

THE EMBODIMENTS IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE
IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A cleaning cartridge, comprising:
 - an outer housing having an inner surface defining a chamber and a mouth
 - 5 providing open access to the chamber;
 - a cap for covering the outer housing at the mouth;
 - a stiffening component having a compressed position and an extended position; and
 - a cleaning element attached to the stiffening component, wherein in the
 - 10 compressed position, the stiffening component and cleaning element are compacted to fit into the chamber, and wherein in the extended position, the stiffening component extends to expand the cleaning element to provide a cleaning surface, and
 - the cleaning cartridge having a closed position, wherein the stiffening component and cleaning element are disposed in the chamber in the compressed
 - 15 position and the cap is removably attached to the mouth of the outer housing to cover same and to secure the stiffening component inside the chamber; and
 - an open position, wherein the cap is removed from the outer housing and the stiffening component is released from the outer housing into the extended position.
- 20 2. The cleaning cartridge of claim 1 wherein the stiffening component is a plurality of collapsible and extendible fingers.
3. The cleaning cartridge of claim 2 wherein the plurality of fingers are held together by a hub and are attached to the cap via the hub.
- 25 4. The cleaning cartridge of claim 1 wherein the chamber is configured to store cleaning fluid and the cleaning fluid is sealable in the chamber by the cap.
5. The cleaning cartridge of claim 1 wherein the cap is connectable to the
- 30 outer housing by a threaded connection.

6. The cleaning cartridge of claim 1 wherein the stiffening component is spring-loaded to bias itself toward the extended position.

7. The cleaning cartridge of claim 1 wherein, in the extended position, the stiffening component provides a substantially planar frame when pressed against a substantially flat surface.

8. The cleaning cartridge of claim 1 further comprising a mechanism for locking the stiffening component into the extended position.

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9. The cleaning cartridge of claim 1 wherein the stiffening component comprises a hoop, and wherein, in the compressed position, the hoop is coiled and, in the extended position, the hoop is uncoiled.

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10. The cleaning cartridge of claim 9 wherein the hoop comprises a hub and one or more veins extending radially outwardly from the hub, and the hoop is attached to the cap via the hub, and wherein in the compressed position the veins are coiled around the hub about a central axis of the hub, and in the extended position, the veins are uncoiled and extend away from the hub.

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11. The cleaning cartridge of claim 9 wherein in the extended position the cleaning element is under tension.

12. The cleaning cartridge of claim 4 wherein the chamber is sealed with a seal, and wherein the seal is intact in the compressed position and is broken in the extended position, thereby allowing cleaning fluid to flow therethrough.

13. The cleaning cartridge of claim 1 wherein the cleaning cartridge is loadable into and dispensable from a handling unit having a loading mechanism and/or a dispensing mechanism, and wherein the cap comprises an outer surface having a plurality of raised tabs extending radially outwardly therefrom, and the tabs are configured to interact with one or both of the loading mechanism and dispensing mechanism.

14. The cleaning cartridge of claim 1, further comprising a membrane that is penetrable to allow fluid to be injected into the chamber.

15. The cleaning cartridge of claim 14 wherein the membrane, when penetrated, permits fluid flow in one direction and restricts and/or reduces fluid flow in the opposite direction.

16. The cleaning cartridge of claim 3 wherein the hub comprises a chamber sealed by a breakable seal.

17. A handling unit for storing, activating, dispensing, using, and/or disposing one or more cleaning cartridges, the one or more cleaning cartridges each comprising a cap removably attached to an outer housing, the handling unit comprising:

a tubular member having a first end, a second end, a primary channel extending between the first end and second end;

an outlet opening at or near the second end providing open access to the primary channel;

an outer sleeve positioned at or near the outlet opening, the outer sleeve comprising:

an inner surface defining an inner bore, an outer surface, a loading mechanism, and a dispensing mechanism,

wherein the loading mechanism, when activated, allows the one or more cleaning cartridges to be loaded into the primary channel via the outlet opening and allows an outermost cleaning cartridge to transition from a storage position to a ready position, and

wherein the dispensing mechanism, when activated, disengages and releases the outermost cleaning cartridge.

18. The handling unit of claim 17 wherein the dispensing mechanism passively allows the one or more cleaning cartridges to pass therethrough while the one or more cleaning cartridges are loaded into the channel.

19. The handling unit of claim 17 wherein the loading mechanism is configured to engage and retain the outermost cleaning cartridge when the outermost cleaning cartridge is in the storage position.

5 20. The handling unit of claim 17 wherein the loading mechanism and the dispensing mechanism are configured to engage and retain the outermost cleaning cartridge when the outermost cleaning cartridge is in the ready position, to minimize any axial movement of the outermost cleaning cartridge relative to the handling unit.

10 21. The handling unit of claim 17 wherein the cap has an outer surface having a plurality of radially outwardly extending tabs, and wherein the inner surface of the outer sleeve comprises a first set of axially extending grooves and a second set of axially extending grooves, each for receiving a tab therein and allowing the passage of the tab therethrough.

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22. The handling unit of claim 21 wherein:

the loading mechanism comprises a first pair of levers, each having a hook end, and when the loading mechanism is deactivated, the hook end extends into one of the first set of grooves to block the passage of same, and when the loading mechanism

20 is activated, the hook end retracts from the one of the first set of grooves to unblock the passage of same; and

the dispensing mechanism comprises a second pair of levers, each having a hook end, and when the dispensing mechanism is deactivated, the hook end extends into one of the second set of grooves to block the passage of same, and when the

25 dispensing mechanism is activated, the hook end retracts from the one of the second set of grooves to unblock the passage of same.

23. The handling unit of claim 22 wherein the first pair of levers and the second pair of levers are spring-loaded to bias the hook ends into the first set of

30 grooves and the second set of grooves, respectively.

24. The handling unit of claim 17 wherein the loading mechanism, when deactivated, is configured to restrict the one or more cleaning cartridges from advancing into the primary channel via the outlet opening.

5 25. The handling unit of claim 17 wherein when the dispensing mechanism is activated to release the outermost cleaning cartridge, the loading mechanism is configured to retain a next cleaning cartridge that is adjacent to the outermost cleaning cartridge during the release.

10 26. The handling unit of claim 17 further comprising a secondary channel and an extendible and retractable handle housed in the secondary channel.

27. The cleaning cartridge of claim 1 wherein the cap comprises a seal for fluidly sealing the chamber.