A cleaning apparatus is disclosed that includes a cleaning device and an insert. The cleaning device includes a cleaning head and a handle that defines a longitudinal axis. The handle has a proximal end portion that defines a first aperture aligned with the longitudinal axis for receiving the insert. The insert is removably positionable in the proximal end portion of the handle between a first position and a second position for use. The insert has a cleaning head that can be used in cooperation with the cleaning device or independent thereof. The insert and proximal end portion define a second aperture in the cleaning device that is transverse to the longitudinal axis that can receive a device to suspend the cleaning apparatus for storage. A method of use of the cleaning apparatus includes moving the insert from the first position in the handle of the cleaning device to the second position for cleaning. When the cleaning with the insert is completed the insert can be returned to the first position in the handle.
APPARATUS AND METHOD FOR A CLEANING DEVICE

FIELD OF THE INVENTION

[0001] This invention relates to a manual cleaning apparatus and specifically to a manual cleaning device having a combined cleaning device and insert.

BACKGROUND OF THE INVENTION

[0002] Cleaning implements such as brooms, brushes and dustpans are routinely used in combination with other cleaning implements to enhance the ability of a user to clean a given surface. Implements commonly combine different advantageous features to achieve a given objective. Examples include brushes having attachable and detachable handles and broom heads that attach to dustpans.

[0003] Cleaning, however, frequently requires performing diverse tasks in addition to sweeping dirt and dust from a floor surface into the dustpan. For example, cleaning can involve unrelated tasks such as cleaning walls and dusting furniture. It can also include scrubbing a first surface with one implement and using a second implement to clean a second different surface or the cleaning of a second different type of grime.

[0004] A manual cleaning apparatus is needed that can combine multiple manual cleaning devices to perform related and independent cleaning tasks.

SUMMARY OF THE INVENTION

[0005] A cleaning apparatus is described that comprises a cleaning device that has a cleaning head and a handle. The handle has a distal end portion and a proximal end portion that define a longitudinal axis. The distal end portion is connected to the cleaning head and the proximal end portion defines a first aperture aligned with the longitudinal axis and a second aperture transverse to the longitudinal axis.

[0006] An insert is removably positionable in the first aperture and has a distal end portion and a proximal end portion that define a second longitudinal axis. The distal end portion includes a cleaning head and the proximal end portion includes an aperture that is at least partially aligned with the second aperture of the handle when the insert is positioned in the first aperture of the handle. The insert includes a protuberance received by the proximal end portion of the handle of the cleaning device.

[0007] The handle proximal end portion includes a tubular wall and the second aperture includes two opposed apertures defined in the tubular wall. One of the apertures in the tubular wall that define the second aperture can be a notch. At least one of the apertures in the tubular wall that define the second aperture is adapted for use with a hook. The insert and proximal end portion of the handle can overlap and define the second aperture. The protuberance received by the notch of the proximal end portion of the handle. The aperture of the insert and the second aperture of the handle are at least partially aligned by positioning the protuberance in the notch when the insert is positioned in the proximal end portion of the handle.

[0008] The cleaning apparatus further includes a locking mechanism that retains the insert in position in the proximal end portion of the handle of the cleaning device. The locking mechanism can engage the insert and handle such that the insert positioned in the handle supports the weight of the cleaning device and insert.

[0009] A combination cleaning apparatus is described that comprises a cleaning device including a cleaning head that is connected to a handle. The handle defines a longitudinal axis and has a proximal end portion that defines a first aperture aligned with the longitudinal axis and a second aperture transverse to the longitudinal axis, the proximal end portion has a tubular wall that defines a notch.

[0010] An insert is removably positionable in the first aperture. The insert has a distal end portion and a proximal end portion that define a second longitudinal axis, the distal end portion includes a cleaning device.

[0011] The cleaning apparatus has a first position wherein the aperture of the insert is at least partially aligned with the second aperture of the handle of the cleaning device when the protuberance is positioned in the notch and a second position of the cleaning apparatus wherein the insert is removed from the handle of cleaning device.

[0012] A method is described for cleaning using a combination cleaning apparatus comprising the steps of providing a cleaning device and an insert. The cleaning device has a handle connected to a cleaning head and an opposed proximal end portion that define a longitudinal axis. A first position of the cleaning apparatus includes the insert positioned in a proximal end portion of the handle and a second position of the cleaning apparatus includes the cleaning device removed from the handle for use. The method further includes removing the insert from within the proximal end portion of the handle and cleaning a surface using the cleaning head of the insert. The method preferably further includes repositioning the insert to the first position in the proximal end portion of the handle. The insert is preferably moved along the longitudinal axis between the first position and the second position. The insert can also be moved between the first position and the second position by moving the insert transverse to the longitudinal axis and/or rotating the insert relative to the longitudinal axis.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Preferred embodiments of the invention are described below with reference to the drawings, wherein like numerals are used to refer to the same or similar elements:

[0014] FIG. 1 is a frontal elevational view of a cleaning apparatus including a cleaning device and an insert;

[0015] FIG. 2 is a front and side perspective view of a proximal end portion of a handle of the cleaning device of FIG. 1 with the insert removed;

[0016] FIG. 3 is a front and side view of one embodiment of the insert of FIG. 1 having a soft cleaning brush;

[0017] FIG. 4 is a partial cross-sectional front and side elevational view of the cleaning apparatus of FIG. 1 showing the insert positioned in the proximal end portion of the cleaning device in the first position of the cleaning apparatus;

[0018] FIG. 5 is a front view of a second embodiment of the cleaning apparatus of FIG. 1 including;

[0019] FIG. 6 is a front and side perspective view of the embodiment of FIG. 5 with the insert separated from the proximal end portion of the cleaning device;
[0020] FIG. 7 is a front and side elevational view of a third embodiment of the cleaning apparatus of FIG. 1;

[0021] FIG. 8 is a front and side perspective view of the embodiment of FIG. 7 with the insert partially displaced from within the cleaning device;

[0022] FIG. 9 is a frontal elevational view of the cleaning device of FIG. 1 showing an alternative embodiment of the insert;

[0023] FIG. 10 is a front and side perspective view of another embodiment of the cleaning apparatus of FIG. 1 showing a dust pan attached to the cleaning device in a first position; and

[0024] FIG. 11 is a front and side perspective view of the embodiment of FIG. 10 showing the dust pan in a second position.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0025] Referring to FIG. 1, a cleaning apparatus 5 includes a cleaning device 10 that has a head 20, a handle 30 and an insert 50. In this one preferred embodiment, cleaning device 10 is a long handled broom with head 20 including a base 22 that is connected to a plurality of bristles 24. Handle 30 connects head 20 and insert 50. Insert 50 can be removed and replaced from within handle 30. Cleaning apparatus 5 has a first position wherein insert 50 is positioned in handle 30 and a second position wherein insert 50 is removed from handle 30. Insert 50 in the second position can be used independent of or in conjunction with cleaning device 10. Cleaning apparatus 5 is preferably fabricated of polymer materials, but can also include metals, composites as well as cellulose and other natural materials.

[0026] Handle 30 is preferably an elongate member that includes a distal end portion 32 and a proximal end portion 34 that defines a first longitudinal axis-X. Head 20 is connected to distal end portion 32 and can be any type of device for cleaning and/or an applicator for uses such as sweeping, dusting, moping, scrubbing and applying chemicals such as those for stripping, waxing and cleaning, for example. The proximal end portion 34 preferably has a tubular shape aligned with longitudinal axis-X that receives insert 50. Handle 30 can be rigid or at least partially flexible.

[0027] Handle 30 has a first length that is preferably the approximate length of a long handled cleaning device such as a broom or a mop in which two hands are used during cleaning. Handle 30 can have a fixed length or be adjustable using telescoping or other known means that can adjacently extend, retract and lock handle 30 at a preferred length for a given user. Handle 30 has an external perimeter that ergonomically accommodates the use of cleaning device 10 with one or two hands.

[0028] Referring now to FIGS. 1 and 2, proximal end portion 34 has a tubular wall that includes a proximal edge 36 and defines a first aperture 35 aligned with longitudinal axis-X. Aperture 35 is shaped and dimensioned to receive insert 50 and extends a predetermined length in the distal direction within handle 30. The inner dimensions of the tubular wall of proximal end portion 34 can have any cross-sectional shape normal to longitudinal axis-X such as for example arcuate and/or angular that can advantageously accommodate any insert 50 independent of the external shape of the cross-section of handle 30.

[0029] A second aperture 39 is defined in the tubular wall that is aligned with an axis-Y and preferably normal to the first longitudinal axis. Proximal edge 36 can also include a portion 37 that defines a notch 38 in the tubular wall that is at least partially opposed to and aligned with second aperture 39. Proximal end portion 34 is constructed to support the weight of cleaning apparatus 5 when suspended from a hook or bar positioned through aperture 39.

[0030] As shown in FIGS. 2 and 3, and continuing with the preferred embodiment, insert 50 has a distal end portion 52 and a proximal end portion 54 that define a longitudinal axis-X. Distal end portion 52 includes a cleaning head 60 and proximal end portion 54 includes a handle 70. Insert 50 is a hand held device that includes in one this preferred embodiment distal end portion 54 having a soft dust collecting type brush shaped and dimensioned for readily positioning into and removing from first aperture 35 of handle 30. In this preferred embodiment, the distal end portion 54 includes dust-collecting fibers. Distal end portion 54 is shown as cylindrical in this one preferred embodiment, but it is understood that distal end portion 54 can have any cross-sectional shape normal to longitudinal axis-X that can be received in aperture 35 and include alternative dust collecting materials. Insert 50 has a second length that is preferably less than the first length of handle 30.

[0031] Proximal end portion 54 includes a handle 79 that preferably has a length and shape for grasping with a single hand. Handle 70 securely interfaces with proximal end portion 34 to lock insert 50 in the first position. Handle 70 includes a terminal end portion 72 that functions as a cap for proximal end portion 54. In the preferred embodiment, terminal end portion 70 seats with proximal edge 36 of handle 30. The distal side of terminal end 72 preferably abuts edge 36 of handle 30 and can also include a cantilevered portion 76 that extends beyond the perimeter of handle 30 that can readily assist a user in removing insert 50.

[0032] Handle 70 also includes an aperture 79 that is aligned with an axis-Y and preferably normal to the longitudinal axis-X'. Aperture 79 preferably extends through insert 50 and constructed to support the weight of insert 50 and/or cleaning device 10 in conjunction with aperture 39.

[0033] Proximal end portion 54 also includes a protrusion 74 that preferably projects distally from terminal end 72 and defines an arcuate shaped edge 77 that interfaces with notch edge 38 of proximal end portion 34. In this one preferred embodiment, when insert 50 is in the first position in handle 30, protrusion 74 is received in notch 38 and axes-Y' and Y of insert 50 and proximal end portion 34, respectively, are aligned.

[0034] It is understood, however, that while apertures 79 and 39 are preferably normal to the longitudinal axes-X' and X, respectively, apertures 79 and 39 can be at any angle transverse to the longitudinal axes-X' and X. Similarly, apertures 79 and 39 can have different inner perimeter dimensions, for example, and axes-X' and X can be non-coincident.

[0035] It is also understood that while protrusion 74 of insert 50 and notch 38 of proximal end portion 34 interface to align aperture 79 of insert 50 and second aperture 39 of handle 30, alternatives structures can also include one or more overlapping portions, for example, that define a common aperture 39 and 79 transverse to the longitudinal axis.

[0036] Referring now to FIG. 4, cleaning apparatus includes a lock 40 that secures insert 50 in the first position
of apparatus 5 in cleaning device 10. In this one preferred embodiment the proximal and distal ends of handle 70 include an inward taper 72 that is received by an extension 42 to the tubular wall of the proximal end portion 34 when cleaning apparatus 5 is in the first position. Extension 42 is preferably biased such that the tubular wall and/or insert 50 resiliently flex for the passage of distal end portion 52 of insert 50, as required, and then return to the initial position to retain insert 50 in the first position. Taper 72 and extension 42 can also lock and engage such that the weight of cleaning apparatus 5 can be supported by insert 50 in the first position. It is understood that while lock 40 is described as the engagement of taper 72 of head 70 and extension 42 of the tubular wall of handle 30, lock 40 can be any type of lock mechanism such as a friction fit, snap or threaded connection, for example.

[0037] As shown in FIG. 5, cleaning apparatus 5 in a second preferred embodiment includes cleaning device 10 having an adjustable medium length handle 30 preferably between about 33 and approximately 55 inches. Proximal end portion 34 includes removable and replaceable insert 50. Distal end portion 32 has a cleaning head 20 in this one preferred embodiment that is a scrubber that can be readily used to clean tile surfaces commonly found in kitchens and bathrooms, but it can be any device for a medium length handle including a single handed broom or dust mop, for example (see FIG. 10). Handle 30 can have any kind of connection with head 20 to include for example, fixed, flexible or pivoting.

[0038] Referring now to FIG. 6, continuing with the second embodiment, insert 50 and proximal end portion 34 are shown with longitudinal axes-X and X aligned for the removal and/or replacement of insert 50 in handle 30. Insert 50 has a distal end portion 52 that has a cleaning head 60 that is a hand held cleaning brush that can be manually grasped by handle 70 of proximal end portion 54. In this preferred embodiment, insert 50 is a brush having bristles that extend normal to longitudinal axis-X that are specialized for cleaning great. The shape and inner dimensions of the tubular wall of proximal end portion 34 and the shape and dimensions of insert 50 preferably correspond such that, for example, the bristles or other cleaning surfaces of insert 50 are not misaligned or distorted in the first position in handle 30.

[0039] As shown in FIGS. 7 and 8, in another preferred embodiment cleaning apparatus 5, cleaning device 10 has a length and weight that can be readily used with a single hand. Distal end portion 32 connects to a feather duster or brush type cleaning head 20. Proximal end portion 34 receives insert 50 that in this preferred embodiment is preferably sized for cleaning in small spaces such as between the slits of blinds, for example. Insert 50 is removed and replaced within proximal end portion 34 by generally aligning longitudinal axis-X' with longitudinal axis-X of handle 30 as shown. While insert 50 is shown in FIG. 8, for example, aligned with longitudinal axis for movement relative to proximal end portion 34 along longitudinal axis-X, insert 50 in the embodiments of the present invention can be removed and replaced in any manner to include axially, transverse to the longitudinal axis and further include rotating about the longitudinal axis or pivotal movements.

[0040] Referring now to FIG. 9, in another preferred embodiment, insert 50 and proximal end portion 34 are shown with longitudinal axes-X' and X aligned. Distal end portion 52 in this embodiment has a head 20 that is a scraper for cleaning surfaces. The scraper can have a metal, composite or plastic distal edge 21, depending upon its intended application. It is also understood that insert 50 can combine two or more of the above embodiments such that, for example, insert 50 as a bristled brush for cleaning can also have a distal terminal end portion that includes an opposed portion with an alternative cleaning device such as a scraper, stiffer brush or softer brush. Edge 21 can also have any angular orientation such as for example approximately aligned with or transverse to longitudinal axis-X'.

[0041] As shown in FIG. 10, cleaning device 10 can also include a combination having an insert 50 and a dustpan 80. In this one preferred embodiment, dust pan 80 includes a distal end portion 82 and a proximal end portion 84 that define a longitudinal axis-X'' in a first position is approximately parallel with longitudinal axis-X. Distal end portion 82 includes a dustpan 90. Head 20 is shaped and dimensioned to structurally support and receive the concave structure of dustpan 90. Proximal end portion 84 includes a handle for grasping by the user. A biased U-shaped clip 85 assists in retaining dustpan 80 with handle 30.

[0042] Referring now to FIGS. 10 and 11, dust collecting pan 90 can be removed from head 20 of cleaning device 10 in this one preferred embodiment and can pivot about distal end portion 82 between the first position and a second position for use wherein the dust collecting pan 90 is transverse to the longitudinal axis-X''.

[0043] Cleaning apparatus 5 can also include a combination of inserts 50 that define a kit. For example, cleaning device 10 of FIGS. 1 and 2 can also include one or more additional inserts 50 such as a flexible whisk hand broom, a duster, a brush and/or scraper.

[0044] In operation, as shown in FIGS. 1-11, cleaning device 10 can be removed from a preferred stored position wherein a hook, line or beam is positioned through and/or into at least a portion of apertures 39 and/or 79 and the cleaning device is suspended from a wall, for example. Cleaning apparatus 5 can be selectively employed using head 20 of cleaning device 10 for cleaning, using insert 50 separately and/or in a third mode that can selectively combine the use of both cleaning device 10 and insert 50.

[0045] Insert 50 is preferably moved from the first position in proximal end portion 34 to the second position by moving insert 50 in the proximal direction along longitudinal axis-X. Proximal end portion 34 can include configurations that support alternative movements between the first and second positions such as transverse to the longitudinal axis and rotating movements. Insert 50 can then be employed as a second cleaning device. When the use of insert 50 is completed, insert 50 is moved to the first position by any of the previously described methods.

[0046] Although the illustrative embodiments of the present disclosure have been described with reference to the accompanying drawings, it is to be understood that the disclosure is not limited to those specific embodiments and that various other changes, combinations and modifications will be apparent to one of ordinary skill in the art without departing from the scope and spirit of the invention which is to be determined with reference to the following claims.

1. A cleaning apparatus that comprises:

- a cleaning device that includes a cleaning head and a handle, the handle has a distal end portion and a
proximal end portion that define a longitudinal axis, the distal end portion connected to the head, the proximal end portion defines a first aperture aligned with the longitudinal axis and a second aperture transverse to the longitudinal axis;

an insert removably positionable in the first aperture, the insert has a distal end portion and a proximal end portion that define a second longitudinal axis, the distal end portion includes a cleaning head, the proximal end portion includes an aperture at least partially aligned with the second aperture of the handle when the insert is positioned in the first aperture of the handle, the proximal end portion including a protuberance that is received by the proximal end portion of the handle of the cleaning device.

2. The cleaning apparatus of claim 1, wherein the proximal end portion of the handle includes a tubular wall and the second aperture of the handle includes two apertures defined in the tubular wall.

3. The cleaning apparatus of claim 2, wherein one of the apertures in the tubular wall is a notch.

4. The cleaning apparatus of claim 2, wherein at least one of the apertures in the tubular wall that define the second aperture is adapted for use with a hook.

5. The cleaning apparatus of claim 1, wherein the insert and proximal end portion of the handle overlap and define the second aperture.

6. The cleaning apparatus of claim 3, wherein the protuberance is received by the notch when the insert is positioned in the proximal end portion of the handle.

7. The cleaning apparatus of claim 3 wherein the aperture of the insert and the second aperture of the handle are at least partially aligned by the positioning of the protuberance in the notch when the insert is positioned in the proximal end portion of the handle.

8. The cleaning apparatus of claim 1 that further includes a locking mechanism that retains the insert in position in the proximal end portion of the handle.

9. The cleaning apparatus of claim 8 wherein the locking mechanism engages the insert and handle such that the insert positioned in the handle can support the weight of the cleaning device and insert.

10. A combination cleaning apparatus that comprises:

a cleaning device that includes a cleaning head connected to a handle that defines a longitudinal axis, a proximal end portion of the handle defines a first aperture aligned with the longitudinal axis and a second aperture transverse to the longitudinal axis, the proximal end portion has a tubular wall that defines a notch aligned with the second aperture;

an insert removably positionable in the first aperture, the insert has a distal end portion and a proximal end portion that define a second longitudinal axis, the distal end portion includes a cleaning device and the proximal end portion includes a protuberance and defines an aperture transverse to the longitudinal axis;

a first position of the cleaning apparatus wherein the protuberance of the insert is received by the notch of the handle, the aperture of the insert at least partially aligned with the second aperture of the handle; and

a second position of the cleaning device wherein the insert is removed from the handle.

11. The cleaning apparatus of claim 10, wherein the second aperture of the handle includes two opposed apertures defined in the tubular wall of the proximal end portion.

12. The cleaning apparatus of claim 11, wherein the notch extends distally from the proximal edge of the tubular wall of the proximal end portion.

13. The cleaning apparatus of claim 10, wherein the insert and proximal end portion of the handle overlap and define the second aperture.

14. The cleaning apparatus of claim 10, wherein the aperture of the insert extends at least partially through the protuberance.

15. The cleaning apparatus of claim 10 that further includes a lock for securely positioning the insert in the first position.

16. A method for cleaning comprising the steps of:

providing a cleaning apparatus including a cleaning device and an insert, the cleaning device includes a handle having a distal end portion and a proximal end portion that define a longitudinal axis, the distal end portion connected to a cleaning head having a second cleaning device and an opposed proximal end portion that define a longitudinally aligned aperture, the cleaning apparatus having a first position wherein the insert is positioned in a proximal end portion of the handle and a second position wherein the cleaning device is removed from the handle for use, the cleaning apparatus in the first position defining a second aperture for supporting the cleaning apparatus in a stored position.

removing the insert from within the proximal end portion of the handle; and

cleaning a surface using the second cleaning device of the insert.

17. The method for cleaning of claim 16 further including the step of repositioning the insert to the first position in the proximal end portion of the handle.

18. The method for cleaning of claim 16 further including moving the insert between the first and second positions by moving the insert along the longitudinal axis.

19. The method for cleaning of claim 16, further including moving the insert between the first and second positions by moving the insert transverse to the longitudinal axis.

20. The method for cleaning of claim 16 further including the step of positioning the cleaning apparatus in a storage position by suspending the cleaning apparatus from at least one of the second aperture of the cleaning device and the aperture of the insert.

21. A cleaning apparatus comprising:

a. a first handle;

b. a first cleaning head;

c. an aperture located atop the first handle; and

d. an insert, said insert including a second handle and a second cleaning head,

e. whereby the insert is removably inserted into the aperture of the first handle.

22. The cleaning apparatus of claim 1 whereby said second handle removably fits into said first handle.

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