US 20050235446A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2005/0235446 A1**

Eggers (43) **Pub. Date: Oct. 27, 2005**

(54) **WASHING APPARATUS**

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(21) Appl. No.: **10/828,146**

(22) Filed: **Apr. 21, 2004**

Publication Classification

(51) **Int. Cl.**[7] **A47L 13/00**

(52) **U.S. Cl.** **15/220.1**; 15/144.1; 15/244.2; 15/231; 15/229.6; 15/247

(57) **ABSTRACT**

A washing tool is disclosed which includes a plate joined to a link for engaging a handle for manipulating the plate. A shank on the back of the plate is engaged by a tongue that is normally on the link. A hub hinges the tongue and the shank together, and a pin disposed in the shank at a location which is spaced apart from the hub is arranged to fix the plate in a variety of positions. A washing mitt is disclosed which may be fixed on the plate.

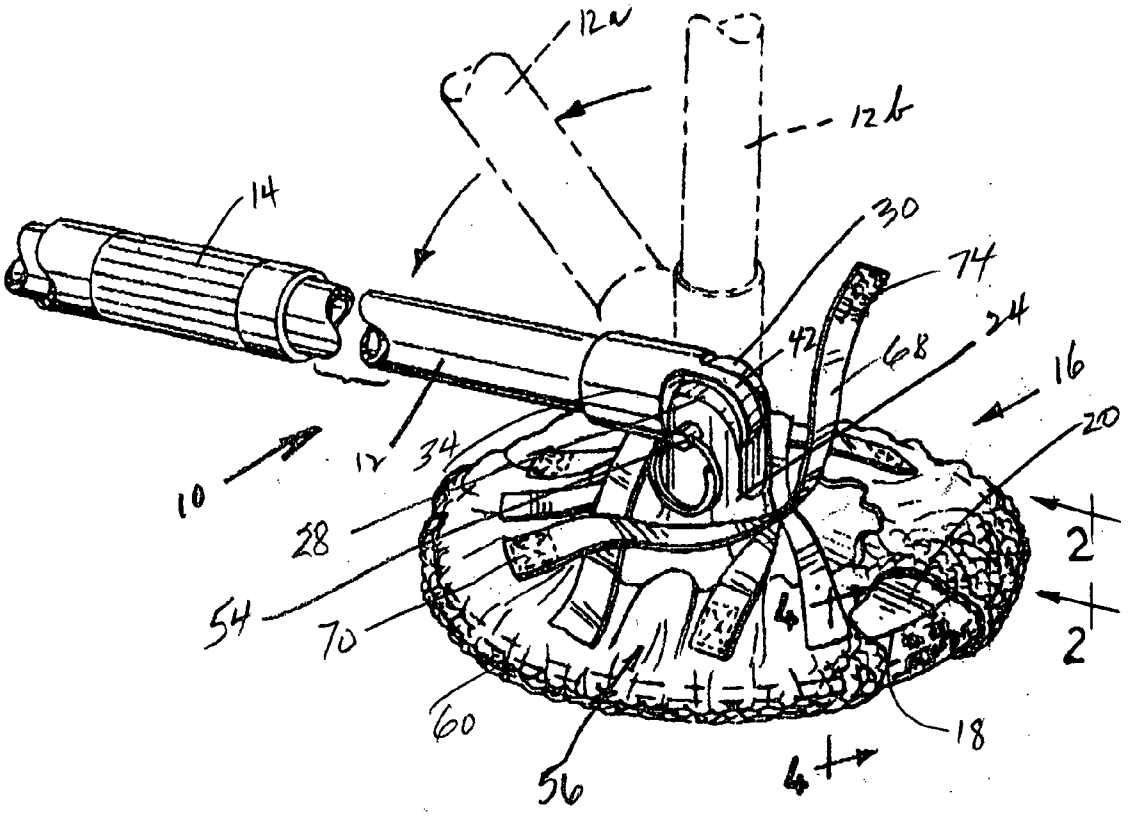

FIG. 1

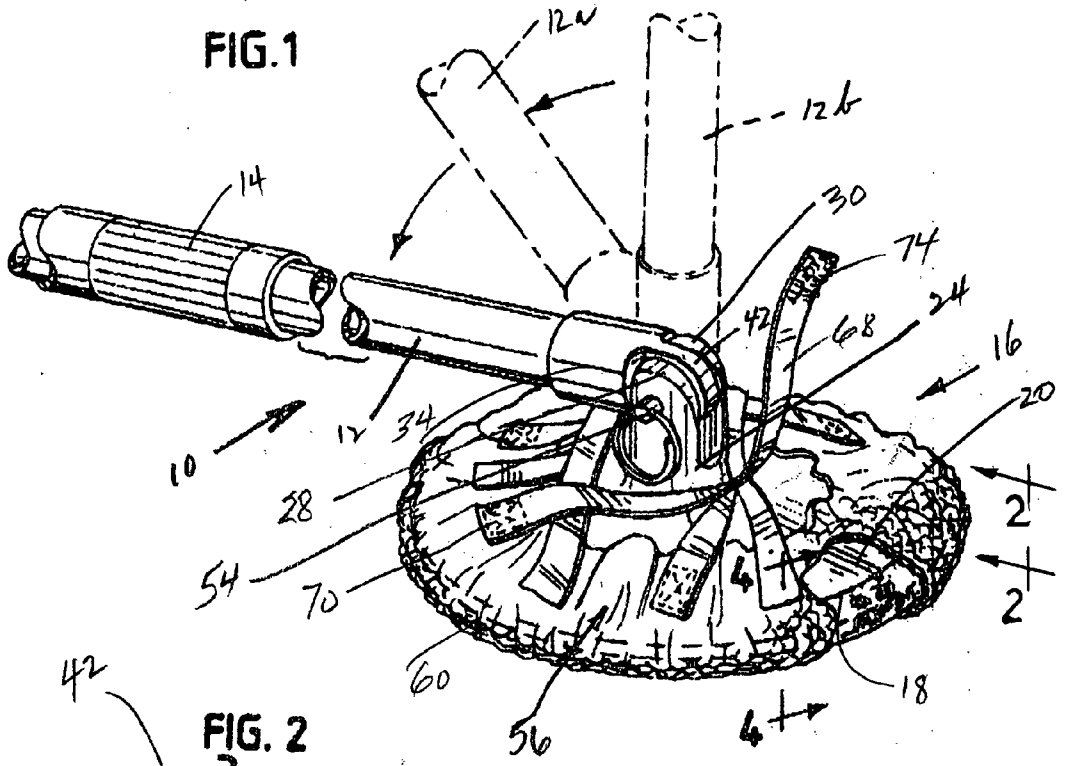

FIG. 2

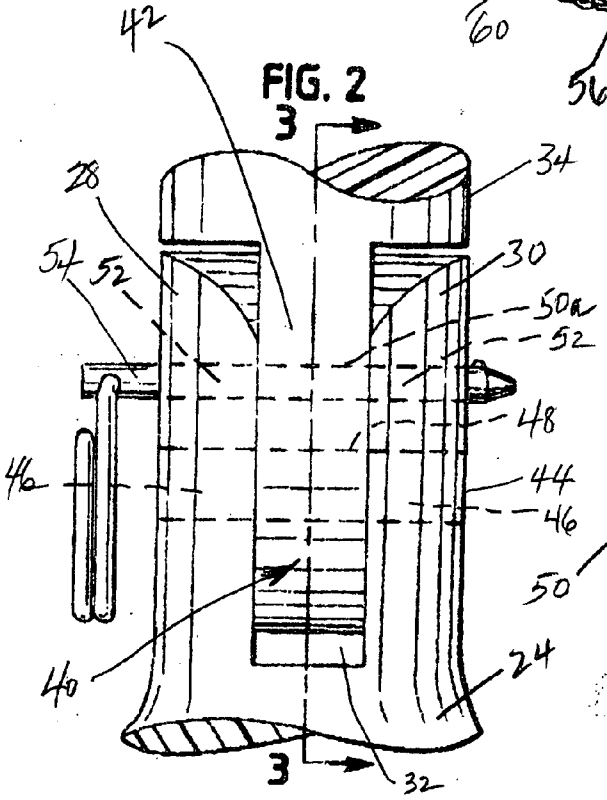

FIG. 3

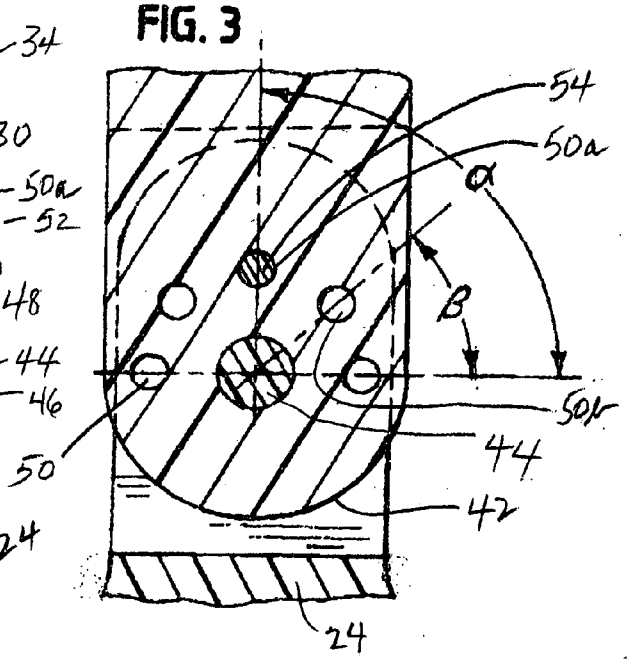

FIG. 4

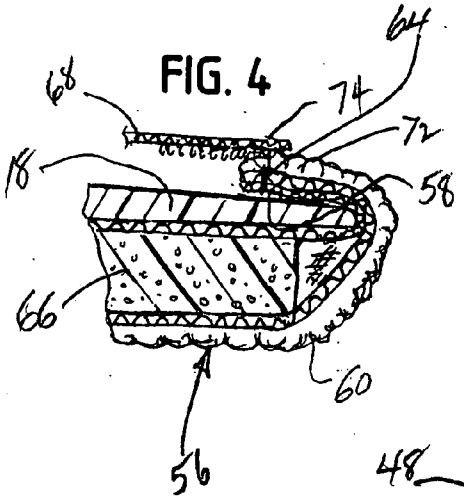
64
68
74
72
18
58
66
60
56

FIG. 5

12
36
34
50a
50
48
40
42
30
28
32
52
46
54
26
24
22
44
18
D
58
D'
66
64
74
68
70
72
D''
60

WASHING APPARATUS

BACKGROUND OF THE INVENTION

[0001] This invention relates to hand-held tools which a homeowner might use for washing his car having two or three foot long rods or poles for handles connected to one or another of a variety of mop heads. More particularly, it relates to a hand-held washing or waxing tool with a handle which may be fixed in a plurality of positions angularly disposed to a relatively flat plate to which a uniquely removable mitt is fastened.

[0002] Various mop heads with handles have been used in the past for floor mopping or waxing, wall cleaning or polishing, window washing, and vehicle cleaning and polishing. Each of these applications requires that the user manipulate the tool from a variety of positions using various features built into the pads at the ends of the handles and operating the tools as dictated by the various joints between the handles and the heads. Devices were proposed with hemispherically shaped sponge materials tied or clamped to the ends of the handles. Some sponges were mounted with screws or bolts to handle ends having plates on them so that the sponges could be rolled about on the surfaces to be cleaned. Some devices with pad-holding plates had handles fixed onto the plates at an angle by a shoe bolted to the plate. Others made use of knuckles or hinge joints affixed to the pad-holding plates, and the plates and pads wobbled constantly as they moved across a surface to be washed or polished. Still others had handles fastened to pad-holding plates by spring-loaded pins engaged in sockets which also allowed the plates and pads to wobble over the surface being washed.

[0003] Such washing, waxing or cleaning plates, pads and handles may be found in the following United States patents:

No. 234,124	No. 5,177,831
No. 315,814	No. 5,596,787
No. 1,989,921	No. 5,603,138
No. 2,732,574	No. 6,098,238
No. 2,919,457	No. 6,178,584 B1
No. 3,761,991	No. 6,260,226 B1
No. 4,475,262	No. 6,523,213 B1
No. 4,945,599	No. 2003/0074756 A1

[0004] In U.S. Pat. No. 1,989,921, for example, a tool is illustrated containing a pole type handle for a waxing and polishing head and includes a rod attached to the head end of the handle. An eye formed at the outer end of the rod is curled around the stem of a bolt. That bolt joins two lugs fixed on a shaft in the waxing and polishing head. The eye of the rod allows the bolt to rotate in an up and down pivoting manner, and the head accordingly flops up and down and assumes a variety of planes as it is pushed over the surface which is being polished or washed.

[0005] In another U.S. Pat. No. 4,475,262, the inventor illustrates a curling broom which is intended to keep its wiping surface fully engaged at all times on an icy surface ahead of an advancing curling stone. The inventor posits a device which includes a swiveling joint allowing a handle to automatically adjust to the height of a user while leaving the sweeping surface of the broom parallel to the surface of the ice. Somewhat like the arrangement shown in the '921 patent just described, in the '262 patent a rod extends outwardly from the end of a pole-shaped handle. At the outer end of the rod a flattened strip portion of the rod is rolled into a tubular section, and that tube encloses the cylindrical body of a pin on the sweeping head of the broom to form a swivel joint. The inventor advises that this joint is preferably free enough to allow gravity, i.e., the distribution of weight in the head, to keep the sweeping surface always oriented to be parallel to the surface of the ice, regardless of the elevation of the handle.

[0006] Still another form of swivel joint connecting a handle to a washing head is shown in U.S. Pat. No. 5,596,787. In that patent, a pair of spaced apart pivot posts hold the ends of a pivot pin, and a lug which is joined at one end to the center portion of the pivot pin between the posts rotates with the pin about the pin's longitudinal axis. Adjacent the outer end of the lug, arms of a yoke grasp the ends of a second pin that extends through the lug. The longitudinal axis of the second pin is approximately normal to the longitudinal axis of the first pin. The bight portion of the yoke also carries a socket into which the end of a pole-shaped handle may be inserted. When the handle is moved about the second pin, i.e., from side to side, it always describes planes which include the longitudinal axis of the first pin. When the handle moves the lug attached to the first pin, i.e., up and down, it always describes a plane which intersects with the longitudinal axis of the first pin. The plane of the washing head is changed with respect to the handle whenever the handle is moved in any direction.

[0007] These tool constructions illustrate that artisans have been interested in establishing a constantly flexible angular relationship between a mop-type head, which is usually relatively flat, and the handle which manipulates the head. They have also emphasized maintaining the washing surface of the head fully in contact with the surface to be washed (or polished). Notably, the joint between the implement head and the handle remains very mobile.

[0008] In many applications, however, while it might be desirable occasionally to change the angular relationship between the head of the tool and the handle, due to varying contours in the surface to be washed, or the accessibility of the surface, it is also desirable to be able to maintain the head in a fixed position for washing and wiping one area and in a different fixed position for another area. Reaching upward from ground level to wash a window outside a building as compared to standing on the floor next to the window while inside the building is an example. In another context, flexibility of the head on the handle can be undesirable when a hard-to-reach area needs to be rubbed forcefully.

[0009] The present invention addresses both the desirability of quickly changing an angular relationship between a washing tool handle and the plane of the tool head and also the desirability of fixing that angular relationship at one angle or another, depending upon the type of job being addressed.

[0010] The present invention may also include a mitt which can be fastened over the face of the tool head in a secure manner to remain in place while at the same time accommodating any rigid position of the head on the handle as the tool is moved.

SUMMARY OF THE INVENTION

[0011] The present invention is embodied in a washing apparatus which includes a plate that has a substantially planar front face and a back face. There is a shank attached to the back face which extends outwardly from the plate in a direction away from the front face of the plate. A linking member joins a handle to the plate. The linking member has a tongue end with a tongue on it which extends between and connects the tongue end of the linking member and the shank. A hub, which may be on the tongue or on the shank, hinges the shank and the tongue together. In addition, there is a pin disposed in the shank and the tongue at a point spaced apart from the hub to fix the positions of the plate and the linking member in relation to each other on the hub.

[0012] From the foregoing, and from what follows, it will be apparent that the present invention solves the problems which users have had manipulating the kinds of washing or polishing tools that incorporate joints between the handle and the head which allow the head to move quite freely, and, on the other hand, manipulating the kinds of washing or polishing tools that do not provide for ready changes in the angular fixation of the head and handle to accommodate a variety of attitudes in a surface being washed or polished.

[0013] Accordingly, it is one of the objects of this invention to provide a washing or polishing apparatus with a handle which may be joined to a plate-like head of the tool at a variety of angles to the to the head.

[0014] It is another object of this invention to provide, in a washing or polishing apparatus, a connection between the handle and the head of the apparatus which includes a readily accessible locking pin and a variety of sockets to receive the pin so that the angle of the handle and the washing head in relation to each other may be easily and quickly changed.

[0015] It is a further object of this invention to provide a washing or polishing apparatus with a connection between the handle and the head of the apparatus which includes a mechanism that is simple and quick to operate for changing the angle of the handle to the head and still provides a secure connection which will stand up under repeated and sustained pressure during the time the apparatus is in use.

[0016] It is a further object of this invention to provide a washing or polishing apparatus in which the angle of the head may be varied with respect to the handle with a washing or polishing mitt which fits firmly about the head and remains securely in place notwithstanding changing the head through a variety of positions and forcefully applying it repeatedly to a surface to be washed or polished.

[0017] Other objects and features of this invention will be apparent to those skilled in the art of designing, constructing and using hand-held handle-operated washing or polishing tools from an examination of the following detailed description of a preferred embodiment of this invention and an examination of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] **FIG. 1** is a perspective view of a washing or polishing tool which embodies the present invention illustrating, partly in phantom, the handle of the tool being angularly disposed in different positions in relation to the washing or polishing head;

[0019] **FIG. 2** is an enlarged elevational view of a portion of the tool shown in **FIG. 1** taken in the direction of arrows **2-2** in **FIG. 1** and showing an end portion of the handle in **FIG. 1** in a vertical position;

[0020] **FIG. 3** is a sectional view of the portion of the tool shown in **FIG. 2** taken along the line **3-3** in **FIG. 2**;

[0021] **FIG. 4** is an enlarged sectional view of a portion of the tool shown in **FIG. 1** taken along the line **4-4** in **FIG. 1**; and

[0022] **FIG. 5** is an exploded perspective view of the tool shown in **FIG. 1**.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0023] The preferred embodiment of this invention shown in the accompanying drawings will now be described, it being understood that the preferred form is illustrative and that the invention described herein is embodied in the claims appended to this description.

[0024] The washing apparatus **10** shown in **FIG. 1** includes a handle **12** which may be a rod or a tube and may also include a grip element **14** located at a convenient point along the handle. When the apparatus is made in a size to be a tool for a do-it-yourselfer to wash a car, the handle **12** may be approximately eighteen to twenty-four inches long. The handle **12** may also be fixed in a variety of positions, in a manner which will shortly be explained, as shown in the phantom positions **12***a* and **12***b*.

[0025] The washing apparatus **10** also includes a washing head assembly **16** which comprises a plate **18** having a back face **20** and a substantially planar front face **22** (see **FIG. 5**). A shank **24** is attached to the back face of the plate, or it may be formed there if the plate **18** is manufactured in one piece by a molding or similar process. The shank extends outwardly from the back side of plate **18** in a direction leading away from front face **22**. That direction is approximately normal to the plane of front face **22**.

[0026] At the outer end of shank **24** there is a yoke **26** which includes first and second arms **28** and **30**, respectively. Those arms, which are spaced apart from one another, form a slot **32** between them. A linking member **34** joins handle **12** to the back face **20** of plate **18** in the following manner. Handle **12** may be provided with threads **36** at one end and connected to the linking member **34** in the threaded socket end **38** of the linking member. Opposite the socket end **38**, the linking member is provided with a tongue end **40** for engaging the shank **24**. Tongue **42**, which may be integral with linking member **34**, is arranged to extend from tongue end **40** of the linking member into slot **32** between the first and second arms **28** and **30** of yoke **26**. A hub **44** is held in lower apertures **46** formed in arms **28** and **30**, and a central aperture **48** in the tongue **42** having approximately the same diameter as hub **44** is engaged on the hub between the arms **28** and **30**, thus hinging the shank **34** and the tongue **42** together on the hub.

[0027] There are also several outlying apertures **50** in tongue **42** arranged around the central aperture **48** in the tongue. In the arms **28** and **30**, at locations spaced apart from the hub **44**, a complementary pair of pin-holding apertures **52** are arranged to receive a locking pin **54**. The outlying

apertures **50** are formed in tongue **42** in a path which brings the outlying apertures into registry with the pin-holding apertures **52** as the tongue **42** is rotated around hub **44**. When one of the outlying apertures **50**, such as **50***a*, is registered with the pin-holding apertures **52**, pin **54** may be inserted into the aligned apertures **52** and **50***a* to fix the positions of plate **18** and the linking member **34** on hub **44** at a fixed angle to each other, such as the angle alpha (see **FIG. 3**). Similarly, when another outlying aperture, such as **50***b*, is registered with the pin-holding apertures **52**, pin **54** may be inserted in the aligned apertures **52** and **50***b* to fix the positions of plate **18** and the linking member **34** on the hub **44** at another fixed angle to each other, such as the angle beta (see **FIG. 3**). As shown, the outlying apertures **50** in the tongue **42** are arcuately arranged in the tongue in a path which coincides with the apertures **52** in arms **28** and **30** so that the pin **54**, when engaged in one or another of the apertures **50**, will engage the tongue at a variety of locations in the tongue.

[**0028**] The washing apparatus **10** may also include a fluid absorbing mitt **56** which is releaseably attached to plate **18** overlying the front face **22** of the plate. Mitt **56** includes a base web element **58** and a washing fabric element **60**. The fabric element **60** has an outwardly facing surface **62**, which is preferably a roughly textured polyurethane surface for contacting a surface to be washed, and it is fastened at its perimeter **72** by stitching **64** to the base web **58**. A fluid absorbing member such as sponge **66** is enclosed between the fabric element **60** and the base web **58** for lengthening the fluid retention of the mitt while it is in use or dispensing a fluid or compound during use if the sponge has been treated beforehand to contain such a fluid or compound.

[**0029**] At least a pair of straps **68** are attached to washing fabric **60** at their first ends **70**. Those ends are located along the perimeter **72** of the washing fabric **60**. Second ends **74** of straps **68** are extendable across and over the back face **20** of plate **18** for engagement upon portions of the washing fabric adjacent a substantially opposite edge of the plate spaced from each strap's first end (See **FIG. 1**). The second ends **74** may include hook and loop sections for easy engagement and fastening. When so fastened, the straps **68** pull the perimeter **72** of the washing fabric element **60** over the edge of plate **18** (See **FIG. 4**), and the edge of the base web **58** as well, to fasten the mitt **56** securely against the front face **22** of plate **18**. When the mitt is secured this way, the tool **10** may be rubbed affirmatively over a surface to be washed, and the mitt will not be loosened or dislodged.

[**0030**] With respect to the diameters of the base web **58** and the washing fabric **60** in relation to each other, as well as in relation to the diameter of plate **18**, it has been found particularly useful to make the diameter D (See **FIG. 5**) of plate **18** approximately six inches, the diameter D' of the base web **58** about nine inches, and the diameter D'" of the washing fabric element **60** about ten inches. A sponge, such as the sponge **66**, may be incorporated in this construction, too. Such a sponge may be about three quarters of an inch thick and have about a five and seven-eighths inches diameter D". The sponge **66** is enclosed in the envelope formed by the washing fabric and the base web as their perimeters are closed together, and the resulting mitt is strapped over the plate **18** in the manner described above with the base web **58** fastened securely against the front face **22** of the plate.

[**0031**] It is evident from the preceding disclosure that even though particular forms of the invention have been illustrated and described, still, various modifications can be made without departing from the true spirit and scope of the invention. No limitations on the invention are intended, and its true scope is set forth in the following claims.

I claim:

1. A washing apparatus comprising

a plate having a substantially planar front face and a back face,

a shank attached to the back face extending outwardly from the plate in a direction away from the front face,

a linking member for joining a handle to the plate having a tongue end to engage the shank,

a tongue extending between the tongue end of the linking member and the shank,

a hub hinging the shank and the tongue together, and

a pin slideably disposed in the shank and the tongue apart from the hub fixing the positions of the plate and the linking member on the hub.

2. The washing apparatus of claim 1 in which the tongue is formed on the tongue end of the linking member and the hub is fixed in the shank.

3. The washing apparatus of claim 2 in which the shank includes

a yoke having a first arm and a second arm spaced apart from each other and forming a slot between them, and

complementary sockets in the arms arranged to receive and hold a pin extending across the slot from one arm to the other arm.

4. The washing apparatus of claim 3 in which the hub extends across the slot from one arm to the other arm.

5. The washing apparatus of claim 4 in which the tongue includes an arcuately arranged array of apertures disposed in a path coinciding with the complementary sockets in the arms for intercepting and holding a pin engaging the sockets at a variety of locations in the tongue.

6. The washing apparatus of claim 5 which includes a fluid absorbing mitt releaseably attached to the plate overlying the front face.

7. The washing apparatus of claim 6 in which the mitt includes

a base web disposed on the front face of the plate and having a perimeter greater than the plate,

a washing fabric fastened at its perimeter to the base web and having an outwardly facing surface for contacting an object to be washed,

a fluid absorbing member enclosed between the base web and the washing fabric, and

at least a pair of straps having first ends fastened along the perimeter of the washing fabric and having second ends extending across the back face of the plate and engaging portions of the washing fabric spaced apart from each strap first end.

8. The washing apparatus of claim 7 in which the perimeter portions of the base web and the washing fabric of the mitt overlie the edge portions of the back side of the plate.

9. A fluid absorbing mitt for wiping an object to be washed adapted for releasebable attachment to a reinforcing plate having a front side and a back side comprising

a base web to be disposed upon the front face of the plate,

a washing fabric fastened at its perimeter to the base web and having an outwardly facing surface for contacting an object to be washed,

a fluid absorbing member enclosed between the base web and the washing fabric, and

a plurality of straps having first ends fastened along the perimeter of the washing fabric and having second ends extendable across the back face of the plate for engagement upon portions of the washing fabric spaced apart spaced apart from each strap first end.

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