WINDOW CLEANING APPARATUS

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ABSTRACT

A window cleaner that includes a handle, and base and a pivot joint. The handle has a proximal end and a distal end with the distal end being a forked yoke member. The base has a top surface and a bottom surface with a housing and a wiping blade located on the top surface. The pivot joint has a center with four legs extending outwardly from the center. Two of the legs form a first pin and two of the legs form a second pin. The first pin interfaces with the yoke member and the second pin interfaces with the housing. This pivot joint configuration allows the handle to have a range of 360 degree motion with respect to the base and vice versa.
WINDOW CLEANING APPARATUS

FIELD OF THE INVENTION

[0001] The present invention relates to a product for cleaning windows.

BACKGROUND OF THE INVENTION

[0002] Window cleaning tools are known in the prior art. To date, window cleaning tools heretofore devised and utilized are known to consist basically of familiar, expected and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which have been developed for the fulfillment of countless objectives and requirements.

[0003] A variety of tools have been devised specifically to clean windows. Such tools are typically formed of a pad which is connected to an elongated handle. A cleaning element is attached to one side of the pad by various means including clips, straps, or hook and pile fasteners. However, each of these tools is specifically devised for a single type of cleaning operation and operates in a single plane of motion.

[0004] While such tools improve the reach of the user and enable the user to clean the lower edges of windows, it is believed that further improvements can be made to such window cleaning apparatus to make the cleaning apparatus easier to use, to provide easily detachable and interchangeable mounting of different shaped pads, as well as providing easy replacement of wet, soiled cleaning elements.

[0005] Therefore, there is a need for an apparatus that can easily and ergonomically apply a force to clean or otherwise engage a glass surface or another surface and which overcomes some or all of the previously delineated drawbacks of the prior art.

[0006] In other words, while these devices fulfill their respective, particular objectives and requirements, the prior art does not disclose a combination window cleaning tool having a 360 degree range of motion coupled with a wiping blade and disposable microfiber cleaning cloths.

[0007] In this respect, the combination window cleaning tool according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed for the purpose of cleaning surfaces, in particular, glass surfaces.

SUMMARY OF THE INVENTION

[0008] In view of the foregoing disadvantages, the present invention has an objective to provide a new and novel product for cleaning windows.

[0009] The present invention comprises a handle, a base and a pivot joint. The handle has a proximal end and a distal end with distal end of handle being a forked yoke member.

[0010] The base has a top surface and a bottom surface. The top surface including a housing and a wiping blade. The bottom surface including interface projections.

[0011] A pivot joint connects the handle to the base. The pivot joint has a center with four legs extending outwardly from the center. Two of the legs forming a first pin and two of the legs forming a second pin. The first pin interfaces with the yoke member, and the second pin interfaces with the housing.

[0012] The pivot joint allows the handle to have a range of 360 degree motion with respect to the base and vice versa.

[0013] Another aspect of the housing is that the housing includes two housing members that are attached to the base. Each housing member has an aperture that is capable of receiving an end of the second pin.

[0014] Another aspect of the forked member is that the forked member also includes two apertures. Each aperture capable of receiving an end of the first pin.

[0015] The present invention also includes a disposable cleaning cloth. The cleaning cloth also includes interface projections that are compatible with the interface projections of the base. The cleaning cloth of the present invention is padded and is made from a microfiber material.

[0016] The present invention is formed from a plastic or a like material. And the base is in the shape of a tear-drop.

[0017] Another aspect of the present invention is that the handle has a gripping portion located on its proximal end. The gripping portion has an ergonomic design and is made from rubber or like material. The gripping portion also has a loop located atop the gripping portion.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] 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.

[0019] FIG. 1 is a perspective view of the cleaning tool of the present invention;

[0020] FIG. 2 is a perspective view of the base of the present invention;

[0021] FIG. 3 is a side view of the base of the present invention;

[0022] FIG. 4 is an exploded perspective view of the forked member of the present invention;

[0023] FIG. 5 is a top view of the pivot joint of the present invention;

[0024] FIG. 6 is a perspective representative view of the range of motion for the cleaning tool in the XYZ-plane;

[0025] FIG. 7A is a bottom view of the base of the present invention;

[0026] FIG. 7B is a top view of the cleaning cloth of the present invention; and

[0027] FIG. 8 is a bottom view of the cleaning cloth of the present invention.

DETAILED DESCRIPTION

[0028] The present invention is a combination window cleaning tool having a 360 degree range of motion coupled with a wiping blade and disposable microfiber cleaning cloths.

[0029] As seen in FIG. 1, the cleaning tool 10 has a handle 11, base 12, pivot joint 13, wiping blade 14, forked yoke member 15, gripping portion 16, loop 17, cleaning cloth 18, housing 19, proximal end 42, and distal end 43.

[0030] The handle 11 includes the forked yoke member 15 and gripping portion 16. FIG. 4 shows an exploded view of the forked member 15. The forked member 15 has two legs 24 which form the forked section. These legs 24 each contain an aperture 25 for receiving a pin (discussed below) of the pivot joint 13.

[0031] The handle 11 is about 4 to 12 inches in length and has the greatest circumference about midway along the gripping portion 16. The gripping portion 16 comprises about ⅓ of the entire length of the handle 11. The shortest circumference is found on the handle 11 at a position between the gripping portion 16 and the forked yoke member 15. The circumference of the handle 11 gradually decreases longitu-
Finally from the forked yoke member 15 to midway along the handle 11, then gradually increases to midway along the gripping portion 16. The circumference of the gripping portion 16 gradually decreases again from midway along the gripping portion 16 to the loop 17.

[0032] The gripping portion 16 has an ergonomic design and is made from a soft rubber or silicone so that it has a comfortable grip. Atop the gripping portion 16 is a loop used for hanging the cleaning device 10 from a hook or any other hanging device. The interior diameter of the loop is about 1/4 the length of the gripping portion 16 but may be a different size. The thickness of the loop 17 is about 1/2 the distance of its interior diameter. The shape of the loop 17 is round, but may be a different shape. The loop 17 is made from the same material as the gripping portion 16, but other materials may be used. The loop 17 also offers the user with added protection by not allowing the top of the handle 11 to mistakenly scratch or push into an unintended object.

[0033] The base 12 includes a top surface 20 and a bottom surface 21. The top surface 20 includes a housing 19 and a wiping blade 14. The base 12 is in a teardrop configuration but any configuration, such as a square, rectangle, or circle may be used. The teardrop configuration of the base 12 gradually increases in width from the rounded triangular point at the distal end 43 of base 12 at about a 45° angle until it reaches its greatest width about midway to the proximal end 42 of base 12 and maintains that width up to the wiping blade 14.

[0034] The base 12 is approximately 2.12 inches in length and about 2.6 inches at its greatest width. The base is 2.12 centimeters in height.

[0035] The cleaning device 10 also has a removable cleaning cloth 18 that is attached to the bottom 21 of the base 12. The cleaning cloth 18 attaches to the base 12 via interface protrusions (discussed below) that interact with protrusions (discussed below) of the base 12.

[0036] The cleaning cloth 18 is made from a microfiber and is also disposable. The cleaning cloth 18 mimics the shape of the base 12 but is slightly larger than the base 12 in that it extends equally beyond all sides of the base 12 such that the width of one side of the extended portion of the cleaning cloth 18 is about 1/2 the width of the widest portion of the base 12. This allows room for error when applying the cloth 18 to the base 12. The cleaning cloth 18 also may come dry or may have a cleaning fluid already soaked in its fiber.

[0037] The pivot joint 13 is also shown in Fig. 1. This joint 13 is attached to the forked yoke member 15 and the housing 19. The pivot joint 13 holds the handle 11 to the base 12 and allows the handle 11 to have many positions during use. The pivot joint 13 has four legs (discussed below) that form two pins (discussed below).

[0038] Fig. 2 shows the top surface 20 of the base 12 without the handle 11 and pivot joint 13. The housing 19 is located at the approximate center of the base. The housing 19 includes two housing members 27 and 28 having an opposing distance of 1/2 the width of the widest portion of the base 12 and each contains an aperture 22 for receiving a pin of the pivot joint 13. The pivot joint 13 is snap fitted into the housing 19 and may or may not be removable from the base 12.

[0039] The top surface 20 also has a wiping blade 14. The wiping blade 14 is used for wiping excess fluid from a cleaning surface. The wiping blade 14 is made from a resiliently flexible rubber or plastic material. The wiping blade 14 is formed with a parabolic gradient of about 90° with the base 12 so that the wiping blade 14 has a surface that makes better contact with the cleaning surface.

[0040] The wiping blade 14 is located at the proximal end 42 of the base 12. The wiping blade 14 traverses the entire width of the proximal end 42 of the base 12 and extends vertically outwardly, relative to the top surface 20, a distance of about 1/4 the length of the base 12. The wiping blade 14 is made from a resilient material, such as rubber or silicone, so that it does not wear out, but can be made of another material.

[0041] Fig. 3 is a side view of the base 12. The base 12 contains the housing 19 and the wiping blade 14 as discussed above and the bottom 21 includes interface protrusions 23. In the preferred embodiment the interface protrusions 23 are T-shaped but any type of VELCRO-like material may be utilized. These interface protrusions 23 are used to interact with protrusions (not shown) of the cleaning cloth 18 such that bottom 21 adheres to the cleaning cloth 18 when pressed together.

[0042] Fig. 5 is a top view of the pivot joint 13 having a center 40. The pivot joint 13 has four legs 30-33 whereby each leg is perpendicularly oriented to an adjacent leg, and each leg has a tip 34-37 that is symmetrically notched at a 90° angle relative to its respective leg. Legs 30 and 32 form a first pin and legs 31 and 33 form a second pin. The tips 34-37 of the legs 30-33 are snap-fitted into its intended aperture 22 (shown in Fig. 2) so that the pivot joint 13 holds the handle 11 to the base 12 and gives the handle 11 a large range of motion (discussed below) directly over the base 12.

[0043] Fig. 6 represents the range of motion for the handle 11 of the cleaning device 10 with respect to the base 12. The handle 11 has a full 180 degrees range of motion in the X-plane with respect to the Z-plane and a full 180 degrees of motion in the Y-plane with respect to the Z-plane. There is also a limited 360 degree range of motion in the XYZ-plane. The range of motion is in all X and Y directions but is only on the single side of the Z-plane.

[0044] Figs. 7a and 7b show the interface projections 23 and 41 for the base 12 and cleaning cloth 18 respectively. In use the T-shaped projections 23 are inserted into a mesh material 41 of the cleaning cloth 18 when pressed together. The T-shaped projections 23 are present ubiquitously on the bottom 21 of the base 12 and aligned linearly with respect to each other. Once inserted, the cleaning cloth 18 will stay adhered to the base 12 until a user pulls the cloth 18 from the base 12.

[0045] Fig. 8 is the bottom surface 80 of the cleaning cloth 18. This surface 80 interfaces with the surface to be cleaned. The cleaning cloth 18 is made from a microfiber material 81 but any sort of cleaning material may be substituted. The microfiber 81 is made in such a way that the cloth 18 is padded and may take on liquids that are put on the cleaning surface.

[0046] In use, a user will hold the cleaning device 10 by the gripping portion 16 and will apply the cleaning cloth 18 to the bottom 21 of the base 12. The user will then apply the cloth 18 to a surface to be cleaned. The cleaning device 10 will allow a user to position the cleaning device 10 at many different angles so that, if the shape of the cleaning surface changes, the user does not need to reposition the cleaning device 10 because the angle of motion of the handle 11 with respect to the base 12 will change. This allows for easier cleaning of oddly shaped surface, such as a car windshield.

[0047] It is readily apparent that the above-described cleaning device meets all of the objects mentioned above and has the advantage of wide commercial and residential utility. It
should be understood that the specific form of the invention hereinabove described is intended to be representative only, as certain modifications within the scope of these teaching will be apparent to those skilled in the art.

[0048] Accordingly, reference should be made to the following claims in determining the full scope of the invention.

What is claimed is:
1. A cleaning apparatus comprising:
   a handle, the handle having a proximal end and a distal end,
   the handle including a forked yoke member located on
   the distal end;
   a base, the base having a top surface and a bottom surface,
   the top surface including a housing; and
   a pivot joint, the pivot joint having a center with four legs
   extending outwardly from the center, two of the legs
   forming a first pin and two of the legs forming a second
   pin, the first pin interfacing with the yoke member, and
   the second pin interfacing with the housing,
   whereby the pivot joint allows the handle to have a full
   range of 360 degree motion with respect to the base and
   vice versa;
   a proximal end and a distal end.
2. The cleaning apparatus of claim 1 whereby the top
   surface of the base includes a wiping blade.
3. The cleaning apparatus of claim 1 whereby the housing
   including two housing members attached to the base, each
   housing member having an aperture, each aperture capable of
   receiving an end of the second pin.
4. The cleaning apparatus of claim 1 whereby the forked
   member includes two apertures, each aperture capable of
   receiving an end of the first pin.
5. The cleaning apparatus of claim 1 further comprising:
   a disposable cleaning cloth.
6. The cleaning apparatus of claim 5 whereby the cleaning
   cloth includes interface projections.
7. The cleaning apparatus of claim 6 whereby the bottom
   surface of the base includes interface projections compatible
   with the interface projections of the cleaning cloth.
8. The cleaning apparatus of claim 1 whereby the cleaning
   apparatus is formed from a plastic or a like material.
9. The cleaning apparatus of claim 1 whereby the base is in
   the shape of a tear-drop.
10. The cleaning apparatus of claim 1 whereby the proximal
    end of the handle has a gripping portion.
11. The cleaning apparatus of claim 10 whereby the gripping
    portion has an ergonomic design.
12. The cleaning apparatus of claim 10 whereby the gripping
    portion is made from rubber or like material.
13. The cleaning apparatus of claim 10 whereby the tip of
    the gripping portion has a loop.
14. The cleaning apparatus of claim 6 whereby the cleaning
    cloth is padded.
15. The cleaning apparatus of claim 6 whereby the cleaning
    cloth is made from microfiber.
16. The cleaning apparatus of claim 2 whereby the wiping
    blade is at the distal end of the base.

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