ADJUSTABLE-HEAD CLEANING IMPLEMENT

Inventor: Locke White II, Radford, VA (US)

Correspondence Address:
Schwartz Law Firm, P.C.
SouthPark Towers
Suite 530
6100 Fairview Road
Charlotte, NC 28210 (US)

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ABSTRACT

An adjustable cleaning head for a cleaning implement. The cleaning head has first and second cleaning panels defining respective first and second working surfaces. The first cleaning panel is pivotedly attached to the second cleaning panel, whereby the first cleaning panel is movable relative to the second cleaning panel. The position of the first cleaning panel relative to the second cleaning panel is fixable, such that the first and second working surfaces form a fixed cleaning angle therebetween. The cleaning angle is greater than 180 degrees and less than 270 degrees.
ADJUSTABLE-HEAD CLEANING IMPLEMENT

TECHNICAL FIELD AND BACKGROUND OF THE INVENTION

[0001] This invention relates to an improved cleaning implement, an adjustable head for a cleaning implement, and a method for cleaning a floor surface area. The invention is especially applicable for use in combination with disposable wet and dry cloths applicable for mopping and dusting floors, respectively.

[0002] Existing commercial products, such as the electrostatic cloth marketed under the brands Swiffer® and Grab-it®, represent a substantial improvement over the standard broom in removing dust, dirt, hair, and other loose debris from floors. For the most part, sweeping using a standard broom simply stirs up matter that ultimately resettles on the floor only after the job is believed to be finished. While the existing products do a moderately effective job of trapping dust particles before they have a chance to escape, the real problem lies in the limited design of the cleaning head used to carry the cloth. Because these implements utilize an entirely flat cleaning head, when the head and attached cloth are moved across the floor, all of the dust collects only at portions of the cloth covering the front and/or rear edge of the head. Consequently, the cleaning head operates much like a snowplow with substantially all the loose debris piling up and accumulating at the leading edge. This debris is generally pushed around the room, and engages only a very small portion of the cleaning cloth. The vast majority of the cloth is not utilized.

[0003] In recognizing this problem, one existing product advertizes that its dry cloths are extra-thick with “unique, V-shaped ridges that pick up more dirt, dust, and hair than traditional methods.” Notwithstanding this modification/improvement, because the cleaning head remains entirely flat, the loose debris continues to be pushed around and not collected over a vast majority of the cloth surface area. As a result, a long felt need exists for an improved head design which enables proper utilization of the entire cloth, and which more effectively captures and removes dirt, dust, hair, and other debris from the floor with less work.

SUMMARY OF INVENTION

[0004] Therefore, it is an object of the invention to provide an adjustable cleaning head for an improved cleaning implement.

[0005] It is another object of the invention to provide a cleaning head which includes independently adjustable cleaning panels that work together to utilize the entire cleaning cloth, and thereby capture and remove a maximum amount of dust, dirt and debris from the floor.

[0006] It is another object of the invention to provide a cleaning head which is conveniently adjustable between multiple configurations.

[0007] It is another object of the invention to provide a cleaning head which avoids “snowplowing” loose debris and wet spills across the floor.

[0008] It is another object of the invention to provide a cleaning head which defines a debris entry and collection zone between the floor and a raised cleaning panel.

[0009] It is another object of the invention to provide an improved method for cleaning a floor.

[0010] These and other objects of the present invention are achieved in the preferred embodiments disclosed below by providing an adjustable cleaning head for a cleaning implement. The cleaning head has first and second cleaning panels defining respective first and second working surfaces. The working surfaces are preferably generally planar. Means are provided for pivotably attaching the first cleaning panel to the second cleaning panel, whereby the first cleaning panel is movable relative to the second cleaning panel. Means are provided for fixing the position of the first cleaning panel relative to the second cleaning panel, such that the first and second working surfaces form a fixed cleaning angle therebetween. The cleaning angle is greater than 180 degrees and less than 270 degrees. Preferably, the cleaning angle is approximately 210 degrees.

[0011] According to another preferred embodiment, the means for pivotably attaching the first and second cleaning panels is a living hinge.

[0012] According to another preferred embodiment, the means for fixing the position of the first cleaning panel includes first and second interfering elements cooperating to frictionally lock the first cleaning panel in position relative to the second cleaning panel.

[0013] According to another preferred embodiment, first and second panel tabs are located on respective first and second cleaning panels. The interfering elements are formed with respective panel tabs.

[0014] According to another preferred embodiment, the interfering elements include a mating indent and detent formed with respective panel tabs.

[0015] According to another preferred embodiment, the first cleaning panel is adjustable between a wet clean position, wherein the fixed cleaning angle is substantially 180 degrees, and a dry clean position. In the dry clean position, the fixed cleaning angle is greater than 180 degrees and less than 270 degrees, and preferably, approximately 210 degrees. The term “dry clean” refers primarily to dusting, but is not intended to exclude other cleaning in this head configuration using wet cloths. Likewise, the term “wet clean” refers primarily to mopping, but is not intended to exclude other cleaning in this head configuration using dry cloths.

[0016] According to another preferred embodiment, a finger post extends from the first cleaning panel, and is adapted for being engaged by a user to move the first cleaning panel between the wet and dry clean positions.

[0017] According to another preferred embodiment, at least one cloth holder is formed with at least one of the first and second cleaning panels.

[0018] According to another preferred embodiment, a disposable dry cloth is adapted for being releasably attached to the at least one cloth holder.

[0019] According to another preferred embodiment, a disposable wet cloth is adapted for being releasably attached to the at least one cloth holder.

[0020] According to another preferred embodiment, a third cleaning panel is attached to the second cleaning panel,
and defining a third generally planar working surface. Alternatively, the third working surface may be upwardly curved.

According to another preferred embodiment, means are provided for pivotably attaching the third cleaning panel to the second cleaning panel.

According to another preferred embodiment, means are provided for fixing the position of the third cleaning panel relative to the second cleaning panel, such that the third and second working surfaces form a fixed cleaning angle therebetween.

According to another preferred embodiment, the fixed cleaning angle between the third and second working surfaces is greater than 180 degrees and less than 270 degrees.

In another embodiment, the invention comprises an upwardly-angled cleaning head for a cleaning implement. The cleaning head has first and second cleaning panels defining respective first and second working surfaces. The working surfaces form a fixed cleaning angle therebetween. The cleaning angle is greater than 180 degrees and less than 270 degrees. The first and second cleaning panels may be separately formed, or integrally-formed together (e.g., molded) as a single unit. The working surface of the first cleaning panel may extend at a distinct angle, or may be upwardly curved. In the case of an upwardly-curved working surface, the cleaning angle is measured relative to a notional tangent extending from an adjacent edge of the working surface of the second cleaning panel and touching the curved working surface of the first panel at a point without intersecting the point.

In another embodiment, the invention comprises a method for cleaning a surface area. The method includes the steps of upwardly tilting a first cleaning panel relative to a second cleaning panel of an adjustable cleaning head. The first and second cleaning panels define respective first and second working surfaces. The working surfaces are preferably generally planar. The position of the first cleaning panel relative to the second cleaning panel is then locked, such that the first and second working surfaces form a fixed cleaning angle therebetween. The cleaning angle is greater than 180 degrees and less than 270 degrees. Using the handle, the adjustable cleaning head is then pushed over the surface area to be cleaned.

BRIEF DESCRIPTION OF THE DRAWINGS

Some of the objects of the invention have been set forth above. Other objects and advantages of the invention will appear as the description proceeds when taken in conjunction with the following drawings, in which:

FIG. 1 is a perspective view of an improved cleaning implement according to one preferred embodiment of the present invention, and showing the adjustable cleaning head in a first cleaning configuration especially applicable for carrying a disposable wet cloth to mop a floor surface area;

FIG. 2 is a further perspective view of the cleaning implement with the adjustable cleaning head in a second cleaning configuration especially applicable for carrying a disposable electrostatic dry cloth to dust the floor surface area;

FIGS. 3A-3D are end views of the cleaning head in various cleaning configurations, and with the disposable cloth removed; and

FIG. 4 is an enlarged, fragmentary cross-sectional view of the cleaning head taken substantially along line 4-4 of FIG. 3A.

DESCRIPTION OF PREFERRED EMBODIMENT AND BEST MODE

Referring now specifically to the drawings, an improved cleaning implement according to the present invention is illustrated in FIG. 1, and shown generally at reference numeral 10. The cleaning implement 10 includes an elongated handle 11, an adjustable cleaning head 12, and a conventional joint 14 interconnecting the handle 11 and head 12. The joint 14 enables pivoting and swivel movement of the cleaning head 12 relative to the handle 11.

The cleaning head 12 comprises multiple pivotally-attached cleaning panels 15, 16, and 17. The cleaning panels 15, 16, 17 are preferably joined together by respective longitudinal living hinges 18, 19, such that outside panels 15 and 17 are independently adjustable relative to the center panel 16. Preferably, the joint 14 interconnecting the handle 11 and cleaning head 12 is formed with a top of the center panel 16. Each of the cleaning panels 15, 16, 17 defines a generally planar working surface 15A, 16A, and 17A which cooperates with a disposable wet or dry cloth 20 to clean a floor surface area, such as wood, vinyl, tile, or other flooring material. Cloth holders 21, 22, 23, and 24 are located on top sides of the cleaning panels 15 and 17, and are designed to receive and hold respective corners of the disposable cloth 20. The disposable wet cloths, such as those marketed under the Swiffer® Brand, are preferably pre-sealed with an advanced cleaning solution that dissolves stains and dries quickly.

The position of each outer cleaning panel 15, 17 is releasably fixable relative to the center panel 16 using any suitable means. For example, in the embodiment shown, the cleaning panels 15, 16, 17 comprise overlapping, upstanding, lateral tabs 25, 26, 27, and 28. The outer panel tabs 26 and 28 have respective detents 31 which, upon upward pivoting movement of the outer panels 15, 17, are designed to selectively mate with complementary indents 32 (or holes) formed with the center panel tab 27. Once mated, as shown in FIG. 4, the detent 31 and mouth of the indent 32 cooperate to frictionally retain the outer panel 15, 17 in the desired selected position during use of the cleaning implement 10. Other interfering structure, such as spring-loaded pins, cotter pins, clips, ties, screws, or the like, may be used instead of, or in addition to, the above to further set the position of the outer panels 15, 17 relative to the center panel 16.

Finger posts 33 and 34 extending from each outer panel tabs 26, 28 are adapted for being engaged by the user to move the outer cleaning panels 15, 17 between the various positions shown in FIGS. 3A, 3B, 3C, and 3D. In FIGS. 1 and 3A, the two outer cleaning panels 15, 17 are positioned generally co-planar to the center cleaning panel 16. In this position, the cleaning head 12 is especially applicable for wet mopping, as each of the working surfaces 15A, 16A, and 17A engages the wet cloth (not shown) to clean the floor surface area “F”. The cleaning angles (α) and (β) formed
between the first working surface 15A and center working surface 16A, and between the second working surface 17A and center working surface 16A, respectively, are each substantially 180 degrees.

[0035] In FIGS. 2 and 3B, both outer cleaning panels 15, 17 are raised to dry clean the floor surface area using a disposable electrostatic dusting cloth (not shown). In this position, the cleaning angles (α) and (β) between the first working surface 15A and center working surface 16A, and between the second working surface 17A and center working surface 16A, respectively, are each substantially 210 degrees. As the cleaning head 12 is moved back and forth over the floor surface area “F”, dust, dirt, hair, and other dry loose matter is captured beneath the raised outer panels 15, 17 and collected on the dry cloth adjacent the working surfaces 15A, 16A, and 17A. Consequently, the cleaning panels 15, 16, and 17 and respective working surfaces 15A, 16A, and 17A work together to utilize the entire cloth, and thereby capture and remove a maximum amount of dust, dirt and debris from the floor surface area “F”. The joint 14 interconnecting the handle 11 and head 12 allows the user to conveniently reverse the leading and trailing cleaning panels 15, 17, such that the entire cloth may be more effectively utilized prior to disposal. The resulting spaces formed between the floor “F” and working surfaces 15A and 17A define respective debris entry and collection zones “Z”. Larger dust and dirt particles are captured by the cloth adjacent the raised surfaces 15A and 17A, while the finer particles pass beneath the center panel 16 and are captured by the cloth adjacent the working surface 16A. This head configuration is also applicable for mopping to pick-up wet spills, such as jelly and syrup.

[0036] FIGS. 3C and 3D illustrate further configurations of the adjustable cleaning head 12. In FIG. 3C, the outer cleaning panel 15 is raised while the outer panel 17 is positioned generally coplanar to the center panel 16. In this position, the cleaning angle (α) between the first working surface 15A and center working surface 16A is substantially 210 degrees. The resulting space formed between the floor “F” and working surfaces 15A defines a debris entry and collection zone “Z”, as previously described. The cleaning angle (β) between the second working surface 17A and center working surface 16A is substantially 180 degrees. In FIG. 3D, the outer cleaning panel 15 is raised while the outer panel 17 is positioned generally coplanar to the center panel 16. In this position, the cleaning angle (β) between the second working surface 17A and center working surface 16A is substantially 210 degrees. The resulting space formed between the floor “F” and working surface 17A defines a debris entry and collection zone “Z”. The cleaning angle (α) between the first working surface 15A and center working surface 16A is substantially 180 degrees.

[0037] In alternative embodiments (not shown), the adjustable head may include only two cleaning panels pivotally connected together by living hinge or suitable hardware. The head may also be integrally molded such that one or both outer cleaning panels are permanently titled. In this embodiment, the working surfaces define respective permanent cleaning angles each greater than 180 degrees and less than 270 degrees, as previously described.

[0038] An adjustable-head cleaning implement is described above. Various details of the invention may be changed without departing from its scope. Furthermore, the foregoing description of the preferred embodiment of the invention and best mode for practicing the invention are provided for the purpose of illustration only and not for the purpose of limitation—the invention being defined by the claims.

I claim:

1. An adjustable cleaning head for a cleaning implement, comprising:

   first and second cleaning panels defining respective first and second working surfaces;

   means for pivotally attaching said first cleaning panel to said second cleaning panel, whereby said first cleaning panel is movable relative to said second cleaning panel;

   means for fixing the position of said first cleaning panel relative to said second cleaning panel, such that said first and second working surfaces form a fixed cleaning angle therewith and said cleaning angle being greater than 180 degrees and less than 270 degrees.

2. An adjustable cleaning head according to claim 1, wherein said means for pivotally attaching said first and second cleaning panels comprises a living hinge.

3. An adjustable cleaning head according to claim 1, wherein said means for fixing the position of said first cleaning panel comprises first and second interfering elements cooperating to frictionally lock said first cleaning panel in position relative to said second cleaning panel.

4. An adjustable cleaning head according to claim 3, and comprising first and second panel tabs located on respective first and second cleaning panels, and wherein said interfering elements are formed with respective panel tabs.

5. An adjustable cleaning head according to claim 4, wherein said interfering elements comprise a mating indent and detent formed with respective panel tabs.

6. An adjustable cleaning head according to claim 1, wherein said first cleaning panel is adjustable between a wet clean position, wherein said fixed cleaning angle is substantially 180 degrees, and a dry clean position, wherein said fixed cleaning angle is greater than 180 degrees and less than 270 degrees.

7. An adjustable cleaning head according to claim 6, and comprising a finger post extending from said first cleaning panel, and adapted for being engaged by a user to move said first cleaning panel between the wet and dry clean positions.

8. An adjustable cleaning head according to claim 1, and comprising at least one cloth holder formed with at least one of said first and second cleaning panels.

9. An adjustable cleaning head according to claim 8, and comprising a disposable dry cloth adapted for being releasably attached to said at least one cloth holder.

10. An adjustable cleaning head according to claim 8, and comprising a disposable wet cloth adapted for being releasably attached to said at least one cloth holder.

11. An adjustable cleaning head according to claim 1, and comprising a third cleaning panel attached to said second cleaning panel, and defining a third working surface.

12. An adjustable cleaning head according to claim 11, and comprising means for pivotally attaching said third cleaning panel to said second cleaning panel.

13. An adjustable cleaning head according to claim 12, and comprising means for fixing the position of said third
cleaning panel relative to said second cleaning panel, such that said third and second working surfaces form a fixed cleaning angle therebetween.

14. An adjustable cleaning head according to claim 13, wherein the fixed cleaning angle between said third and second working surfaces is greater than 180 degrees and less than 270 degrees.

15. An upwardly-angled cleaning head for a cleaning implement, comprising:

first and second cleaning panels defining respective first and second working surfaces, said working surfaces forming a fixed cleaning angle therebetween; and

said cleaning angle being greater than 180 degrees and less than 270 degrees.

16. An upwardly-angled cleaning head according to claim 15, and comprising at least one cloth holder formed with at least one of said first and second cleaning panels.

17. An upwardly-angled cleaning head according to claim 16, and comprising a disposable dry cloth adapted for being attached to said at least one cloth holder.

18. An upwardly-angled cleaning head according to claim 16, and comprising a disposable wet cloth adapted for being attached to said at least one cloth holder.

19. A cleaning implement, comprising:

an elongated handle;

an adjustable head attached to said handle, and comprising:

first and second cleaning panels defining respective first and second working surfaces;

means for pivotably attaching said first cleaning panel to said second cleaning panel, whereby said first cleaning panel is movable relative to said second cleaning panel;

means for fixing the position of said first cleaning panel relative to said second cleaning panel, such that said first and second working surfaces form a fixed cleaning angle therebetween; and

said cleaning angle being greater than 180 degrees and less than 270 degrees.

20. A method for cleaning a surface area, comprising the steps of:

upwardly tilting a first cleaning panel relative to a second cleaning panel of an adjustable cleaning head, the first and second cleaning panels defining respective first and second working surfaces;

locking the position of the first cleaning panel relative to the second cleaning panel, such that the first and second working surfaces form a fixed cleaning angle therebetween, the cleaning angle being greater than 180 degrees and less than 270 degrees; and

using the handle, pushing the adjustable cleaning head over the surface area to be cleaned.

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