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Heidelberger et al.

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(54) **QUARTER PAD SANDER**

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(73) Assignee: **Dynabrade, Inc**, Clarence, NY (US)

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(52) **U.S. Cl.** **451/357**; 451/359; 451/366
(58) **Field of Search** 451/357, 359, 451/366

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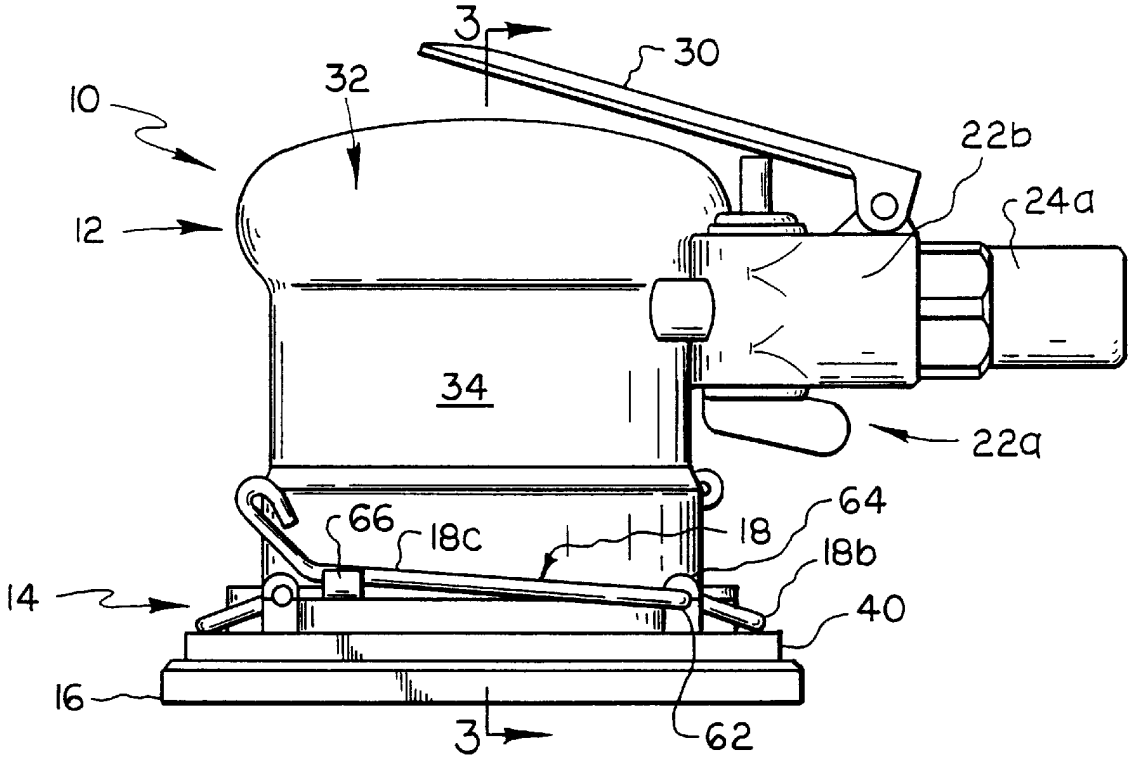
(57) **ABSTRACT**

A hand operated orbital sander having a hand grip portion provided with a fluid supply inlet connected to a source of pressurized fluid and a fluid discharge; a base portion for mounting a sanding pad and having a chamber, a fluid inlet for directing fluid into the chamber and a fluid outlet for discharging fluid from the chamber; a resiliently deformable sleeve portion for connecting the base portion to depend from the hand grip portion and defining a conduit for placing the fluid outlet in flow communication with the fluid discharge; a fluid operated rotor rotatably supported by the base portion within the chamber and mounting an eccentric weight for imparting orbital movement to the base portion; and a flexible conduit for connecting the supply inlet to the fluid inlet to apply pressurized fluid to the rotor to effect rotation thereof.

13 Claims, 6 Drawing Sheets



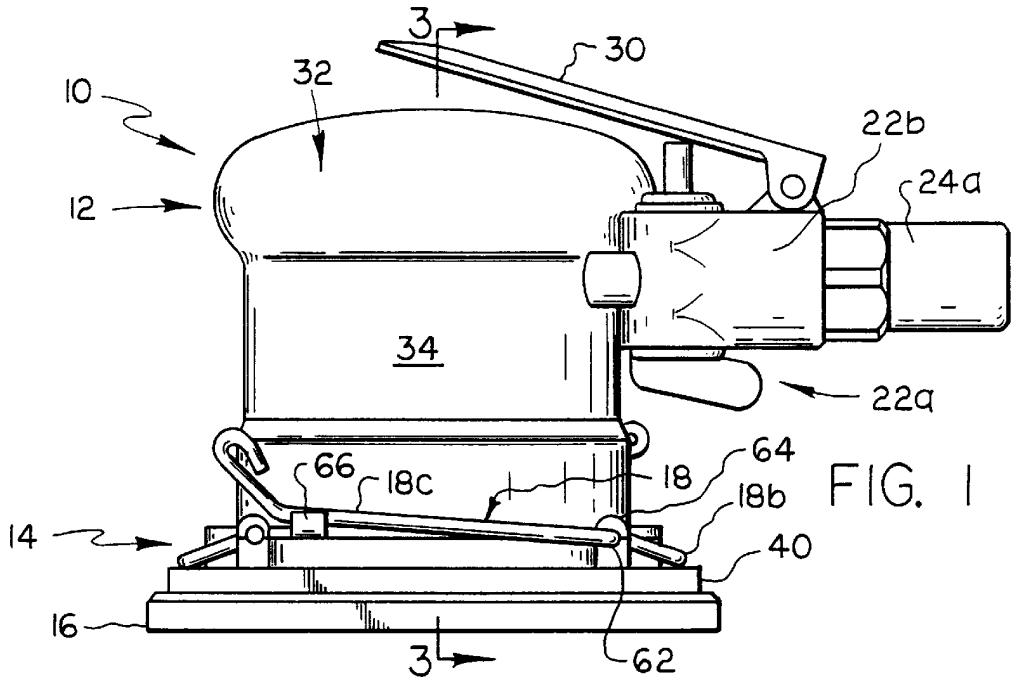
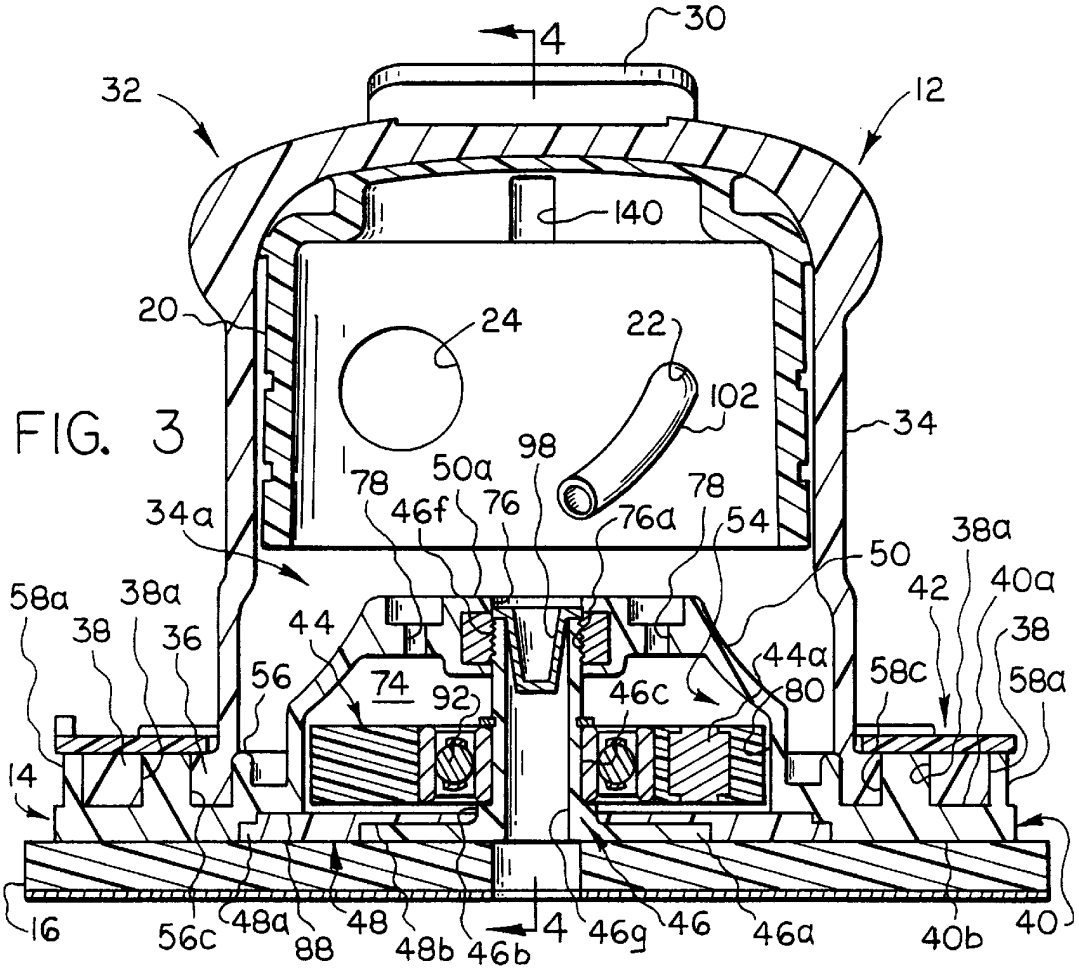

3
30
32
10
22b
12
24a
34
22a
64
66
18c
18
18b
14
40
16
62
3

FIG. 1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30
32
12
140
20
24
22
102
34
98
50a
78
46f
76
76a
78
54
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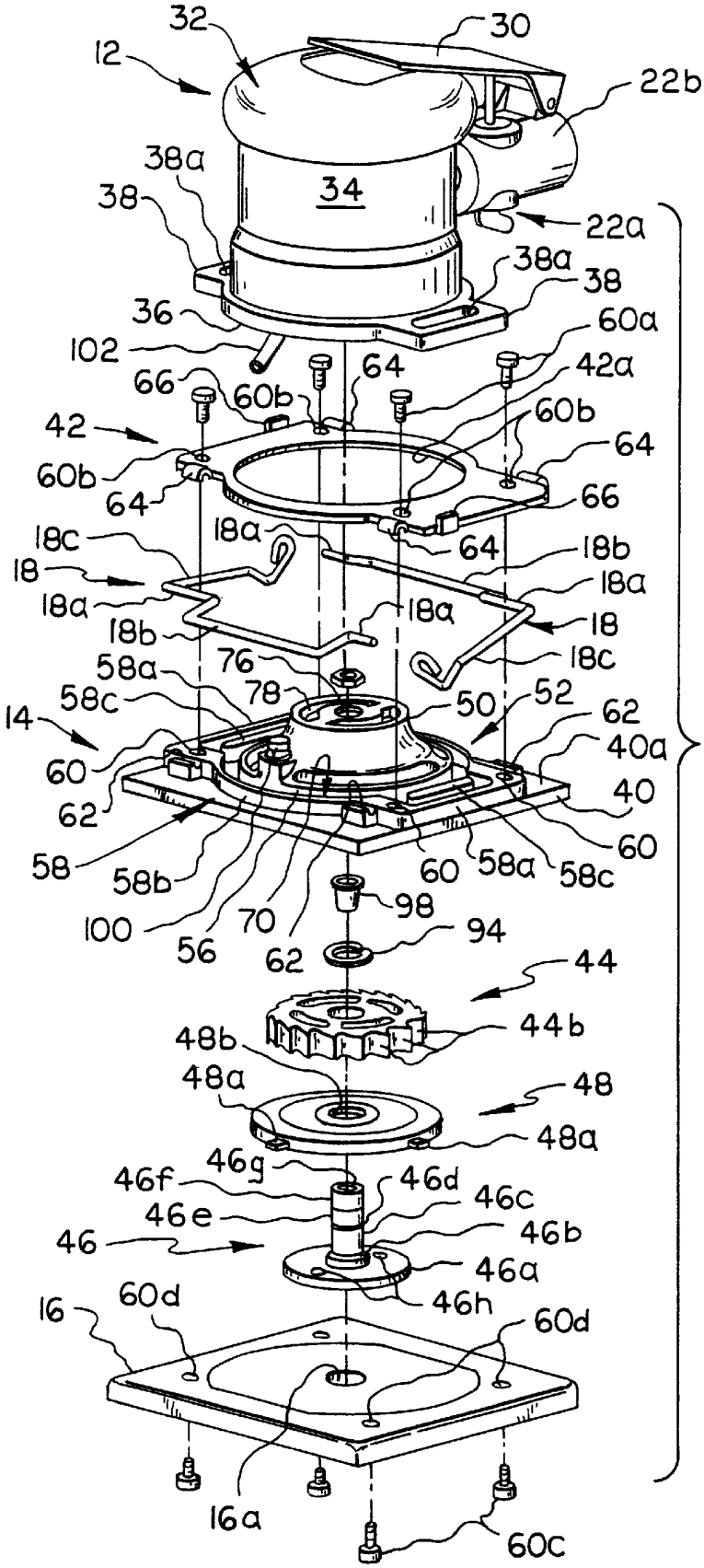
38a
50
42
40a
58a
38a
38
36
44
38
58a
56
74
92
46c
44a
80
58c
14
16
56c
48a
88
48
48b
46b
4
46g
46
46a
40b
40

FIG. 3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30
12
22b
38a
34
38
22a
38a
38
36
60a
102
64
42a
66
60b
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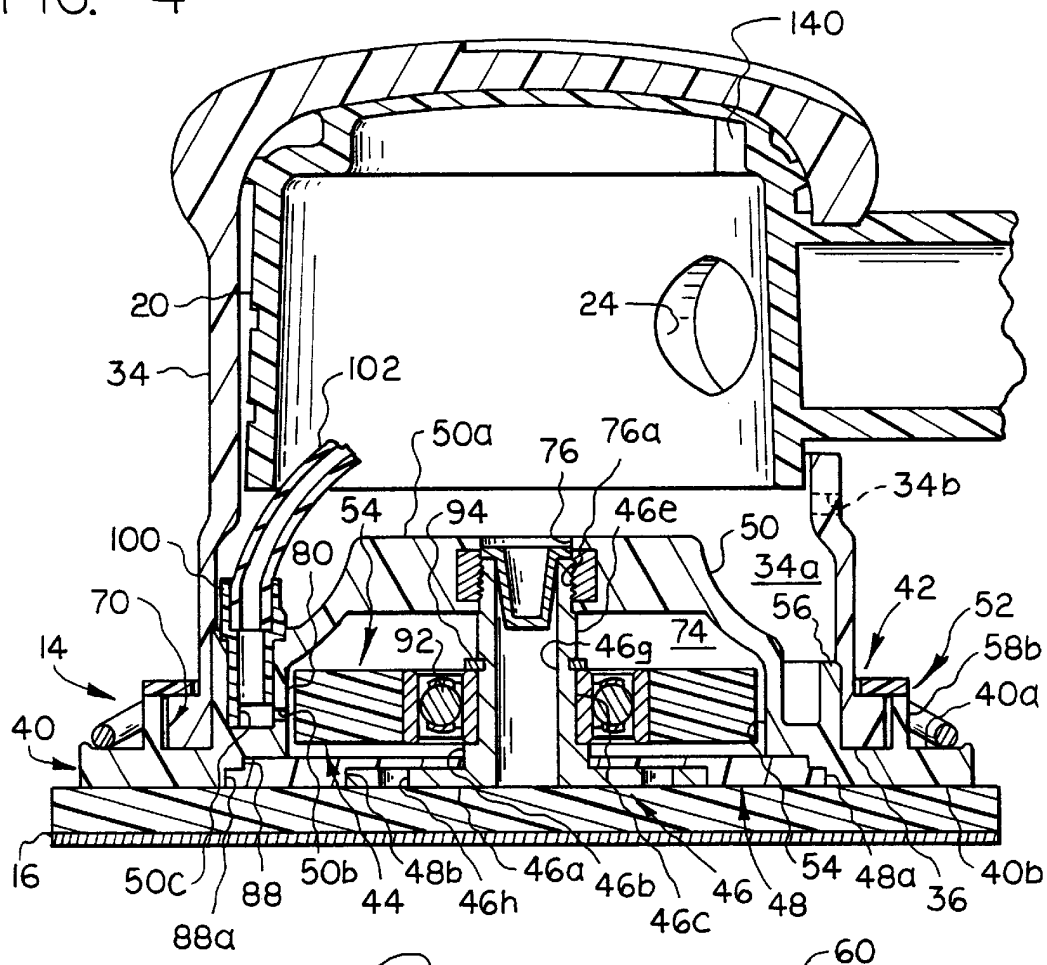
42
64
60b
64
66
18c
18a
64
18b
18
18a
18a
18b
18a
18
18c
58a
76
78
58c
50
52
62
14
40a
60
40
62
60
58
58a
58c
58b
98
100
70
94
56
62
44
44b
48b
48a
48
48a
46g
46f
46d
46c
46e
46b
46
46a
46h
16
60d
60d
16a
60c

FIG. 2

FIG. 4


140
20
24
34
102
50a
76
76a
34b
54
94
46e
50
100
80
34a
56
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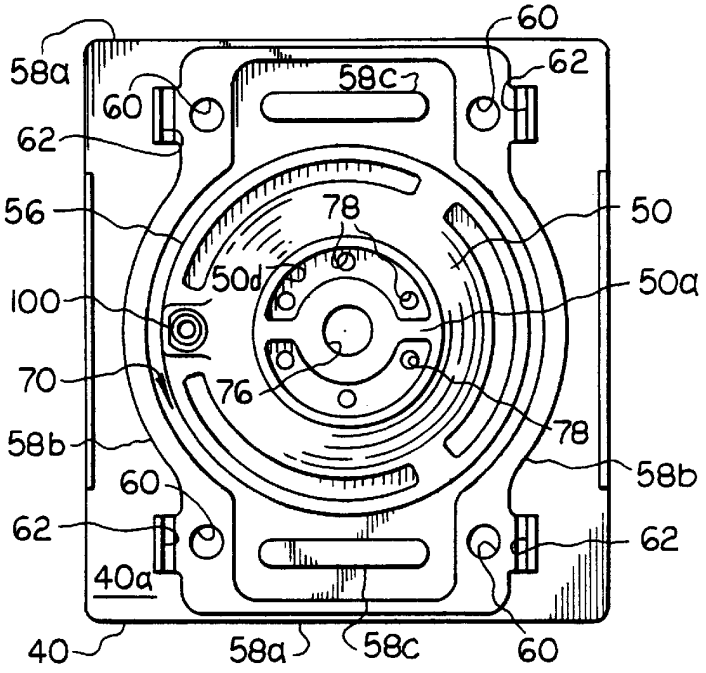
52
70
92
46g
74
58b
14
40a
40
16
50c
88
50b
48b
46a
46b
46
54
48a
40b
88a
44
46h
46c
48
36

FIG. 5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58a
62
58c
60
62
56
78
50
50d
50a
100
70
76
78
58b
58b
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58a
58c
60

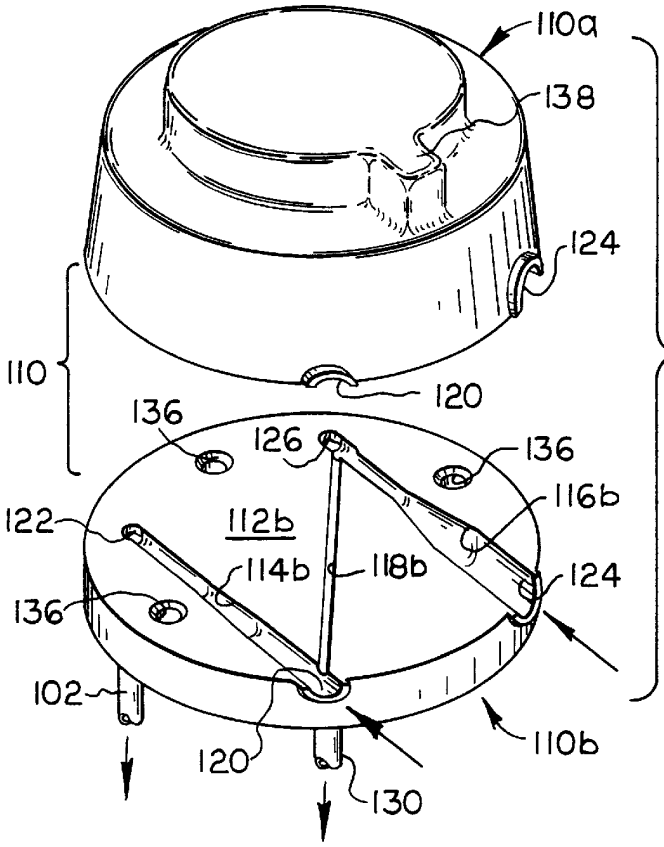

110a
138
124
110
120
136
126
136
116b
122
112b
114b
118b
124
136
102
120
130
110b

FIG. 6

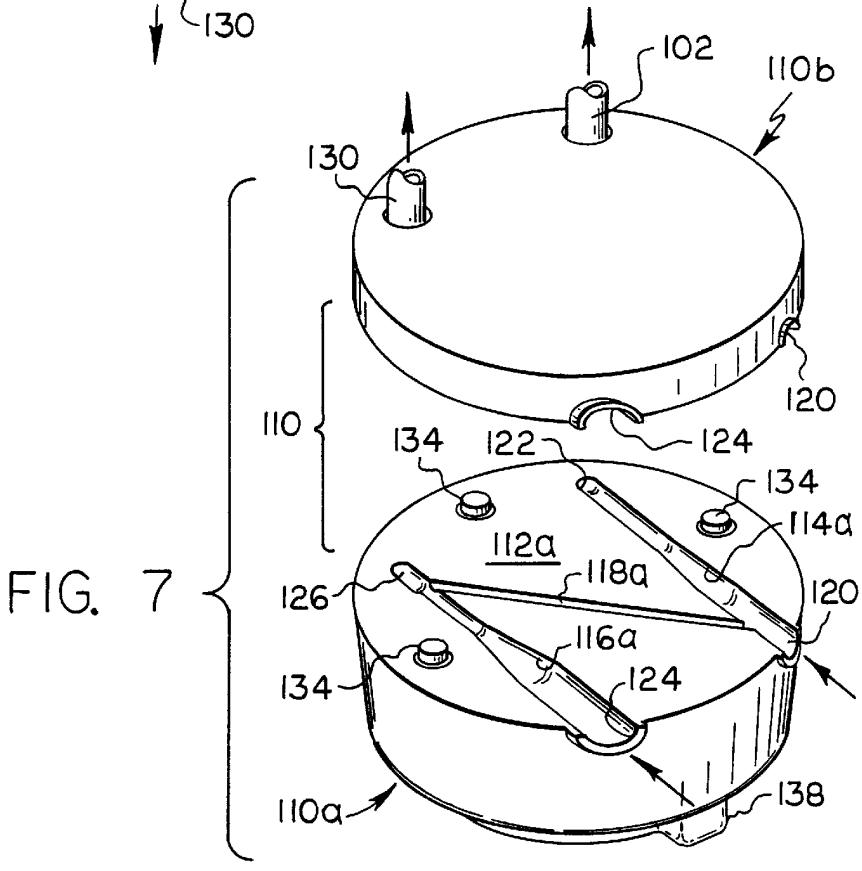
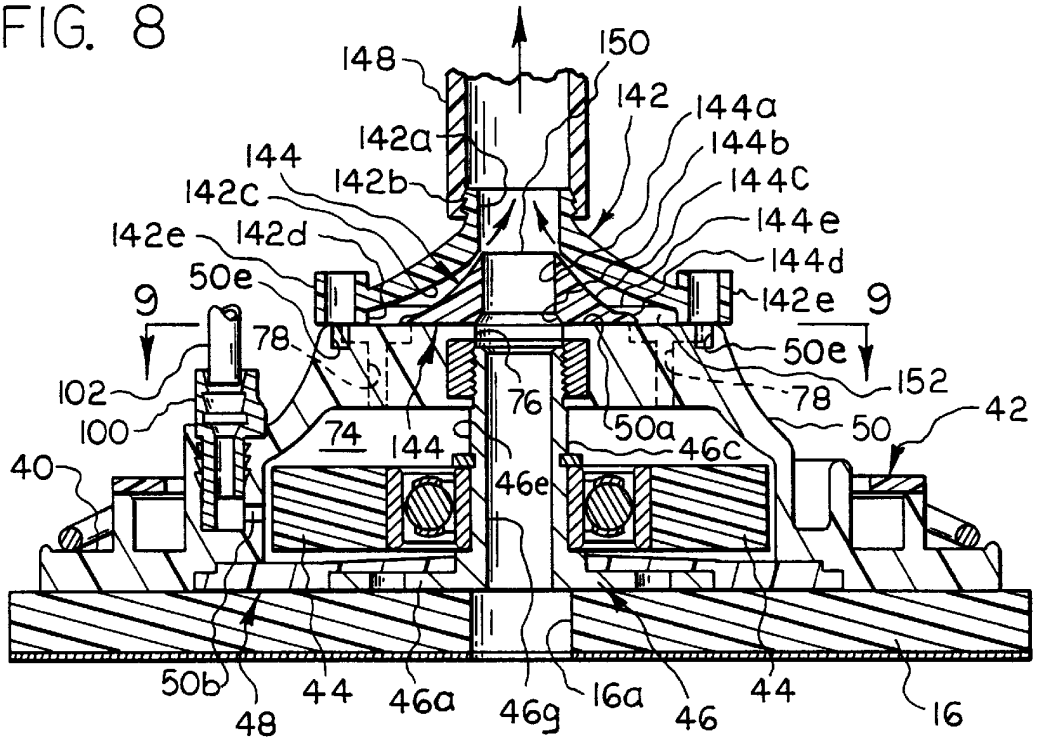

102
110b
130
120
110
124
134
122
134
114a
112a
118a
126
120
116a
134
124
110a
138

FIG. 7

FIG. 8


148
150
142
144a
142a
144b
144
142b
144c
142c
144e
142e
142d
144d
50e
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9
9
78
50e
102
76
152
78
100
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48
44
46a
46g
16a
46
44
16

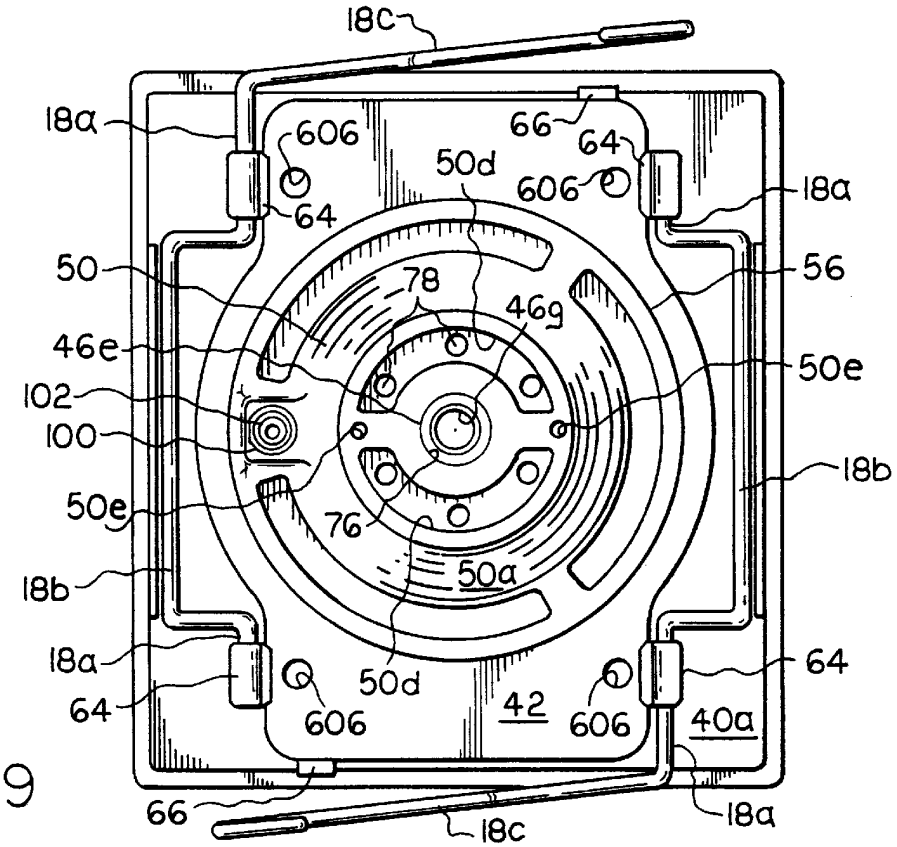
18c
18a
606
66
64
50d
606
64
18a
64
50
78
56
46g
46e
50e
102
100
18b
50e
76
50a
18b
18a
64
50d
64
606
42
606
40a
66
18c
18a

FIG. 9

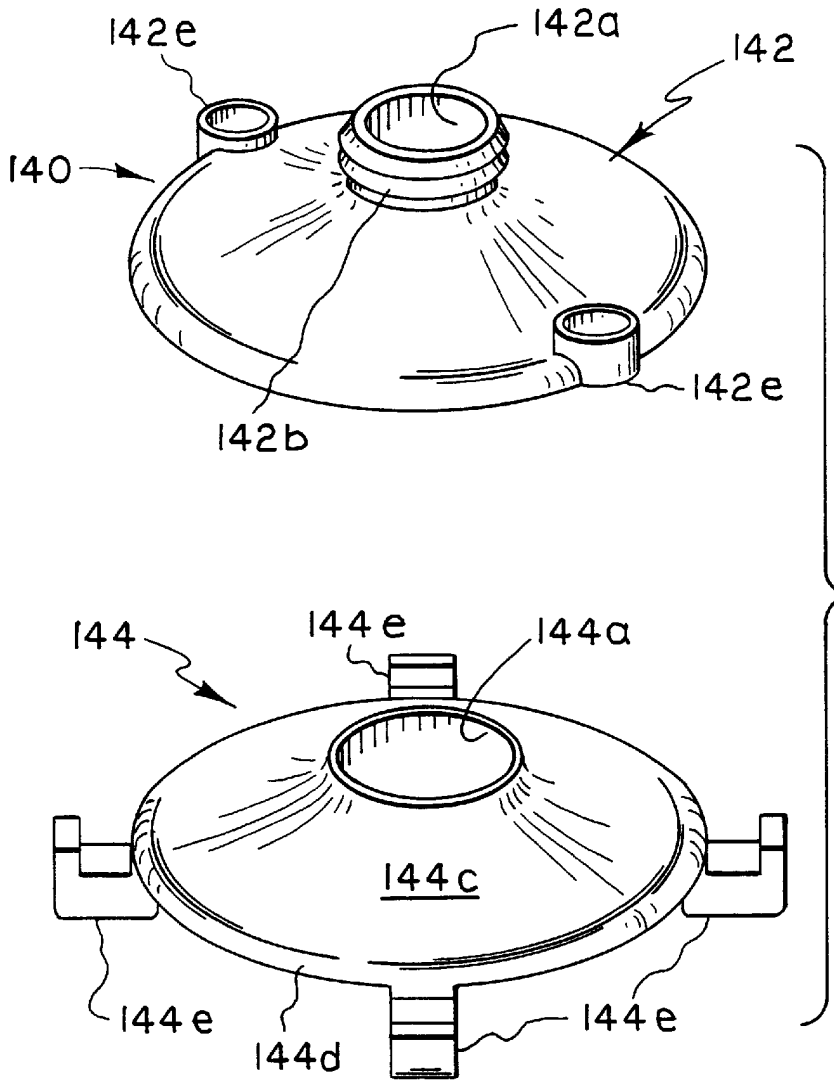

FIG. 10

QUARTER PAD SANDER

BACKGROUND OF THE INVENTION

The present invention relates to hand manipulated, pneumatically powered sanders.

In typical commercially available, pneumatically operated sanders, an air operated motor is arranged within a manually manipulated housing and connected by a drive shaft to a sanding pad via an eccentric drive.

In another construction, a sander is provided with an air turbine associated with a sanding pad supporting plate, and coupled to a manually manipulated housing by a plurality of resiliently deformable columns.

SUMMARY OF THE INVENTION

The present invention is directed towards an improved hand operated sander.

In accordance with a preferred form of the present invention, a sander is provided with a hand grip portion having a pressurized fluid supply inlet and fluid discharge; a base portion for mounting a sanding pad and having a chamber, a fluid inlet for directing fluid into the chamber and a fluid outlet for discharging fluid from chamber; a resiliently deformable sleeve having an annular mounting rim for supporting the base portion to depend from the hand grip portion and defining a conduit for connecting the fluid outlet to the fluid discharge; a fluid operated rotor or turbine wheel rotatably supported within the chamber and mounting an eccentrically located weight; a flexible conduit for connecting the fluid supply inlet to the fluid inlet of the chamber; and a clamping plate for releasably clamping the mounting rim of the sleeve to the base portion.

The base portion of the sander houses a rotor located remotely off that portion of the sander intended to be gripped by a user and the sleeve portion serves to isolate the latter from the vibrations imparted to a sanding pad by operation of the rotor and define an exhaust path for fluid discharged from the turbine.

The rotor is supported by a hollow mounting shaft, which allows the sander to be converted into a wet sander or to provide for a sanding dust exhaust system having a suction inlet located centrally of the sanding pad.

BRIEF DESCRIPTION OF THE DRAWINGS

The nature and mode of operation of the present invention will now be more fully described in the following detailed description taken with the accompanying drawings wherein:

FIG. **1** is a view of a hand manipulated pneumatically operated sander formed in accordance with the present invention;

FIG. **2** is an exploded, prospective view of the sander;

FIG. **3** is a vertical sectional view taken generally along the line **3**—**3** in FIG. **1**;

FIG. **4** is a vertical sectional view taken generally along the line **4**—**4** in FIG. **3**;

FIG. **5** is a top plan view of the base portion of the sander;

FIG. **6** is an exploded prospective view of a water suction and mixer unit;

FIG. **7** is a view similar to FIG. **6**, but with the unit in inverted condition;

FIG. **8** is an enlarged fragmentary view showing the sander adapted for providing a sanding dust exhaust system having a suction located concentrically of the sanding pad;

FIG. **9** is a top plan view of the base plate shown in FIG. **8**; and

FIG. **10** is an exploded prospective view of the vacuum assist unit.

DETAILED DESCRIPTION

A manually manipulated fluid operated sander formed in accordance with the present invention is designated a **10** in FIGS. **1**–**4**, and shown as including a hand grip portion **12**, a base portion **14** for mounting a sanding pad **16** to which a quarter sized piece of sand paper may be suitably fixed, such as by conventional spring wire champs **18**,**18** pivotally carried by the base portion.

Hand grip portion **12** preferably includes a rigid, inverted generally cup-shaped shell **20**, which is similar to the motor housing of the sander shown in commonly assigned U.S. Pat. No. 5,538,040 from the standpoint that it is formed with a first opening **22** connected to a suitable source of pressurized fluid, such as pressurized air, not shown, under the control of a flow control valve **22***a* mounted in association with an inlet conduit **22***b*, and a second opening **24** connected for example to a discharge conduit, not shown, mounting a muffler **24***a*. The inlet and discharge conduits are parallel, and cooperate to pivotally support a control lever **30** adapted to operator valve **22***a*, and are internally threaded to secure hose or other attachments.

Preferably, hand grip portion **12** includes an inverted, cup-shaped member **32** formed of a resiliently deformable material, which serves to both partially enclose shell **20** and provide a sleeve **34** for supporting base portion **14** beneath the shell as best shown in FIGS. **3** and **4**. Sleeve **34** is generally cylindrical in configuration and has its open or free end formed with an annular, radially outwardly extending mounting flange **36** provided with oppositely extending, generally rectangular enlargements **38**,**38** formed with parallel, through locating openings **38***a*,**38***a*. Sleeve **34**, shell **20** and base portion **14** cooperate to define a chamber **34***a*.

Base portion **14** is shown in the drawings as generally including a base plate **40**; a clamping plate **42**; a rotor **44**; a rotor mounting shaft **46**; and a closure plate **48**.

Base plate **40** is of generally rectangular configuration having upper and lower surfaces **40***a* and **40***b*; a centrally located dome portion **50** projecting above upper surface **40***a*; an aligning flange portion **52** projecting above upper surface **40***a*; and a rotor mounting recess **54** opening downwardly through lower surface **40***b* in alignment with dome portion **50**. Aligning flange means **52** includes an inner annular locating flange **56** disposed concentrically of dome portion **50**; an outer locating flange **58** having a pair of facing, U-shaped portions **58***a*,**58***a* joined by a pair of facing arculate portions **58***b*,**58***b*, and a pair of parallel locating ribs **58***c*,**58***c* arranged one within each of U-shaped. portions **58***a*,**58***a*.

Base plate is formed with four screw-threaded openings **60**, best shown in FIGS. **2** and **5**, which extend vertically through outer locating flange **58** for receiving screws **60***a* extending through bore openings **60***b* formed in clamping plate **42** and screws **60***c* extending through bore openings **60***d* formed in sanding pad **16** for mounting clamping plate and pad adjacent the upper and lower surfaces of plate **40**. Outer locating flange **58** is also formed with four parallel, upwardly opening, concave mounting channels **62**—**62**, which are arranged for alignment with four parallel, downwardly opening, concave mounting channels **64**—**64** formed integrally with clamping plate **42**. As will be apparent, channels **62** and **64** cooperate to define two pairs of aligned

pivotal bearing supports for a pair of aligned pivot portions **18***a*,**18***a* of each of wire clamps **18**,**18** disposed on opposite sides of sand paper clamping portions **18***b*,**18***b*. Tabs **66**,**66** are arranged to engage with handle portions **18***c*,**18***c* of the wire clamps in order to releasably retain clamping portions **18***b*,**18***b* in clamping position in which they engage with a sheet of sand paper applied to the lower surface of sanding pad **16**. Alternately, sanding pad **16** may be attached by Velcro.

As will be apparent, the tightening of screws **60***a* serves to clamp clamping plate **42** downwardly against the upper surface of outer locating flange **58**, whereby to confine annular mounting flange **36** within a continuous mounting recess **70** bounded by inner and outer locating flanges **56** and **58**. Mounting recess **70** is sized to snugly receive sleeve mounting flange **36** in order to prevent, relative movement between the mounting flange and base plate **40** during use of the sander. The provision of mounting flange enlargements **38**,**38** and mounting recess portions **58***a*,**58***a* prevents rotational movements of base plate **40** relative to the lower rim of sleeve **34** and maximizes the area and thus the strength of the joint:

therebetween.

Clamping plate **42** is formed with a centrally located clearance opening **42***a* sized to slidably receive sleeve **34** and extends outwardly therefrom sufficiently to overlie both annular mounting flange **36** and outer locating flange **58**.

Rotor mounting recess **54** is shown in FIGS. **3** and **4** as defining an upper or exhaust air chamber **74** communicating with an upper outer surface **50***a* of dome portion **50** by a centrically located through opening **76** provided with screw mounting threads **76***a* and a plurality of air exhaust openings **78**; an intermediate cylindrical rotor receiving chamber **80** sized to slidably and rotatably receive rotor **44**, and a lower disc-shaped mounting chamber **88** opening through lower base plate surface **40***b*. The periphery of mounting chamber **88** is sized to slidably receive closure plate **48** to lie essentially flush with base plate lower surface **40***b* and is formed with one or more notches or radially outwardly opening recesses **88***a* sized to receive positioning lugs **48***a* formed integrally with the closure plate, whereby to prevent rotation of the closure plate relative to base plate **40**.

Closure plate **48** is also formed with a centrically disposed, through, stepped opening **48***b* sized and shaped to slidably and rotatably receive an enlarged base flange **46***a* and an adjacent annular spacer or collar **46***b* defined by rotor mounting shaft **46**. The fit of closure plate **48** within mounting chamber **88** and relative to annular spacer **46***b* seals recess **54** in order to prevent or minimize excape of pressurized air downwardly through base plate lower surface **40***b* whereby to avoid blowing of sanding dust about the work area.

Rotor mounding shaft **46** is also formed with a cylindrical bearing mounting surface **46***c*, which is sized to support a roller bearing device **92** serving to rotatably support rotor **44**; an annular recess **46***d* for receiving a snap ring **94**; and a shaft portion **46***e* having its upper or free end threaded at **46***f* for receipt within threads **76***a* of through opening **76**. Snap ring **94** cooperates with annular spacer **46***b* to position bearing device **94** axially of mounting shaft **46** within chamber **80**. Rotor mounting shaft **46** is also formed with an axially extending through opening **46**g and a pair of openings **46***h*,**46***h* formed in base flange **46***a* and sized to receive prongs of a manually operable tool, not shown, by which rotor mounting shaft **46** may be threaded into opening **76** in order to mount closure plate **42** and rotor **44** within the confines of recess **54**. Opening **46***g* is normally closed by a removable plug **98** to prevent entry of sanding dust into the confines of the cavity bounded by sleeve **34** and to prevent loss of air thru passageway **46**G.

Rotor **44** is provided with an eccentrically located weight **44***a* serving to impart orbital movement to base portion **14** incident to rotation of rotor **44** about an axis extending axially of rotor mounting shaft **46**, and a plurality of annularly-spaced rotor vanes **44***b*. Pressurized air is directed against vanes **44***b* to impart rotation to rotor **44** via an orifice **50***b* extending inwardly through dome portion **50** from adjacent the lower end of an upwardly opening recess **50***c* sized to receive a mounting fitting **100** for receiving one end of a flexible tube **102**. The opposite end of tube **102** is disposed in flow communication with inlet opening **22**.

In operation, depression of control lever **30** permits the flow of pressurized air through valve **22***a*, flexible tube **102**, recess **50***c* and orifice **50***b* to effect rotation of rotor **44**. Due to the provision of weight **44***a*, rotation of rotor **44** induces a side-wise directed orbital movement to base plate **40**, and thus sanding pad **16**, relative to hand grip portion **12**, which may remain relatively stationary due to flexures of sleeve **34**.

Air passing from engagement with vanes **44***b* flows through exhaust air chamber **74** and exhausts therefrom through exhaust openings **78** into chamber **34***a*, which defines a conduct placing openings **78** in flow communication with discharge opening **24**. Air then exhausts through muffler **24***a*.

Reference is now made to FIGS. **6** and **7**, wherein there is shown a water suction and mixing unit **110** adapted for use in converting the present dry sander to a wet sander. Unit **10** is defined by upper and lower halves **110***a* and **110***b*, which when joined together face-to-face are sized and shaped for close-fitting receipt within the upper end of shell **20**. Unit **110** may be suitably retained within shell **20**, such as be adhesive. Halves **110***a* and **110***b* are formed with facing surfaces **112***a* and **112***b* shaped to define an air inlet passageway formed from inlet passageway halves **114***a* and **114***b*; a water inlet passageway formed from inlet passageway halves **116***a* and **116***b*; and an air aspirator passageway formed from an aspirator passageway halves **118***a* and **118***b*. Passageway halves **114***a* and **114***b* cooperate to define an air inlet end **120** arranged to communicate with inlet opening **22** and an air inlet **122** disposed in flow communication with flexible tube **102** connected to abovementioned hose fitting **100**. Halves **116***a* and **116***b* define a water inlet end **124** arranged to communicate with discharge opening **24** and an air and water outlet end **126** disposed in flow communication with a flexible tube **130** whose lower or other end is coupled in flow communication with the upper end of above-mentioned through opening **46***g* with plug **98** removed. The air aspirator passageway defined by passageway halves **118***a* and **118***b* branches from the air inlet passageway closely adjacent inlet end **120** and enters the water passageway closely adjacent outlet end **126**.

Passageway halves **114***a*,**114***b*; **116***a*,**116***b*; and **118***a*,**118***b* are maintained in alignment by a plurality of positioning pins **134** and pin receiving recesses **136**. The assembled unit **100** is properly oriented within shell **20** by forming upper half **110***a* with a rib **138** shaped and sized for receipt within a shell recess **140** shown in FIGS. **3** and **4**, whereby to place inlet end **120** in flow communication with first opening **22** and inlet opening **124** in flow communication with second opening **24**.

In operation of this embodiment of the invention, outlet opening **24** is connected to a suitable source of water by first

removing muffler **24***a* and replacing same with a hose connection and a flexible hose extending for example to a bucket of water, not shown. Then upon operation of lever **30**, pressurized air is supplied to inlet end **120**, whereafter air flows as a first stream through the air inlet passageway, tube **102** and orifice **50***b* for purposes of rotating rotor **44** and as a second stream through the air aspirator passageway into the water passageway for purposes of creating a vacuum condition therein sufficient to draw a stream of water from its source into the water passageway. Air and water mix adjacent outlet end **126** for flow through tube **130**, opening **76**, opening **46***g*, and a discharge opening **16***a* arranged centrally of sanding pad **16** for application directly to the surface being sanded.

In that with this embodiment of the invention, air exhausted from rotor **44** can not be discharged through second opening **24**, due to its being occupied by a hose connection communicating with a water supply, it is necessary to provide another or third opening from chamber **34***a*, such as may be defined by an aperture **34***b* extending radially through sleeve **34** and shown in broken line only in FIG. **4** for purposes of reference.

Reference is now made to FIGS. **8–10**, wherein there is shown vacuum assist unit **140** adapted for use in converting the present sander to a vacuum sanding dust exhaust unit. Unit **140** is defined by separately formed, upper and lower molded plastic parts **142** end **144** joined prior to mounting on dome portion **50**.

Upper part **142** has a generally cone-shaped configuration provided with a centrally located bore opening **142***a* having an outlet end surrounded by a barbed surface **142***b* for mounting a flexible exhaust tube **148**; a convex, annular downwardly facing passageway surface **142***c* terminating inwardly at the lower end of bore opening **142***a* and outwardly at an annular rim **142***d*; and mounting bosses **142***e*, which upstand from adjacent rim **142***d* to receive threaded fasteners, not shown, intended to be threaded into mounting openings **50***e* passing through dome portion upper surface **50***a*.

Lower part **144** also has a somewhat funnel-shaped configuration having a centrally located bore opening **144***a*, having a flared inlet end **144***b*; a concave, annular upwardly facing passageway surface **144***c* terminating inwardly at the upper end of bore opening **144***a* and outwardly at an annular rim **144***d*; and a plurality of mounting and spacer projections **144***e*, which extend radially outwardly of rim **144***d* for attachment, as be adhesive, to an annular inner surface of rim **142***d*. The diameter of bore opening **144***a* is slightly smaller than that of bore opening **142***a*, as shown in FIG. **8**. Projections are received within arculate recesses **50***d*,**50***d* opening upwardly through dome upper surface **50***a*.

When parts **142** and **144** are joined together, bore openings **142***a* and **144***a* define a stepped, through bore opening or passageway having an annular, upwardly opening air discharge slot or nozzle **150**, and passageway surfaces **142***c* and **144***c* cooperate to define a conical, air discharge passageway **152**, which has a lower end arranged in flow communication with air discharge openings **78** and an upper end arranged in flow communication with discharge nozzle **150** for discharging air upwardly into bore opening **142***a* as indicated by arrows in FIG. **8**. The progressively diminishing thickness and annular extend of passageway **152**, as shown in FIG. **8**, serves to progressively increase the speed of air exiting through discharge openings **78**, so that a vacuum condition is created in bore opening **144***b*, which is sufficient to draw sanding dust upwardly from a work surface being sanded through sanding pad opening **16***a*, rotor mounting shaft opening **46***g*, dome portion through opening **76** and lower bore opening **144***a*, and then transport such dust outwardly of the sander through tube **148** and discharge opening **24**. Dust exiting through discharge opening **24** may be collected in a portable bag, not shown suitably attached to the sander or by a remote dust collection vacuum device, not shown, connected to the sander be a flexible hose.

What is claimed is:

1. A hand operated orbital sander having a hand grip portion; a first opening for connection to a source of pressurized air; a second opening; a base portion for mounting a sanding pad and having a chamber, an air inlet for directing air into said chamber and an air outlet for discharging air from said chamber; a resiliently deformable sleeve portion for connecting said base portion to depend from said hand grip portion and defining a conduit for placing said air outlet in flow communication with said second opening; an air operated rotor rotatably supported within said chamber and mounting an eccentric weight for imparting orbital movement to said base portion upon rotation of said rotor; and a flexible tube for connecting said first opening to said air inlet to apply pressurized air to said rotor to effect rotation thereof.

2. A sander according to claim **1**, wherein said sleeve portion has an annular, radially outwardly extending mounting flange, said base portion includes a continuous mounting recess for receiving said mounting flange and a clamping plate for clamping said mounting flange within said mounting recess.

3. A sander according to claim **1**, wherein said sleeve portion has an annular, radially outwardly extending mounting flange, and said base portion includes a base plate and a clamping plate, said base plate having upper and lower surfaces, a dome portion projecting above said upper surface, a recess opening through said lower surface in alignment with said dome portion and defining said chamber, an inner locating flange projecting from said upper surface and being disposed concentrically of said dome portion, an outer locating flange projecting from said upper surface outwardly of said inner locating flange and cooperating therewith to define a continuous mounting recess, said clamping plate having a centrally located through opening sized to freely receive said sleeve said clamping plate being sized and shaped to overlie said mounting recess and said outer locating flange, and being clamped against said outer locating flange to retain said mounting flange within said continuous mounting recess, and said inlet and said outlet extend through said dome portion.

4. A sander according to claim **3**, wherein a pair of spring wire clamps are provided for releasably clamping sand paper to said sanding pad, and said clamping plate and said base plate are provided aligned concave channels cooperating to define bearing supports for supporting said wire clamps for pivotal movement relative to said sanding pad for releasing clamping said sand paper.

5. A sander according to claim **4**, wherein said dome portion has a through opening communicating with said chamber, said base portion further includes a rotor mounting shaft and a closure plate, said rotor mounting shaft has a lower end supporting said closure plate and cooperating therewith to close said recess opening through said lower surface, an upper end received within said through opening of said dome portion, an intermediate portion for supporting said rotor for rotation within said chamber, and a lengthwise extending passageway extending through said upper and lower ends.

6. A sander according to claim 5, wherein said upper end of said rotor mounting shaft has a plug for removably closing said passageway thereof for preventing entry of sanding dust into said sleeves and to prevent loss of air thru said passageway.

7. A sander according to claim 1, wherein said base portion includes a base plate, a rotor mounting shaft and a closure plate, said base plate having upper and lower surfaces, a dome portion projecting above said upper surface and a recess opening through said lower surface in alignment with said dome portion and defining said chamber, said dome portion having an upper surface and a through opening communicating with said chamber, said through opening and said fluid outlet extending through said upper surface of said dome portion, said rotor mounting shaft has a lower end supporting said closure plate and cooperating therewith to close said recess opening through said lower surface, an upper end received within said through opening of said dome portion, an intermediate portion for supporting said rotor for rotation within said chamber, and a lengthwise extending passageway extending through said upper and lower ends, and there is further provided in combination a vacuum assist unit fixed to said upper surface of said dome portion and a second flexible tube, said vacuum assist unit having a vertically extending through stepped bore opening including a lower portion communicating with said passageway of said rotor mounting shaft and an upper portion connected to said second opening by said second flexible tube, said lower portion of said stepped bore opening having a smaller diameter than said upper portion of said stepped bore opening and cooperating therewith to define an annular nozzle opening towards said second flexible tube, and said vacuum assist unit having a fluid flow passageway having one end connected to said fluid outlet and another end connected to said nozzle for creating a vacuum condition in said lower portion of said. stepped bore opening for conveying sanding dust upwardly through said passageway of said rotor mounting shaft.

8. A sander according to claim 7, wherein said vacuum assist unit is formed from upper and lower parts, said upper part having a generally cone-shaped configuration provided with a centrally located bore opening defining said upper portion of said stepped bore opening, a convex annular downwardly facing passageway surface terminating inwardly at said bore opening thereof and outwardly at an annular rim, said lower part having a concave annular upwardly facing passageway surface terminating inwardly of said bore opening thereof and outwardly at an annular rim, and a plurality of projections which extending radially of said annular rim of said lower part and have free outer ends thereof connected to said rim of said upper part, and said convex and concave passageway surfaces cooperating to define said fluid flow passageway.

9. A sander according to claim 8, wherein said sleeve portion has an annular, radially outwardly extending mounting flange, and said base portion includes a base plate and a clamping plate, said base plate having upper and lower surfaces, a dome portion projecting above said upper surface, a recess opening through said lower surface in alignment with said dome portion and defining said chamber, an inner locating flange projecting from said upper surface and being disposed concentrically of said dome portion, an outer locating flange projecting from said upper surface outwardly of said inner locating flange and cooperating therewith to define a continuous mounting recess, said clamping plate having a centrally located through opening sized to freely receive said sleeve said clamping plate being sized and shaped to overlie said mounting recess and said outer locating flange, and being clamped against said outer locating flange to retain said mounting flange within said continuous mounting recess, and said air inlet and said air outlet extend through said dome portion.

10. A sander according to claim 9, wherein a pair of spring wire clamps are provided for releasably clamping sand paper to said sanding pad, and said clamping plate and said base plate are provided aligned concave channels cooperating to define bearing supports for supporting said wire clamps for pivotal movement relative to said sanding pad for releasing clamping said sand paper, and said sanding pad has a centrally located through opening arranged for alignment with said lower end of said passageway extending through said rotor mounting shaft.

11. A sander according to claim 1, wherein said base portion includes a base plate fixed to said sleeve portion and having upper and lower surfaces, a dome portion projecting above said upper surface, a recess opening through said lower surface in alignment with said dome portion and defining said chamber, dome portion having a through opening communicating with said chamber, said base portion further includes a rotor mounting shaft and a closure plate, said rotor mounting shaft has a lower end supporting said closure plate and cooperating therewith to close said recess opening through said lower surface, an upper end received within said through opening of said dome portion, an intermediate portion for supporting said rotor for rotation within said chamber, and a lengthwise extending passageway extending through said upper and lower ends, and there is additionally provided in combination a water suction and mixing unit, another flexible tube, and another opening adapted for connection to a source of water, said unit being mounted within said hand grip portion and defining a water passageway having a first end connected to said other opening and a second end connected to one end of said other flexible tube, a first air passageway having a first end connected to said first opening and having a second end connected to said flexible tube, and a second air passageway extending from adjacent said first end of said first air passageway to adjacent said second end of said water passageway for creating a vacuum within said water passageway to draw water thereinto through said other opening, another end of said other flexible tube is connected in flow communication with said lengthwise extending passageway of said rotor mounting shaft, and another end of said flexible tube is connected to said air inlet to apply pressurized air to said rotor.

12. A sander according to claim 11, wherein unit has upper and lower halves having facing surfaces cooperating to define said water passageway, said first air passageway and said second air passageway.

13. A sander according to claim 1, wherein said hand grip portion includes a rigid cup-shaped shell defining said first opening and said second opening and a cup-shaped member of resiliently deformable material partially enclosing said shell, said member defining said sleeve portion, and said flexible tube extends through said conduit between said first opening and said air inlet.

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