Aug. 6, 1968 S. POWANDA 3,395,495

VEHICLE BODY SANDER

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Fig. 1

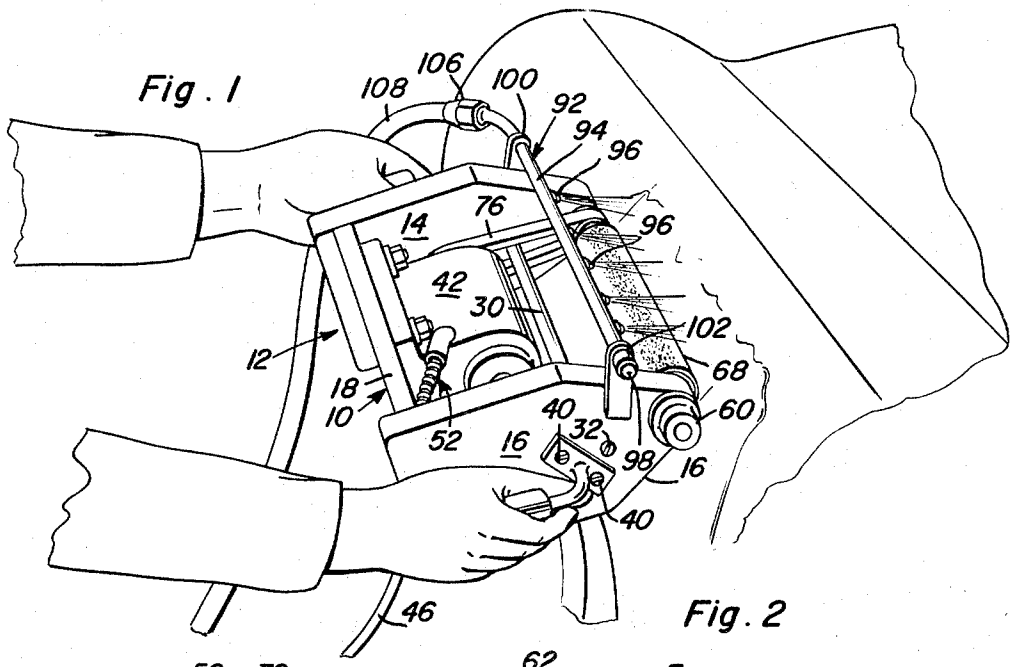


Fig. 2

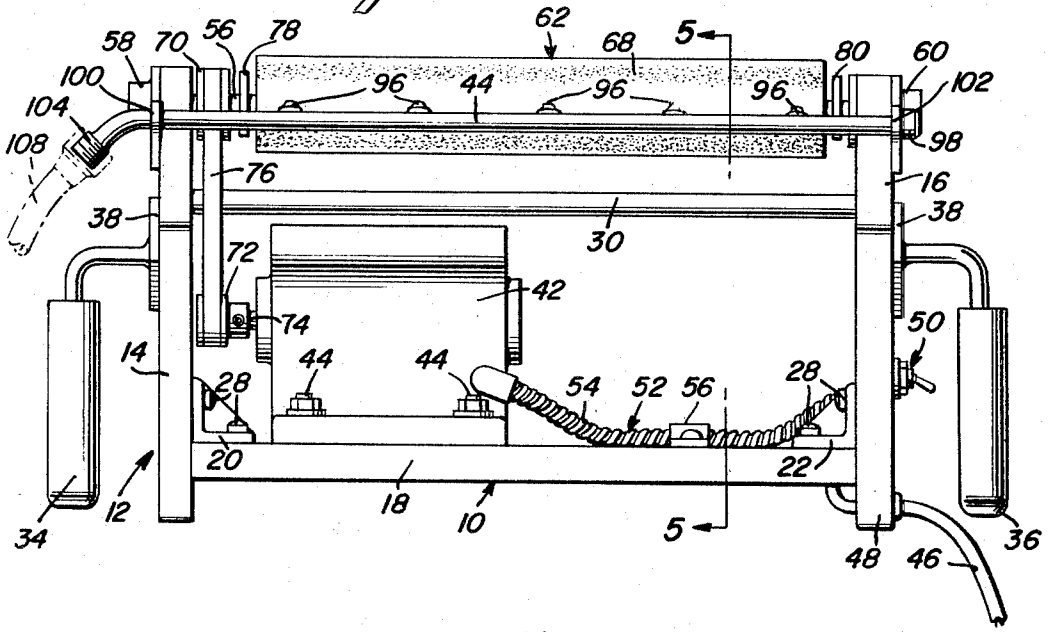
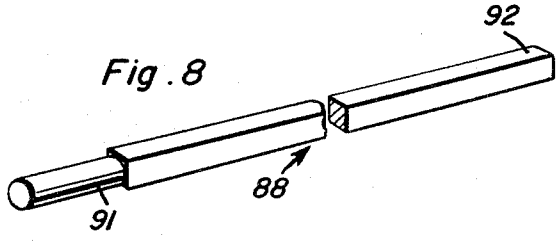


Fig. 8



Stephen Powanda

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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Fig. 3

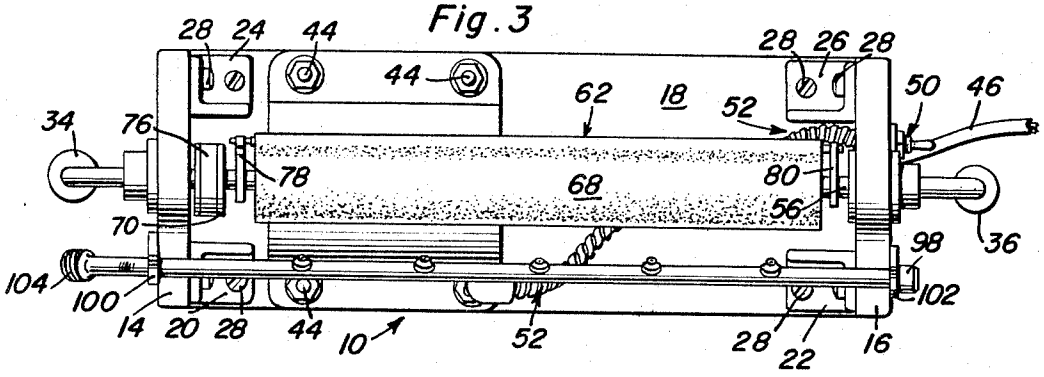


Fig. 4

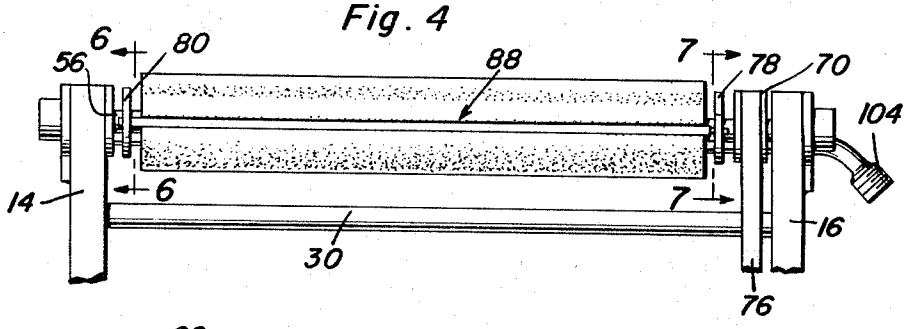


Fig. 5

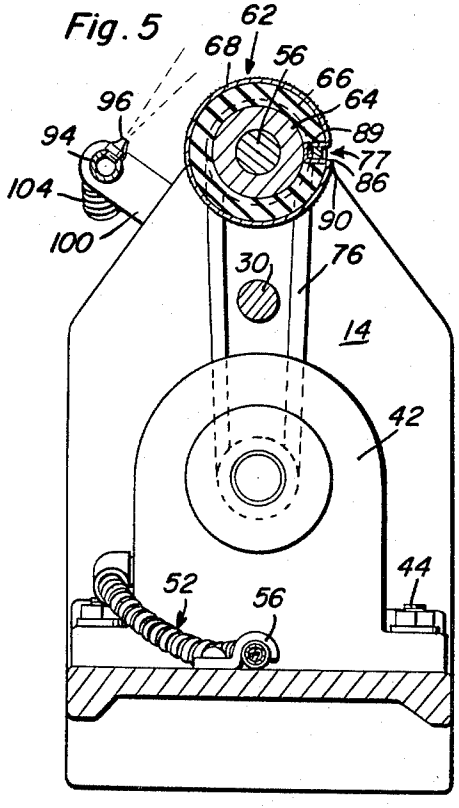


Fig. 6

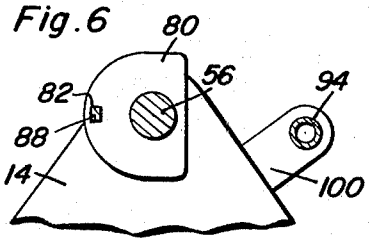
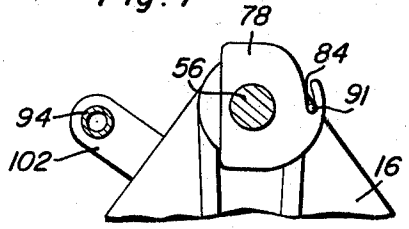


Fig. 7



Stephen Powanda

INVENTOR.

BY Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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VEHICLE BODY SANDER

Stephen Powanda, Hyattsville, Md., assignor of ten percent to Herbert Siddley, District Heights, Md.

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10 Claims. (Cl. 51—170)

ABSTRACT OF THE DISCLOSURE

A sander including a generally U-shaped frame having side members journaling a cylindrical sanding wheel therebetween with the periphery of the sanding wheel projecting beyond the periphery of the side members. Handles are provided on the outer surface of the side members and a drive motor is provided between the side members of the frame. A spray pipe is disposed on the frame in parallel relation to the sanding wheel and sheets of sanding paper are detachably retained on the sanding wheel by employing a retaining bar disposed within a groove in the sanding wheel.

This invention relates generally to power tools, and more particularly to a vehicle body sander including an abrasive wheel and fluid dispensing head thereon.

It is an object of the present invention to provide a sanding device for metallic surfaces having means providing for quickly mounting and demounting sandpaper sheets thereon.

It is another object of the present invention to provide a lightweight portable sanding device especially adapted for use in sanding motor vehicle bodies.

It is a further object of the present invention to provide a vehicle body sanding machine including means thereon for directing lubricating fluid onto the sanding surface.

It is a still further object of the present invention to provide a portable electric sanding device for use in wet sanding operations including a water spraying bar and abrasive wheel thereon.

It is another object of the present invention to provide quick release sandpaper mounting means for use with abrasive rollers.

It is a final object of the present invention to provide a portable sanding device which may be easily constructed of readily available materials in order to be quite sturdy while at the same time being extremely light of weight and mobile.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view illustrating the vehicle sander device of the present invention being held in operating position adjacent a vehicle body;

FIGURE 2 is an enlarged front elevational view of the vehicle sanding device illustrated in FIGURE 1;

FIGURE 3 is a top plan view of the vehicle sanding device corresponding to FIGURE 2;

FIGURE 4 is a partial rear elevational view similar to that of FIGURE 2;

FIGURE 5 is an enlarged vertical sectional view taken substantially on the plane of the line 5—5 of FIGURE 2;

FIGURE 6 is an enlarged partial vertical sectional view taken substantially on the plane of the line 6—6 of FIGURE 4;

FIGURE 7 is an enlarged partial vertical sectional view taken substantially on the plane of the line 7—7 of FIGURE 4; and

FIGURE 8 is a perspective view of the sandpaper

mounting rod used in conjunction with the present invention.

Referring now more particularly to the drawings, reference numeral 10 generally denotes the vehicle sanding device of the present invention. The sanding device 10 includes a frame 12 including the side walls 14 and 16 and bottom wall 18. The bottom wall 18 is joined to each of the side walls 14 and 16 by angle brackets 20, 22, 24 and 26 having suitable attaching means such as the screws 28 used therewith. Further, a crossbar 30 joins the side walls 14 and 16, the crossbar mounted on walls 14 and 16 by suitable attaching means such as the screws 32. Thus, it will be appreciated that the frame 12 is quite sturdy of construction, the walls 14, 16 and 18 being constructed of suitable metallic material such as plate iron or the like. A pair of handles 34 and 36 having end brackets 38 thereon are mounted on the outside of walls 14 and 16, respectively by suitable mounting means such as screws 40. Thus, by viewing FIGURE 1, it will be appreciated that the sanding device 10 may be held by handles 34 and 36 in order to be used in the sanding operation.

A suitable electric drive motor 42 of conventional variety is mounted on the bottom wall 18 by means of mounting bolts 44. An electrical lead line 46 is mounted in the end 48 of side wall 16, extending therethrough and upwardly through bottom wall 18, leading to the toggle on-off switch 50 mounted on wall 16. A second electrical lead line 52 extends from the switch 50 into operative connection with the motor 42, the line 52 being covered with insulation 54 and held on bottom wall 18 by a suitable bracket 56. Thus, it will be appreciated that the motor 42 may be energized when the switch 50 is closed, the lead line 46 being conventionally plugged into an AC electrical power source.

A drive axle or shaft 56 is journaled for rotation in the side walls 14 and 16 by suitable bushings 58 and 60. The drive axle 56 has fixedly mounted thereon an elongate abrasive wheel 62, the wheel 62 including an inner hardened metallic sleeve 64 and an outer rubber sleeve 66 attached in a suitable manner to sleeve 64. The sleeve 64 is mounted on the drive axle 56 in a suitable manner for rotation therewith. Further, the wheel 62 is adapted to receive a sandpaper sheet 68 thereon.

The drive axle 56 includes a pulley 70 fixedly mounted thereon between the wall 14 and wheel 62. The pulley 70 is aligned with a pulley 72 mounted on the output shaft 74 of motor 42, and a suitable flexible drive belt 76 is mounted over pulleys 70 and 72 whereby rotation of the shaft 74 will be imparted to the drive axle 56.

Means generally denoted by reference numeral 77 are provided to releasably mount a sandpaper sheet 68 on the abrasive wheel 62. This means comprises a pair of plates 78 and 80 fixedly mounted on the drive axle 56 adjacent the ends of abrasive wheel 62. The plate 80 has a square aperture 82 therein and the plate 78 has an upwardly opening slot 84 therein, the aperture 82 and the bottom end of slot 84 being substantially aligned. The sleeve 66 of wheel 62 includes an elongated groove 86 therein, the groove extending longitudinally along the sleeve 66. An elongate bar 88 of generally square cross section, and having a reduced end portion 91 of generally circular cross section is provided, the end 92 of the square portion being adapted to fit in aperture 82 and the end 91 being adapted to fit in slot 84. At this time, when the bar 88 is mounted in plates 78 and 80, the body of bar 88 will extend through the groove 86. Thus, it will be apparent that the sandpaper sheet 68 may be mounted on the wheel 62 as illustrated in FIGURE 5. One end 89 of the sheet 68 is extended into groove 86 and the sheet then wrapped about the wheel 62 and the other end 90 of sheet 68 ex-

tended into groove **86** in overlying relation to the first end **89**.

At this time the end **92** of bar **88** is pushed into aperture **82** and moved into groove **86** in tight abutting engagement with the ends **89** and **90** of sheet **68**, and the end **91** of bar **88** moved downwardly into slot **84**. By this operation, the bar **88** will grip the ends **89** and **90** of the sandpaper sheet **68** throughout their width and thus retain the sheet **68** on the wheel **62**. Further, it will be appreciated that when the sandpaper sheet **68** is worn and therefore has to be replaced, it will be a simple matter to move the end **91** of bar **88** upwardly out of slot **84** and out of groove **86** in order to remove the old sheet and replace it with a fresh one.

A spray bar generally denoted by reference numeral **92** comprising a tubular water conduit **94** having a plurality of forwardly directed outlet nozzles **96** therein and an end closed by cap **98** is mounted on the walls **14** and **16** in the upstanding ears **100** and **102** which extend upwardly from walls **14** and **16**, respectively. The end of the conduit **94** opposite the end having the cap **98** thereon extends outwardly through ear **100** and has a threaded end **104** thereon for receiving a connection **106** of a water hose **108**. Thus, it will be readily apparent from viewing FIGURES 1 and 2, for example, that the water hose **108** when connected to spray bar **92** will cause water to flow into the conduit **94** and thence outwardly through the nozzles **96**, the nozzles **96** being shaped to provide water spray and spaced along the front side of conduit **94** in order to direct the spray downwardly on the surface being sanded by the abrasive wheel **62**. Thus, it is apparent that the vehicle sander **10** may be readily used for a wet sanding operation by having the hose **108** connected thereto, or alternatively may be used for a dry sanding operation if desired merely by not connecting the hose **108** thereto.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A portable, manually manipulated sanding apparatus for sanding surfaces comprising a frame having a pair of side members, an elongated cylindrical sanding wheel journaled between said side members adjacent the periphery thereof with the periphery of the sanding wheel disposed laterally outwardly of the side members for engaging a surface to be sanded, means carried by said frame for driving said sanding wheel, and handle means on said side members for manually supporting and manipulating the sanding apparatus.

2. The structure as defined in claim **1** wherein said handle means includes a pair of handgrip members disposed in parallel spaced relation to the outer surface of the side members and being attached thereto adjacent the center of the side members and extending away from the sanding wheel.

3. The structure as defined in claim **2** wherein said means for driving said sanding wheel including an electric motor mounted on the frame remote from the sanding wheel with the point of attachment of the handle means being between the motor and the sanding wheel for balancing the sanding device, a switch for said motor mounted on one of said side members adjacent one of said handgrips for enabling a person handling the sanding apparatus to control the motor.

4. The structure as defined in claim **1** wherein said sanding wheel includes a longitudinal groove therein, a sheet of sandpaper mounted on the cylindrical sanding wheel with the ends thereof received in said groove, and a retaining bar disposed in said groove and retaining the ends of the sandpaper therein, said retaining bar having an exterior surface spaced inwardly from the periphery of the sanding wheel when assembled therewith.

5. The structure as defined in claim **4** wherein said sanding wheel is mounted on a longitudinal axle, a pair of retaining plates mounted on said axle adjacent opposite ends of said sanding wheel, said retaining bar having a reduced end portion, one of said plates having an aperture therein for receiving an end of said bar, the other of said retaining plates having a recess therein receiving the reduced end of the retaining bar for releasably retaining the retaining bar in the groove of the sanding wheel.

6. The structure as defined in claim **1** together with a spray pipe mounted on said side members in spaced parallel relation to said sanding wheel, said pipe having a plurality of nozzles therein to direct fluid flow toward the surface being sanded immediately adjacent the periphery of the sanding wheel.

7. The structure as defined in claim **3** wherein said sanding wheel includes a longitudinal groove therein, a sheet of sandpaper mounted on the cylindrical sanding wheel with the ends thereof received in said groove, a retaining bar disposed in said groove and retaining the ends of the sandpaper therein, said retaining bar having an exterior surface spaced inwardly from the periphery of the sanding wheel when assembled therewith, said sanding wheel being mounted on a longitudinal axle, and a pair of retaining plates mounted on said axle adjacent opposite ends of said sanding wheel, said retaining bar having a reduced end portion, one of said plates having an aperture therein for receiving an end of said bar, the other of said retaining plates having a recess therein receiving the reduced end of the retaining bar for releasably retaining the retaining bar in the groove of the sanding wheel.

8. The structure as defined in claim **7** together with a spray pipe mounted on said side members in spaced parallel relation to said sanding wheel, said pipe having a plurality of nozzles therein to direct fluid flow toward the surface being sanded immediately adjacent the periphery of the sanding wheel.

9. In combination with a portable, manually manipulated sanding apparatus having a frame with an elongated cylindrical sanding wheel journaled thereon, a spray pipe mounted on said frame in substantially parallel spaced relation to the elongated sanding wheel, a plurality of discharge nozzles on said spray pipe for directing fluid onto the surface being sanded adjacent the periphery of the sanding wheel.

10. A portable device for sanding the surface of a vehicle body comprising a portable frame having horizontally spaced handles, sanding wheel means journaled on said frame, drive means on said frame for driving said sanding wheel means, said drive means and sanding wheel means being disposed between side members on which the handles are attached to enable an operator to manipulate the device.

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LESTER M. SWINGLE, *Primary Examiner.*