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J. J. GEEL

2,692,163

WATER SWEEPING DEVICE

Filed Dec. 3, 1951

2 Sheets-Sheet 1

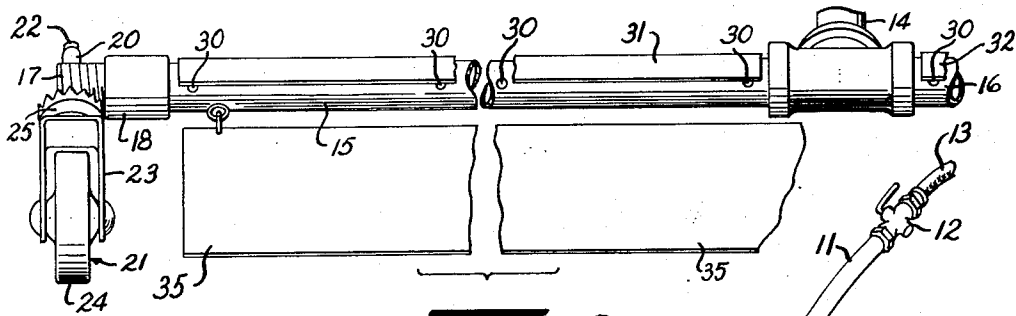


FIG 3

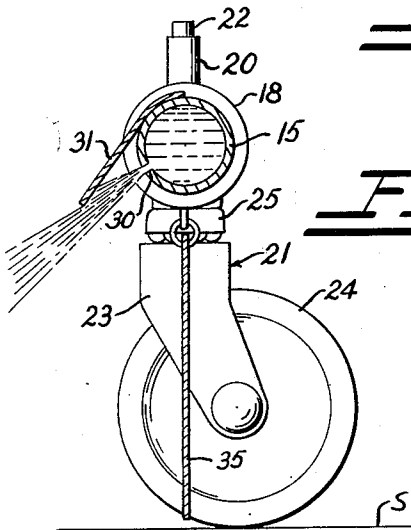


FIG 4

FIG 2

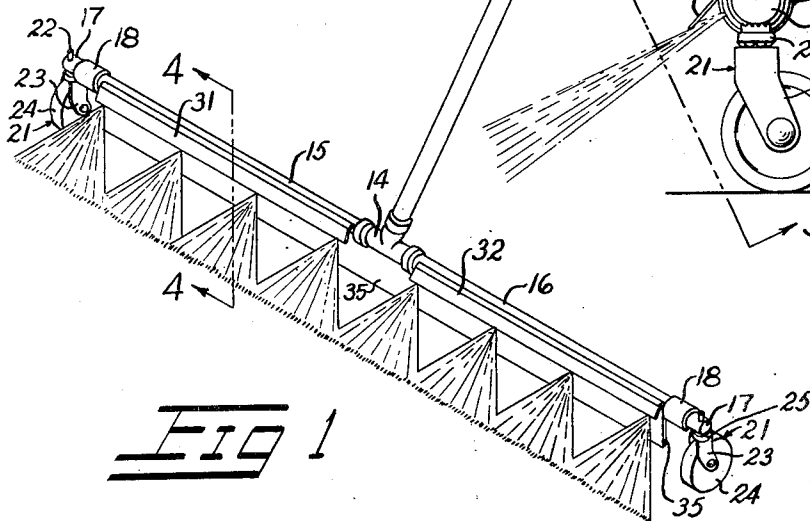
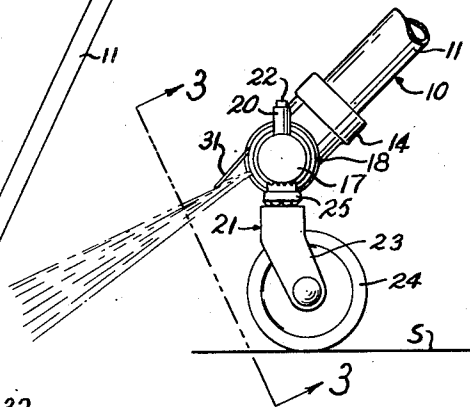


FIG 1

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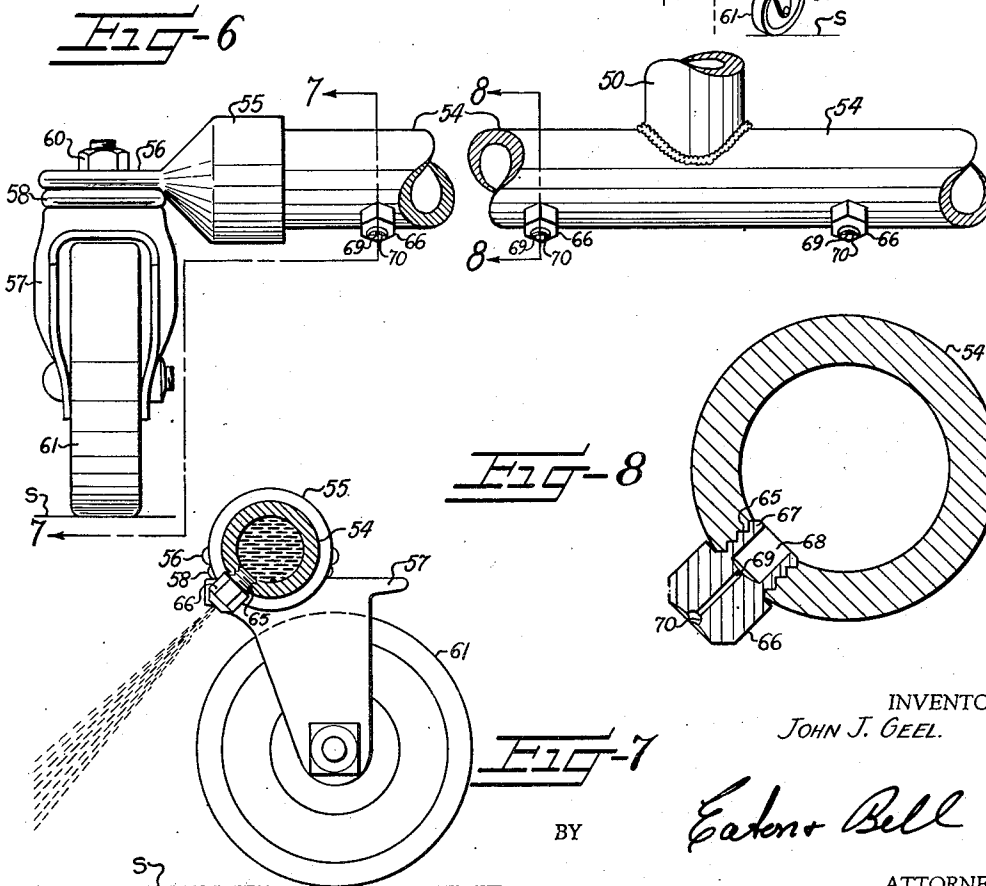
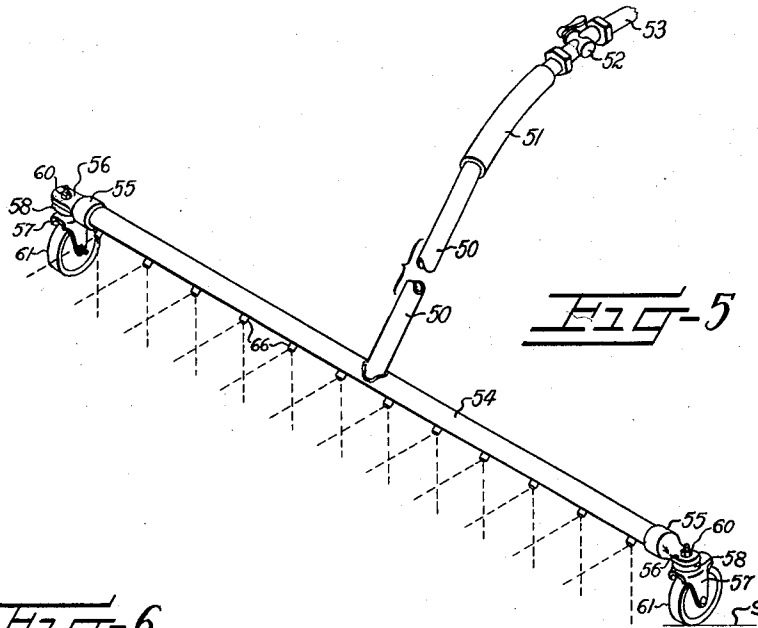
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WATER SWEEPING DEVICE

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2 Sheets-Sheet 2



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2,692,163

WATER SWEEPING DEVICE

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2 Claims. (Cl. 299—47)

1 This invention relates to a water sweeping device and more especially to a sweeping device adapted to utilize water wherein the water is sprayed therefrom in a plurality of jets against the object to be swept or cleaned. This device is particularly adaptable for use at filling stations and the like where it is frequently necessary to wash down and clean pavement such as concrete, asphalt, and the like, to free the same from accumulated greases and other dirt and debris.

Heretofore, in filling stations, it has been necessary to wash the paved areas surrounding the station frequently to prevent accumulation of oils and greases and other dirt and debris and this has usually been done by utilizing an ordinary water hose and a broom. This is a slow tedious process and the pressure from the ordinary water hose is frequently insufficient to properly cleanse the paved area.

It is, therefore, an object of this invention to provide a portable water sweeper which may be connected to a water hose and which comprises a horizontal pipe mounted on wheels and being provided with a substantially vertically extending pipe communicating with said horizontal pipe and serving as a handle for said sweeper. The horizontal pipe is provided with a plurality of bores therein forming nozzles and the vertical pipe or handle has a connection at one end thereof to permit a hose to be connected thereto for introducing water into the vertical pipe and the horizontal pipe so that the same will be emitted from the bores in the horizontal pipe against the surface to be cleansed. By using such a device, an operator of a filling station or the like desiring to clean the paved area therearound may connect a conventional hose to the portable water sweeper and roll the same over the pavement and water will be emitted from the sweeper in a plurality of jets against the pavement to loosen debris and dirt and to move the same along in front of the sweeper as the sweeper moves over the pavement on its wheels.

It is another object of this invention to provide an improved water sweeper of the type described having a horizontal pipe and a vertical pipe and being mounted on suitable casters or rollers and said horizontal pipe being provided with a plurality of bores forming nozzles therein, said horizontal pipe also having deflectors secured thereto and directed outwardly therefrom with the free edges of said deflectors being positioned in a plane substantially bisecting the center of said nozzles whereby water emitted from said nozzles will strike the edge of said deflectors and will be

2 directed downwardly with additional force against the surface to be cleaned.

It is another object of this invention to provide a portable water sweeper of the type described which may be economically constructed and which is adapted to be subjected to heavy duty and has a minimum number of working parts and, consequently, is long lasting and provides an effective water sweeper which is primarily adapted to be used for cleaning outside paved areas but which may readily be used for washing or cleaning various types of surfaces. The improved water sweeper is also preferably provided with a pivoted shield member depending from the lower surface thereof adapted to act as a shield against back spray to prevent water from spraying backwardly toward the operator as the operator pushes the water sweeping device along the surface to be cleaned.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is an isometric view of the water sweeping device in operating position;

Figure 2 is an enlarged fragmentary end view of the device looking at the right-hand end of Figure 1;

Figure 3 is a fragmentary elevation looking up at the front of the device taken substantially along the line 3—3 in Figure 2;

Figure 4 is an enlarged vertical sectional view taken along the line 4—4 in Figure 1;

Figure 5 is an isometric view of a modified form of the invention;

Figure 6 is an enlarged fragmentary view looking at the lefthand portion of Figure 5;

Figure 7 is a vertical sectional view through the sweeper taken along the line 7—7 in Figure 6 showing the nozzle fitting in elevation;

Figure 8 is an enlarged vertical sectional view through the nozzle fitting taken along the line 8—8 in Figure 7.

Referring more specifically to the drawings, the numeral 10 designates the uprising portion or handle of the water sweeping device which is disposed in a vertical plane and extends at an angle to the lower portion of the device when in operating position and this handle 10 may be referred to as a vertically disposed pipe or portion of the device. The handle 10 comprises a hollow pipe which is bent at the upper end thereof to form a gripping portion 11. The upper end of the handle has a cut-off valve 12 connected thereto which has a fitting at one end thereof for

reception of an end of a conventional or other type of flexible hose 13. The hose 13 is connected to any suitable source of water, not shown. The handle 10 extends downwardly and is connected to the vertical branch of a T connection 14. The T connection 14 has a horizontally disposed pipe 15 extending from one end thereof and a horizontally disposed pipe 16 extending from the other end thereof, said pipes 15 and 16 being threadably mounted in said T 14. The vertical branch of the T 14 extends at an angle to the perpendicular when the device is in operating position.

The free end of pipes 15 and 16 are closed as by plugs 17. The plugs 17 are threadably mounted in sleeves 18 which are threadably mounted on the outer ends of the pipes 15 and 16. Each of the plugs 17 extends outwardly from the sleeve 18 and is provided with a vertically extending bore therein in which is fixed the upper sleeve portion 20 of a caster unit 21 having a stem portion 22 which is rotatably and removably mounted in the fixed sleeve portion 20 and which is fixed to a bifurcated bracket 23 having a wheel or roller 24 rotatably mounted therein. The caster 21 may also be provided with a bearing portion 25 if desired. The casters 21 may sometimes be referred to as wheels and may be of any desired construction, the particular caster shown being of conventional universal-swivel structure and being readily removable from the fixed caster sleeve 20 for replacement and the like.

The horizontal pipes 15 and 16 are each provided with a plurality of bores 30 forming a plurality of nozzles spaced along the lower front edge thereof. The bores 30 are positioned in a line in the lower front portions of the pipes 15 and 16 and are preferably positioned in pipes 15 and 16 at a point approximately thirty degrees below a horizontal plane bisecting said pipes so that water emitted from the pipes 15 and 16 through the bores or nozzles 30 will be directed downwardly against a surface supporting the sweeping device.

To further assist in directing water or other fluid from the pipes 15 and 16 downwardly onto a surface to be cleaned, there are provided deflectors or deflector plates 31 and 32, respectively, for the pipes 15 and 16. The deflector plates 31 and 32 are identical and if desired, a single deflector plate could be used, which would extend the entire length of the pipes 15 and 16. Each of the deflectors 31 and 32 is secured to the upper front surface of its corresponding pipe 15 or 16, as by welding, and extends downwardly and outwardly therefrom at such an angle that the free end thereof will be positioned in alignment with a horizontal line bisecting said bores 30. This may best be accomplished by securing the deflectors 31 and 32 to the pipes 15 and 16 and then bending the same until the lower edges thereof are in the desired position. The deflectors preferably extend at an angle of approximately fifty-five degrees from the horizontal.

It will thus be observed, with particular reference to Figures 2 and 4, that water being emitted from the bores 30 will strike the lower edge of the deflectors 31 and 32 which will cause said water to be sprayed outwardly in a fan-like projection from the deflectors 31 and 32 and also to be sprayed downwardly against the surface to be cleaned.

In order to protect the operator from any back spray from the nozzles 30, there is provided a

depending shield 35 pivotally connected to the lower surfaces of the pipes 15 and 16 as by eye-lets 36 suitably secured to the pipes 15 and 16. The shield 35 extends across substantially the entire width of the sweeping device and stops short of the ends thereof to leave sufficient room for the casters 21 at each end of the unit to pivot without interfering with or contacting the shield 35. The shield 35 normally depends in a vertical plane as the sweeping device is operated.

It will be observed that the device is shown in association with a surface S to be cleaned. As the device is used, it may be rolled along on its casters on the surface S with the handle 10 extending upwardly at an angle from the pipes 15 and 16 so that the nozzles 30 in the horizontal pipes 15 and 16 will be disposed in substantially the position shown in Figure 4. With the hose 13 connected to the device and to a source of water, the valve 12 may be opened to cause water to flow down through the handle into the pipes 15 and 16 and outwardly through the nozzles 30. The water will then be deflected by the deflector plates 31 and 32 and will spray against the surface S in a plurality of fan-like jets or sprays which will have a leading edge that is substantially straight. By spraying the water outwardly through these nozzles 30 in the fan-like sprays as described, additional force is effected and the sprays upon hitting the surface S, will tend to loosen dirt, oil, grease, debris and the like, so that the same will be moved ahead of the spraying device by the fan-like jets being emitted from the nozzle 30.

It is to be understood that the angles herein mentioned may be varied more or less without departing from this invention. By causing the water to be emitted from the pipes 15 and 16 through the nozzles 30 at an angle to the vertical, the sprays will tend to move any surplus water on the surface S in front of the sweeping device and will leave the area behind the device as the device passes over the surface S, substantially free from water to permit rapid drying thereof.

If desired, the horizontal pipes 15 and 16 and the T 14 could be in the form of a single horizontal pipe having a vertical pipe suitably secured intermediate the ends thereof as by welding. The ends of the horizontal pipe or pipes may be closed by any suitable means.

It is thus seen that there is provided a water sweeping device comprising a horizontal pipe portion and a vertical pipe portion, the vertical pipe portion being adapted to have a hose connected thereto and provided with cut-off means therein and said horizontal pipe portion being supported on wheels to permit the same to be moved over a surface to be cleaned in close proximity thereto, said horizontal portion also having a plurality of downwardly and forwardly directed nozzles therein to cause the water flowing through said vertical pipe portion and said horizontal pipe portion to be emitted from said nozzles in a plurality of sprays or jets against the surface to be cleaned.

Now, referring to Figures 5 to 8, inclusive, there will be observed a modified form of the invention wherein various details of construction are somewhat different from that shown in the first form. The modified form of sweeper comprises an elongated substantially vertically extending pipe portion 50 which is curved at the upper end thereof to form a handle portion which is preferably covered with insulating ma-

5

terial 51 and the upper end of the pipe 50 is also provided with a shut-off valve 52 and means for connecting a flexible hose 53 or the like thereto. The insulated handle 51 is provided in case it is desired to use steam or hot water in the device to protect the hands of the operator.

The lower end of the pipe 50 is secured to a horizontally disposed pipe 54 as by welding. The horizontally disposed pipe 54 is provided with suitable fittings 55 at the opposite end thereof which are threadably secured thereto and serve to close the opposite ends of the pipe 54. The fittings 55 each has a planar portion 56 to which is pivotally connected a caster unit 57 having an upper bearing portion 58 bearing against the lower surface of the planar portion 56 of the fitting 55. The caster unit 57 may be secured in position as by a nut 60. Each of the caster units 57 is provided with a wheel or roller 61 rotatably mounted therein.

The height of the caster unit 57 is sufficient to support the horizontally disposed pipe 54 in spaced relation to a surface S and to permit the sweeper to be moved over the surface S on the rollers or wheels 61, the casters being swivelly mounted to permit universal movement of the sweeper.

The front portion of the pipe 54 is suitably tapped and threaded as at 65 and in each of the threaded portions 65, there is threaded a nozzle 66. The nozzles 66 are identical and each has a hub portion 67 threadably secured in the pipe 54. The hub portion 67 is provided with a hollowed out portion 68 and a bore 69 extends through the nozzle 66 communicating with the hollowed out portion 68 and with the exterior of the nozzle. A transverse slot 70 extends across the face of the nozzle 66 and bisects the bore 69. The slot 70 serves to direct water or fluid being emitted from the bore 69 in a fan-like spray.

It will thus be observed that water or other fluid introduced to the upper end of the pipe 50 by means of the flexible hose 53 will flow downwardly through the pipe 50 and into the pipe 54 and out through the bores 69 or nozzles 66 to thus be directed downwardly in force against the surface S supporting the sweeping device. The sweeping device may thus be moved along the surface S to clean the same.

It will be noted in this form of the invention that the nozzles 66 are substituted for the bores or nozzles 30 in the pipe 15 of the invention. When using nozzles 66 to form the nozzles of the device, it is not necessary to have a deflector plate, such as deflector plates 31 and 32. However, it may be advisable to have a depending shield such as the shield 35 illustrated with the first form of the invention but this shield is omitted from the second form of the invention for purposes of clarity.

In the drawings and specification, there has been set forth a preferred embodiment of the invention and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of illustration, the scope of the invention being defined in the claims.

I claim:

1. A water sweeping device comprising an elongated vertically disposed pipe, means for connecting a hose to one end of said pipe, a cut-off valve in said pipe, a pair of horizontal pipes, the lower end of said elongated pipe being connected to the proximate ends of said horizontal

6

pipes, said horizontal pipes having casters mounted on the remote ends thereof for supporting the same for movement over a surface to be cleaned, said horizontally extending pipes having a plurality of spaced bores in the lower foremost portions thereof, deflectors secured to said horizontal pipes, said deflectors extending outwardly from said horizontally extending pipes and having their lower edges disposed in a horizontal plane bisecting said bores, whereby water introduced to said device through said elongated pipe will be emitted from said bores against the lowermost edges of said deflectors and then downwardly upon the surface supporting said device to clean the same, and a shield pivotally depended from the lowermost portions of said horizontal pipes and extending substantially the entire length of said horizontal pipes between said casters.

2. A mobile water sweeping device comprising an elongated substantially vertically disposed pipe, the upper end of said pipe forming a handle adapted to be grasped by an operator, said pipe having a cut-off valve positioned therein, the upper end of said pipe having a fitting therein adapted to receive a conduit for introducing water thereto, a pair of horizontally disposed pipes, a T connecting the proximate ends of said horizontally disposed pipes and having a branch extending upwardly therefrom, the lower end of said elongated vertically disposed pipe being connected to the branch of said T, the remote ends of said horizontally disposed pipes having a sleeve threaded thereon, a plug threaded in each of said sleeves for closing the remote ends of each of said horizontally disposed pipes, a removable caster unit mounted on each of said plugs for supporting said device in proximity to a surface to be cleaned and to permit movement of said device over said surface to be cleaned, said horizontally disposed pipes each having a plurality of spaced bores in the lower foremost portions thereof, a deflector plate secured to the upper foremost surface of each of said horizontally disposed pipes and extending outwardly and forwardly therefrom, the lower edges of each of said deflector plates being disposed in a horizontal plane bisecting said bores, a depending shield pivotally secured to the lowermost portions of said horizontally extending pipes and extending substantially the entire length of said horizontally disposed pipes between said casters, the height of said shield being less than the distance between said horizontally disposed pipes and the surface being cleaned when the device is positioned on the surface being cleaned, whereby water introduced to said elongated pipes through said fitting will be emitted from said bores in said horizontally disposed pipes against the lowermost edges of said deflector plates and then downwardly upon the surface supporting said device to clean the same as the device is moved over said surface on its caster units.

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