CLAIMS

1. A method of performing at least one of a cleaning, buffing, and polishing action on a surface, without requiring water, comprising the steps of:

providing a core member;

providing at least one sheet of material, the at least one sheet of material being comprised of closed-cell silicone foam rubber and having a first free end portion, in which the at least one sheet of material is attached to the core member with the first free end portion extending away from the core member;

providing a flexible structural element disposed adjacent a trailing side of the at least one sheet of material, in which the flexible structural element is configured to increase the pressure between the at least one sheet of material and the surface during the sliding contact, in which the flexible structural element does not contact the surface during the cleaning, buffing, and/or polishing operation; and

causing the core member to move in a first direction such that a portion of the at least one sheet of material is brought into sliding contact with the surface in a repeating pattern;

in which the sliding contact between the at least one sheet of material and the surface occurs under a pressure and relative velocity sufficient to generate a force that results in at least one of a cleaning, buffing, and polishing.

2. A method according to Claim 1, in which the first direction is a rotational direction.

3. A method according to Claim 1, further including the step of causing the core member to move in a second direction, in which the second direction is a translational direction.

4. A method according to Claim 1, in which the core member includes a flat surface adjacent the attachment of each the sheet of material.

5. A method according to Claim 1, further including the step of providing a second sheet of material, the second sheet of material consisting of closed-cell silicone foam rubber and having a first free end portion, in which the second sheet of material is attached to the core member at a position opposite the at least one sheet of material, with the first free end portion of the second sheet of material extending away from the core member.

6. A method according to Claim 1, in which the at least one sheet of material includes a second free end portion and a middle section disposed between the first and second free end portions, and in which at least a portion of the middle section is attached to a C-channel groove of the core member and the first and second free end portions extend away from the core member.

7. A method of cleaning a surface without requiring water, comprising the steps of:

providing a core member having a plurality of C-channel grooves arranged in a rotationally symmetric pattern;

providing a plurality of sheets of closed-cell silicone foam rubber, each of the plurality of sheets being folded to form a double-sided flap;

securing each of the plurality of flaps in a respective one of the plurality of C-channel grooves such that the flaps form a symmetric pattern around the core member;

moving the core member such that a portion of the at least one sheet of material is brought into sliding contact with the surface in a repeating pattern;

in which the sliding contact between the at least one sheet of material and the surface occurs under a pressure and relative velocity sufficient to generate a force that results in a cleaning of the surface.

8. A method according to Claim 7, further comprising providing a filler material between the sides of the one or more of the double-sides flaps, in which the filler material is composed of an expanded foam.

9. A method according to Claim 7, in which the step of moving the core member includes rotating the core member in a first direction and in a second, translational direction.

10. A method according to Claim 7, in which the plurality of sheets of closed-cell silicone foam rubber folded to form a double-sided flap are arranged symmetrically around the core member.

11. A brush configured to perform at least one of a cleaning, buffing, and polishing action on a surface, comprising:

a core member, the core member having a central axis and a periphery; and

at least one sheet of material, the at least one sheet of material being comprised of closed-cell silicone foam rubber and having at least a first free end portion;

in which the at least one sheet of material is attached to the core member with the at least first free end portion extending away from the periphery of the core member such that the material attachment is substantially parallel to the central axis of the core member;

in which the core member includes a flat surface adjacent the attachment of each the sheet of material; in which the core member and the at least one sheet of material are configured for relative movement with respect to the surface in at least a first direction;

in which the motion in the first direction causes the at least first free end portion of the at least one sheet of material to contact the surface at a non-zero velocity;

in which the motion of the at least first free end portion of the at least one sheet of material produces at least one of the cleaning, buffing and/or polishing action on the surface.

12. A brush according to Claim 11, in which the core member defines a substantially cylindrical member having curved portions adjacent each flat surface.

13. A brush according to Claim 11, in which the core member has a rigidity in excess of the rigidity of the at least one sheet of material.

14. A brush according to Claim 11, in which the core member is configured for relative movement in the first direction such that the core member is configured to move and the surface is substantially stationary.

15. A brush according to Claim 11, in which the core member is configured for relative movement in the first direction such that the core member is configured to remain substantially stationary relative to a moving surface.

16. A brush according to Claim 11, in which the first direction of movement of the core member is either translational or rotational movement.

17. A brush according to Claim 11, further comprising a flexible structural element disposed adjacent the at least one sheet of material and positioned to remain clear of contact with the surface, in which the flexible structural element is configured to increase a pressure between the at least one sheet of material and the surface during the contact by the at least one sheet of material.

18. A brush according to Claim 11, in which the core member, and the at least one sheet of material, are configured for movement in at least a second direction.

19. A brush according to Claim 18, in which the second direction of movement is rotational about the central axis of the core member.

20. A brush according to Claim 11, in which the at least one sheet of material includes a second free end portion and a middle section disposed between the first and second free end portions, and in which at least a portion of the middle section is attached to the core member and the first and second free end portions extend away from the periphery of the core member.