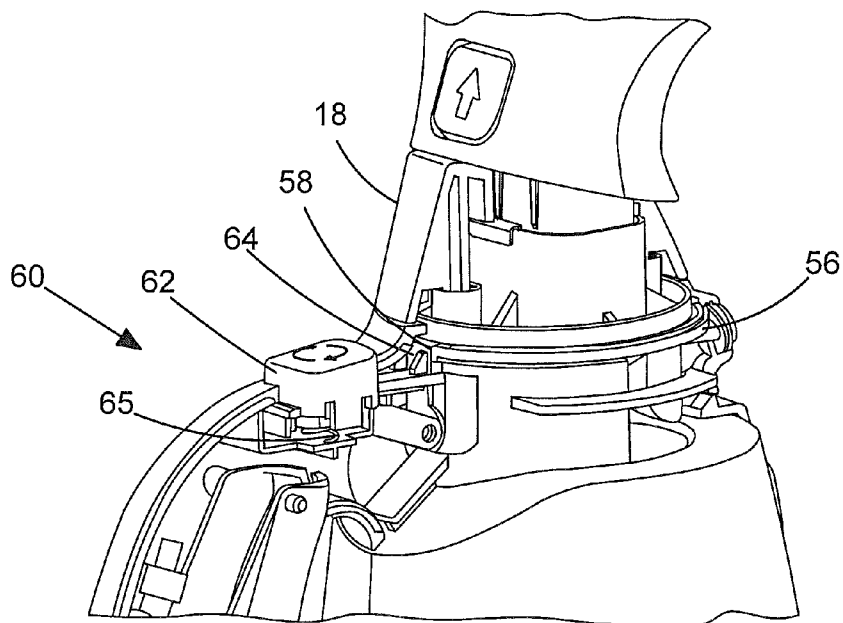


FIG. 6a

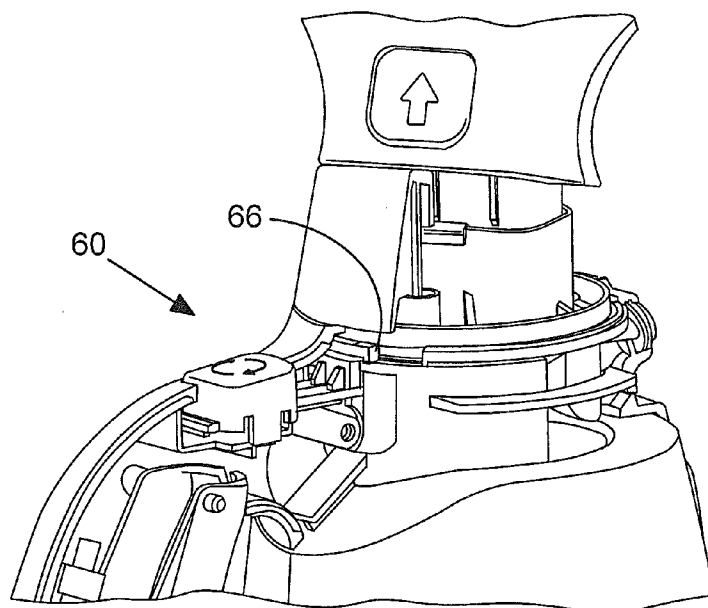


FIG. 6b

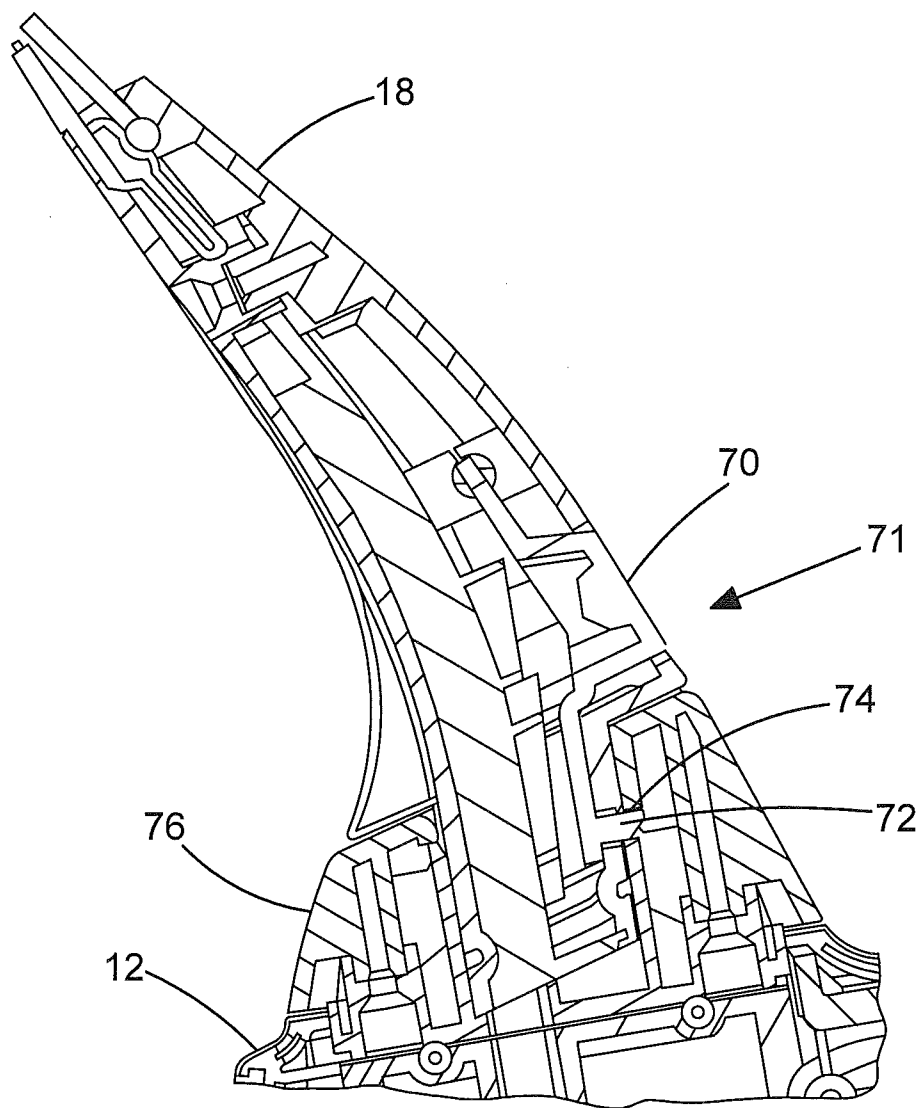


FIG. 7

## HANDHELD CLEANING DEVICE

### FIELD OF THE INVENTION

[0001] This application claims priority to European Patent Application No. 14183496.0 filed Sep. 4, 2014. The entire contents of that application are expressly incorporated herein by reference.

### BACKGROUND OF THE INVENTION

[0002] The present invention relates to a handheld cleaning device. In particular the present invention relates to a handheld cleaning device for cleaning hard, smooth surfaces.

### BRIEF SUMMARY OF THE INVENTION

[0003] In the domestic environment it is desirable to maintain and clean hard smooth surfaces such as tiles and windows. Exterior windows may become dirty over time due to the grime of everyday life. Instead of cleaning the surfaces by hand some labour saving cleaning devices are known.

[0004] One such device is shown in EP2237711 which shows a window washing device having a motor fan assembly which sucks excess water on a hard surface through a suction nozzle and into a dirty water tank. This solution works if the hard surface is wet and the excess moisture sucked into the tank. However if the hard surface to be cleaned is dry, then the user must apply water. This may require the user to put the window washing device down whilst water is applied to the hard surface which is inconvenient if the user is working at height.

[0005] U.S. Pat. No. 5,590,439 shows an apparatus for cleaning by spreading liquid and by suction of the used liquid. The cleaning device comprises a spray nozzle and brush arrangement for deploying cleaning fluid from a separate reservoir on to the hard surface. The excess cleaning fluid is then sucked into the dirty water tank via the suction nozzle. The spray nozzle is mounted on a different side to the suction nozzle. This means that the user has to turn the whole cleaning device around to use the suction nozzle after deploying the cleaning fluid. However, the handle is profiled for a grip facing the spray nozzle and this means that the handle is awkward and uncomfortable to grip when the user uses the cleaning device to suck up excess liquid.

[0006] Embodiments of the present invention aim to address the aforementioned problems.

[0007] According to an aspect of the present invention there is a handheld cleaning device comprising: a housing having a handle for gripping the device; a motor-fan assembly for generating an air flow; a cleaning head comprising a suction nozzle in fluid communication with the motor-fan assembly and a cleaning accessory mounted on the cleaning head; and a fluid tank in fluid communication with the suction nozzle and the motor-fan assembly for receiving fluid from the suction nozzle in the air flow; wherein the cleaning head is rotatably mounted on the housing and the cleaning head is rotatable about a longitudinal axis of the housing between a first position in which the suction nozzle is in an operable position and a second position in which the cleaning accessory is in an operable position.

[0008] This means that the handheld cleaning device can be held in the hand and the operable portion of the cleaning device can be rotated with respect to the housing without the user changing their grip of the cleaning device. This makes using the handheld cleaning device more comfortable and the

user is less likely to drop the handheld cleaning device. By rotating the cleaning head about a longitudinal axis of the housing, the user is required to positively select either the suction nozzle or the cleaning accessory and is not able to accidentally operate the cleaning head in the first or second position.

[0009] Preferably the handle is mounted on a first side of the housing and the operable position of the suction nozzle or the cleaning accessory is on a second side of the housing opposing the first side of the housing. This means that the operable position of the suction nozzle or the operable position of the cleaning accessory is visible to the user during operation.

[0010] Preferably the handheld cleaning device comprises a locking mechanism for preventing the cleaning head from rotating between the first position and second positions. Preferably the locking mechanism comprises a moveable locking arm arranged to interlock with at least one recess. Preferably the locking mechanism comprises an actuating button mounted on the handle. This means that the cleaning head is easily unlocked into a position in which the cleaning head can be rotated. By positioning the release button on the handle, the button can easily be depressed with the thumb of the same hand that is gripping the handle.

[0011] Preferably the cleaning head is arranged to be rotated about 180 degrees between the first and second positions.

[0012] Preferably handheld cleaning device comprises a cleaning fluid tank and a cleaning fluid delivery mechanism comprising a spray nozzle in fluid communication with the cleaning fluid tank. Preferably the spray nozzle is fixedly mounted on housing and the spray nozzle is mounted on the same side of the housing as the operable position of the suction nozzle or the cleaning accessory. Preferably the cleaning fluid delivery mechanism is actuated with a trigger mounted on the handle. Preferably the cleaning fluid tank is mounted in the handle. This means that the user can use handheld cleaning device and also deploy cleaning fluid without putting the handheld cleaning device down. By locating the trigger for actuating the cleaning fluid delivery mechanism on the handle, the user can easily hold the handheld cleaning device and spray cleaning fluid on to the dirty surface. Including the clean fluid tank in the handle saves space and reduces the overall size of the cleaning device.

[0013] Preferably cleaning head comprises an attachment for mounting the cleaning accessory. Preferably the cleaning accessory is one or more of the following a pad, cloth, or brush. This means that the cleaning accessory can be replaced and maintained. Furthermore different cleaning accessories can be use for different cleaning purposes.

[0014] Preferably the fluid tank comprises an inlet tube for receiving fluid from the suction nozzle and the longitudinal axis of the inlet tube is coaxial with the axis of rotation of the cleaning head. In this way the suction nozzle is capable of drawing air and water into the fluid tank irrespective of the orientation of the suction head with respect to the housing. Alternatively the fluid tank comprises an inlet tube for receiving fluid from the suction nozzle and the longitudinal axis of the inlet tube is substantially parallel but not coaxial with the axis of rotation of the cleaning head.

[0015] Preferably the suction nozzle comprises a squeegee. A squeegee helps clean and remove liquid from hard surfaces such as windows or tiles.



[0016] Preferably the cleaning head is releasable from the housing. Preferably there is a locking mechanism for releasing the cleaning head from the housing.

#### BRIEF DESCRIPTION OF THE INVENTION

[0017] Various other aspects and further embodiments are also described in the following detailed description and in the attached claims with reference to the accompanying drawings, in which:

[0018] FIG. 1 shows a perspective view of the handheld cleaning device;

[0019] FIG. 2 shows cross sectional side view of the handheld cleaning device;

[0020] FIG. 3 and FIG. 4 show side views of the handheld cleaning device in different configurations;

[0021] FIG. 5 shows a partial cross sectional side view of the handheld cleaning device;

[0022] FIGS. 6a and 6b show partial perspective cut away views of the handheld cleaning device; and

[0023] FIG. 7 shows a partial cross sectional side view of the handheld cleaning device.

#### DETAILED DESCRIPTION OF THE INVENTION

[0024] FIG. 1 shows a side view of a handheld cleaning device 10. The handheld cleaning device comprises a housing 12. The housing 12 comprises a two-part clamshell arrangement. The clamshell arrangement may be fixed together with screws or glue or any other means for fastening the clamshells together.

[0025] The housing 12 comprises a fluid tank 14 for receiving fluid entrained in an air flow received from a suction nozzle 16. The suction nozzle 16 is mounted in a cleaning head 18 and the cleaning head 18 is rotatably mounted to the housing 12. The housing 12 comprises an integral handle 20 and the handheld cleaning device suitable for the user to grip with their hand during operation. In this way the operable side of the handheld cleaning device 10 is on the side opposite the integral handle 20.

[0026] The housing 12 comprises a removably mountable motor housing 22. The motor housing 22 is detachable from the housing 12 so that the electrical components of the handheld cleaning device can be completely separated from the housing 12. For example a user can remove the motor housing 22 and then wash the rest of the handheld cleaning device 10 without damaging the electrical components. However in some alternative embodiments the motor fan assembly 32 is integral with the housing 12 and the motor fan assembly 32 is mounted within the housing 12.

[0027] The motor housing 22 comprises a catch mechanism (not shown) for releasably fixing the motor housing 22 to the housing 12. The catch mechanism comprises a release button (not shown) mounted on the housing for disengaging the catch and releasing the motor housing 22 from the housing 12. The motor housing 22 comprises a charging port 24 for charging a rechargeable battery 36. In some embodiments the charging port 24 is a micro USB port suitable for being charged from a standard 5V charger. However in other embodiments the charging port 24 may be any suitable means for charging the internal rechargeable battery 36.

[0028] Turning to FIG. 2, the handheld cleaning device will now be discussed in further detail. FIG. 2 shows a cross sectional side view of the handheld cleaning device.

[0029] The motor housing 22 will now be discussed in further detail. The motor housing 22 comprises a motor-fan assembly 32 for generating an air flow. The motor-fan assembly 32 is coupled to an electrical circuit 34 and powered by a rechargeable battery 36. The motor-fan assembly 32 is in fluid communication with the fluid tank 14 and the suction nozzle 16. In this way when the motor-fan assembly 32 operates air is drawn in from the suction nozzle 16, through the fluid tank 14 and towards the motor-fan assembly 32. Exhaust air is outputted from the motor housing 22 via air outlet holes in the housing 12 (not shown). The motor fan assembly 32 is configured to be powerful enough to draw air and water together into the handheld cleaning device 10 via the suction nozzle 16. The inventors have realised that a motor fan assembly 32 capable of generating between 4 to 5 Air Watts is sufficient to suck both air and water into the fluid tank 14.

[0030] The structure of the cleaning head will now be discussed in further detail. The cleaning head 18 comprises a suction conduit 26 which couples the suction nozzle 16 with a dirty water inlet 28 of the fluid tank 14. The suction nozzle 16 is an opening in the cleaning head 18 for drawing air and water into the handheld cleaning device 10. In some embodiments the suction nozzle 16 comprises a flexible squeegee. The flexible squeegee aids capture of the excess water on a hard surface. The flexible squeegee may be rubber or any other suitable flexible material such as silicone. In some embodiments the suction nozzle 16 comprises two flexible rubber strips which are mounted either side of the opening. The flexible rubber strips are mounted in a recess either side of the opening and the flexible rubber strips are removable so that they can be maintained and replaced. However the suction nozzle in other embodiments is an opening in the hard shell of the cleaning head 18 without the flexible squeegee.

[0031] The dirty water inlet 28 receives dirty water entrained in an air flow from the suction conduit 26. The dirty water inlet 28 is directed at a water separating element 30 and the water separating element 30 receives the dirty water and the air flow from the suction conduit 26. When the air flow is incident on the water separating element 30, the kinetic energy of the dirty water entrained in the air flow is dissipated. This means that the dirty water drops out of the air flow and the dirty water collects in the bottom of the fluid tank 14. The dirty water can be removed from the dirty water tank by pouring the water out of drain port 42 once drain port plug 44 has been removed.

[0032] Once the dirty water has been removed from the air flow by the water separating element 30, the motor-fan assembly draws the air from the fluid tank 14 through a vacuum conduit 38. The air enters the vacuum conduit 38 at vacuum conduit opening 40. The vacuum conduit opening 40 comprises a lip 41 for shielding the opening 40 from stray droplets of water. The lip 41 is mounted on one side of the vacuum conduit 38 and the water separating element 30 is mounted on the other side of the vacuum conduit 38. The lip 41 which projects in an opposite direction to the water separating element 30. This further prevents stray droplets from being sucked into the vacuum conduit 38.

[0033] The handheld cleaning device 10 also comprises a clean fluid tank 46 and a cleaning fluid delivery mechanism 55 connected thereto. The clean fluid tank comprises a cleaning fluid, such as clean water or a detergent.

[0034] The clean fluid tank 46 is separate from the fluid tank 14 and the dirty water contained in the fluid tank 14 cannot contaminate the clean fluid tank 46. This means that

the user does not have to recycle dirty water on the surface such as a window which means the surface is cleaned more efficiently.

**[0035]** The cleaning fluid delivery mechanism **55** comprises the clean fluid tank **46** and a spray nozzle **48** which is coupled to the clean fluid tank **46** by a clean fluid conduit (not shown). In some embodiments the clean fluid conduit is a rubber hose or tube. The spray nozzle **48** is mounted in the wall of the housing **12**. The spray nozzle **48** is mounted in a side of the housing **12** which is opposite the handle **20**. The spray nozzle **48** of the cleaning fluid delivery mechanism **55** is actuated by trigger **50** which actuates a pump mechanism **51**. The trigger **50** is mounted on the handle **20**. The pump mechanism **51** is manually operated and when the user squeezes the trigger **50**, the clean fluid is pumped along the clean fluid conduit to the spray nozzle **48**. The pump mechanism **51** is a simple piston pump or a diaphragm pump. The trigger **50** is biased by spring **53** and is biased into an extended position as shown in FIG. 2. In this way the clean fluid is sprayed from the spray nozzle **48** when the user actuates the trigger **50**. The other embodiments the pump mechanism can be any suitable means for pumping the clean fluid to the spray nozzle. For example the pump mechanism can be powered by a motorised pump selectively operated by the user.

**[0036]** By mounting the spray nozzle on the housing **12** and not the suction head **18**, the suction head **18** is rotatable and the spray nozzle is operable when the suction head **18** is in any orientation. This also means that the clean fluid conduit does not have to have excess hosing or tubing to accommodate relative movement of the spray nozzle with respect to the housing **12**.

**[0037]** As mentioned above, the cleaning head **18** is rotatably mounted on housing **12**. The cleaning head **18** will now be discussed in further detail with respect to FIGS. 3 to 5. FIGS. 3 and 4 show a side view of the handheld cleaning device **10** in two different modes.

**[0038]** Turning the FIG. 3 the handheld cleaning device **10** is shown with the cleaning head **18** in a first position. In the first position the suction nozzle **16** is in an operable position. In the operable position the suction nozzle **16** is on the side of the housing which is opposite to the handle **20**. In other words the handle is on a rearwardly facing side of the housing and the suction nozzle is on a forwardly facing side of the housing. When the suction nozzle **16** is forwardly facing the suction nozzle **16** is engageable with the hard surface to be cleaned.

**[0039]** The cleaning head **18** also comprises a cleaning accessory **52**. The cleaning head **18** comprises an attachment element **54** for mounting the cleaning accessory to the cleaning head **18**. In some embodiments the cleaning accessory **52** is removable and there may be a hook and loop attachment means such as Velcro®. In other embodiments the cleaning accessory **52** can be removably fixed to the cleaning head by any suitable attachment means. For example the cleaning accessory **52** may releasably clip into the suction head **18**. Alternatively the cleaning accessory **52** may comprise holes for receiving screw fastenings for fastening the cleaning accessory **52** to the suction head **18**. The cleaning accessory **52** may be one or more of a cloth, pad, foam pad, brush, scourer or any other suitable means for abrading, scraping or wiping dirt from a surface.

**[0040]** The cleaning accessory **52** is on an opposite side of the cleaning head **18** to the suction nozzle opening. This means a rotation of 180 degrees is required to rotate the

cleaning head between the two cleaning positions wherein either the suction nozzle **16** or the cleaning accessory is operable.

**[0041]** FIG. 4 shows the cleaning head **18** in a second position whereby the cleaning accessory **52** is in operable position. When the cleaning head **18** is in the second position the cleaning accessory **52** is forwardly facing and engageable with the hard surface to be cleaned. In this position, the user can operate the trigger **50** to spray cleaning fluid from the nozzle **48** and the cleaning accessory **52** is wetted with the cleaning fluid to aid cleaning.

**[0042]** The mechanism for rotating the cleaning head **18** will now be discussed in relation to FIGS. 5, 6a and 6b. FIG. 5 shows a partial cross section of the handheld cleaning device at the point where the cleaning head **18** is mounted to the housing **12**. FIGS. 6a and 6b show a partial perspective view of the cleaning head in different positions. The cleaning head **18** as shown in FIG. 5 and FIG. 6a is in the first position whereby the suction nozzle **16** is forwardly facing. The cleaning head **18** as shown in FIG. 6b is in a position between the first and second positions.

**[0043]** The cleaning head **18** is rotatably mounted on the housing **12**. The cleaning head **18** comprises an annular flange **56** which engages in a reciprocal annular groove **58** in the housing **12**. The annular flange **56** and annular groove **58** allow the cleaning head **18** to rotate about a longitudinal axis A-A of the housing **12**. The vacuum tube **38** and the dirty water inlet **28** as shown in the figures are not aligned with the longitudinal axis A-A. The longitudinal axis suction conduit **26** at the housing **12** is substantially parallel but not coaxial with the longitudinal axis of the vacuum tube **38** or the longitudinal axis of the handheld cleaning device **10**. This means that the suction conduit **26** of the cleaning head **18** does not align with the dirty water inlet. This means that when the cleaning head **18** is in the first position, the suction conduit **26** and the vacuum tube **38** are aligned. When the cleaning head **18** is in the second position the suction conduit **26** and the vacuum tube **38** are not aligned and air and water cannot be drawn into the fluid tank **14** by the motor fan assembly. This is because when the suction conduit **26** and the vacuum tube **38** are not aligned not enough air is drawn through the suction conduit **26** by the motor fan assembly **32**.

**[0044]** This means that the handheld cleaning device **10** will only suck water and air into the fluid tank when the suction nozzle is in the operable position. In this way it is clear to the user which position the rotatable cleaning head **18** must be in for the handheld suction nozzle to work. For example a user is not able to orientate the cleaning head **18** with the cleaning accessory facing forwards and attempt to suck water in the suction nozzle **16** which would require the user to hold the handheld cleaning device in an awkward position to operate the suction nozzle **16** effectively.

**[0045]** By rotating the cleaning head **18** about the longitudinal axis of the housing **12**, the user will not accidentally move the cleaning head between the first position and the second position, even without a locking mechanism. When the user presses the cleaning head **18** against the surface to be cleaned, there is substantially no turning moment on the cleaning head **18** created about the rotational axis of the cleaning head **18** because the entire length of the cleaning head **18** will engage with the surface. The longitudinal axis of the housing **12** is also the longitudinal axis of the handheld cleaning device **10**. In particular the longitudinal axis of the housing **12** is substantially aligned with the centre of the

cleaning head. Furthermore the longitudinal axis of the housing is substantially aligned with the longitudinal axis of the handle 20.

[0046] In another embodiment the vacuum tube 38 and the dirty water inlet are also aligned with the longitudinal axis A-A. In other words the axis of rotation of the cleaning 18 is substantially coaxial with the longitudinal axis of the handheld cleaning device 10 and the vacuum tube 38. This means that the suction conduit 26 of the cleaning head 18 will always remain aligned to the dirty water inlet 28 when the cleaning head rotates 18. The cleaning head 18 is rotatable about 360 degrees about the longitudinal axis A-A.

[0047] The handheld cleaning device 10 comprises a locking mechanism 60. The locking mechanism 60 prevents rotation of the cleaning head 18 with respect to the housing 12 and prevents rotation of the cleaning head 18 between the first position and the second position. The locking mechanism 60 comprises an actuation button 62 for releasing the locking mechanism 60. The actuation button 62 is mechanically coupled to a locking arm 64 which engages with a reciprocal first recess 66 in annular flange 56 of the cleaning head 18. The locking arm 64 interlocks with the recess 66 and prevents rotation of the cleaning head 18 with respect to the housing 12. The cleaning head has a first recess 66 and a second recess 68 respectively associated with the first and second positions of the cleaning head 18. The first and second recesses 66, 68 are positioned diametrically opposite each other on the annular flange 54 to correspond with the first and second positions of the cleaning head 18. This means that the cleaning head 18 is rotatable about 180 degrees between the first position and the second position. The actuating button 62 and the locking arm 64 are biased to the locking position with spring 65. This means that when the user releases the locking mechanism 60, the cleaning head is free to rotate. The locking arm 64 will snap back in place when it is in proximity to the first or second recesses 66, 68. In this way the cleaning head 18 will automatically lock in either the first or second positions when the user rotates the cleaning head 18.

[0048] In some alternative embodiments there are additional recesses (not shown) in the annular flange 54 which correspond to different positions between the first and second positions. This means that the cleaning head 18 can be releasably fixed in other positions such as 45 degree or 90 degree rotation of the cleaning head 18 from the first or second positions. Additional positions may help clean surfaces at different or unusual orientations.

[0049] When the user wishes to rotate the cleaning head 18, the user depresses the actuating button 62, rotates the cleaning head 18 with respect to the housing 12. The locking mechanism 60 locks the cleaning head 18 in place when the user rotates the cleaning head 18 180 degrees about the longitudinal axis A-A.

[0050] In some embodiments the locking mechanism is not necessary. Instead the coefficient of friction is increased between the cleaning head 18 and the housing 12 such that the cleaning head 18 may be rotated by hand, but held in position during operation by friction.

[0051] Advantageously by providing a handheld cleaning device 10 with a cleaning head which is rotatable with respect to the housing, a user can easily change whether the cleaning accessory or the suction nozzle is forward facing. The user does not need to put the handheld cleaning device down to

rotate the cleaning head and this makes the handheld cleaning device particularly advantageous up ladders and other exposed environments.

[0052] In some embodiments the rotatable cleaning head 18 may be releasable from the housing 12. The releasable cleaning head 18 is an optional feature and not required for the cleaning head 18 to rotate. FIG. 7 shows a partial cross sectional view of the cleaning head 18. The cleaning head 18 is similar to the cleaning head 18 as described in reference to the previous embodiments. The cleaning head 18 is releasably mounted on a collar portion 76. When the cleaning head 18 is mounted to the collar portion 76, the cleaning head 18 rotates with the collar portion 76 when the cleaning head is rotated from the first position to the second position. The cleaning head 18 comprises a locking mechanism 71 for releasing the cleaning head 18 from the collar portion 76. The locking mechanism 71 comprises a release button 70 for releasing the cleaning head 18 from a reciprocal recess 74 in the collar portion 76. The release button 70 comprises an engagement element 72 engageable with the reciprocal recess 74 in the collar portion 76. The release button 70 and the engagement element 72 are sprung biased towards a position in which the engagement element 72 protrudes into the reciprocal recess 74.

[0053] When the user wishes to release the cleaning head 18, the user depresses the release button 70 and this moves the engagement element 72 clear of the recess 74. This means that the cleaning head 18 is no longer mounted to the collar portion 76 and the user can lift the cleaning head 18 free of the collar portion 76. The cleaning head 18 is removed by removing the cleaning head 18 substantially along the longitudinal axis of the handheld cleaning device. The release button 70 is positioned on the cleaning head 18 and this means the user can depress the release button 70 and remove the cleaning head 18 from the collar portion 76 with one hand. To replace the cleaning head 18 the user simply pushes the cleaning head 18 into the collar portion 76 until the engagement element 72 snaps into place in the recess 74. In an alternative embodiment the cleaning head 18 comprises a recess and the collar portion 76 or the housing 12 comprises the release button and engagement element.

[0054] As mentioned above the releasable cleaning head 18 is optional and in some embodiments the cleaning head 18 and the collar portion 76 are integral.

[0055] In some embodiment the handheld cleaning device is a window washer or window washing device.

[0056] In another embodiment two or more embodiments are combined. Features of one embodiment can be combined with features of other embodiments. Embodiments of the present invention have been discussed with particular reference to the examples illustrated. However it will be appreciated that variations and modifications may be made to the examples described within the scope of the invention.

1. A handheld cleaning device comprising:
  - a housing having a handle for gripping the device;
  - a motor-fan assembly for generating an air flow;
  - a cleaning head comprising a suction nozzle in fluid communication with the motor-fan assembly and a cleaning accessory mounted on the cleaning head; and
  - a fluid tank in fluid communication with the suction nozzle and the motor-fan assembly for receiving fluid from the suction nozzle in the air flow;
 wherein the cleaning head is rotatably mounted on the housing and the cleaning head is rotatable about a lon-

itudinal axis of the housing between a first position in which the suction nozzle is in an operable position and a second position in which the cleaning accessory is in an operable position.

2. A handheld cleaning device according to claim 1, wherein the handle is mounted on a first side of the housing and the operable position of the suction nozzle or the cleaning accessory is on a second side of the housing opposing the first side of the housing.

3. A handheld cleaning device according to claim 1, wherein the handheld cleaning device comprises a locking mechanism for preventing the cleaning head from rotating between the first position and second positions.

4. A handheld cleaning device according to claim 3, wherein the locking mechanism comprises a moveable locking arm arranged to interlock with at least one recess.

5. A handheld cleaning device according to claim 3, wherein the locking mechanism comprises an actuating button mounted on the handle.

6. A handheld cleaning device according to claim 1, wherein the cleaning head is arranged to be rotated about 180 degrees between the first and second positions.

7. A handheld cleaning device according to claim 1, wherein the handheld cleaning device comprises a cleaning fluid tank and cleaning fluid delivery mechanism comprising a spray nozzle in fluid communication with the cleaning fluid tank.

8. A handheld cleaning device according to claim 7, wherein the spray nozzle is fixedly mounted on housing and

the spray nozzle is mounted on the same side of the housing as the operable position of the suction nozzle or the cleaning accessory.

9. A handheld cleaning device according to claim 7, wherein the cleaning fluid delivery mechanism is actuated with a trigger mounted on the handle.

10. A handheld cleaning device according to claim 7, wherein the cleaning fluid tank is mounted in the handle.

11. A handheld cleaning device according to claim 1, wherein the cleaning head comprises an attachment for mounting the cleaning accessory.

12. A handheld cleaning device according to claim 1, wherein the cleaning accessory is one or more of the following: a pad, cloth, or brush.

13. A handheld cleaning device according to claim 1, wherein the fluid tank comprises an inlet tube for receiving fluid from the suction nozzle and the longitudinal axis of the inlet tube is coaxial with the axis of rotation of the cleaning head.

14. A handheld cleaning device according to claim 1, wherein the fluid tank comprises an inlet tube for receiving fluid from the suction nozzle and the longitudinal axis of the inlet tube is substantially parallel but not coaxial with the axis of rotation of the cleaning head.

15. A handheld cleaning device according to claim 1, wherein the suction nozzle comprises a squeegee.

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