May 7, 1968 J. L. BISHOP, SR 3,382,101

METHOD FOR ERADICATING HYDROCARBON STAINS FROM CONCRETE SURFACES

Filed April 17, 1964 2 Sheets-Sheet 1

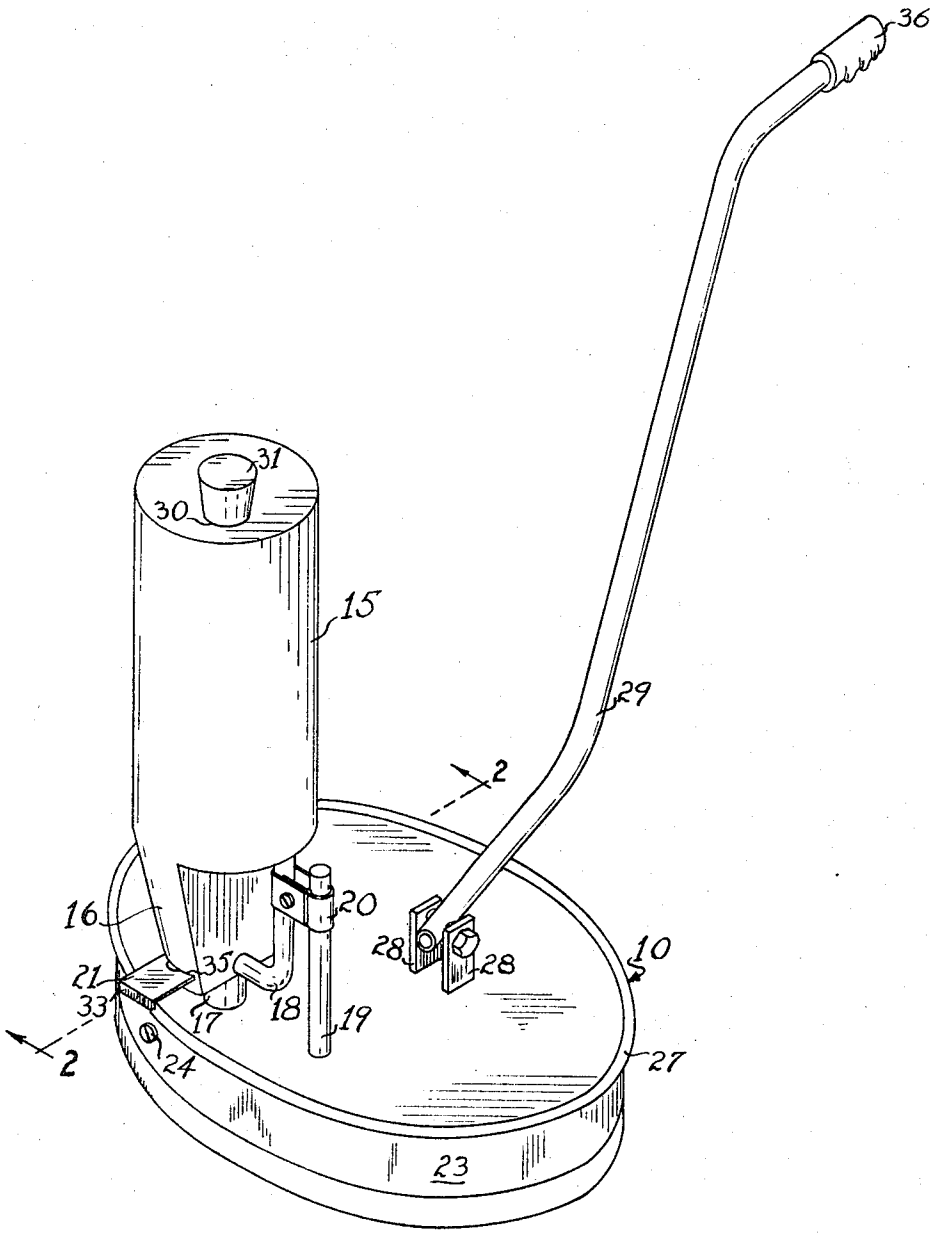


Fig 1

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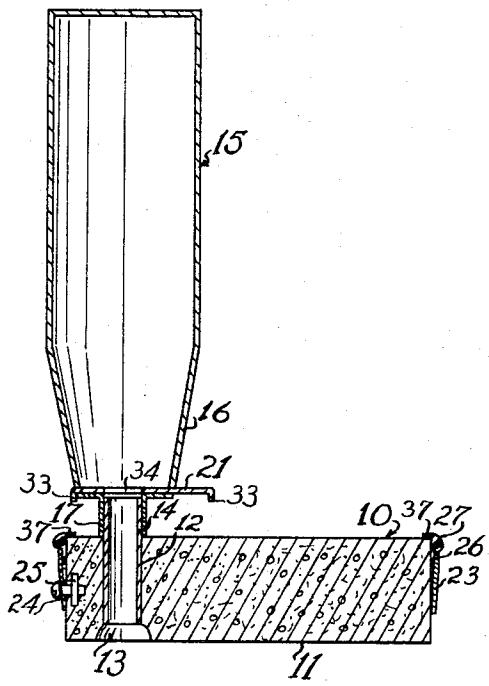


Fig 2

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METHOD FOR ERADICATING HYDROCARBON STAINS FROM CONCRETE SURFACES

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ABSTRACT OF THE DISCLOSURE

A method for eradicating oil and grease stains from concrete surfaces comprising the use of a concrete weight including a flat bottom surface and defining a bore extending vertically therethrough, a container mounted on the weight and communicating with the bore, and a valve member for controlling the flow of the eradicating substance from the container through the bore to the bottom surface of the weight, whereupon movement of the weight over the stain works and grinds the eradicating substance into the stain.

Heretofore the eradication of oil and grease discoloration has uusally been attempted by the use of strong cleaning reagents such as lye, mineral spirits, detergents and soaps of various types. In many instances such chemicals were compounded wtih abrasive materials and applied in accompaniment to scrubbing actions frictionally abrading a surface to eradicate the stain or spots thereof. In other instances absorbent material such as sawdust or the like has been applied to absorb the oil or grease and thereby diminish the extent of the discoloration.

By the method of the present invention, a decolorizing agent is applied to eradicate the stain. Further, the preferred agent of the present invention has, in combination wtih decolorizing properties, absorbent qualities by which oil or grease deposits may be lifted out of the surface.

Specifically, the method of the present invention resides in the application to the oil and grease stains of rough surfaces such as driveways, garage floors and the like of a decolorizing and absorbing agent, as for instance a clay of the kaolin family and particularly fuller's earth. The eradication of the stains is achieved by the distribution thereon of the fuller's earth and the application of pressure to completely pulverize the fuller's earth and force the particles thereof into the interstices of the surface thereby producing pressurized contact with the stains. Therewith a surplusage of the fuller's earth tends to absorb oil or grease which may thereafter be swept away, leaving a clean surface.

It is further to be noted that under pressure the fuller's earth may act as an abrasive to scarify the surface and expose occluded stains for decoloring action.

As distinguished from soaps, detergents and chemical reagents and hydrocarbons which are brushed or washed from the surface to be cleaned, thus impregnating surrounding earth, lawns, garden plots and the like destroying the surrounding vegetation; fuller's earth is substantially inert and produces no deleterious effect on such vegetation.

The apparatus employed in the method of the present invention is simple in deisgn and construction, effective and efficient in operation and well designed to meet the demands of economic manufacture. The particular embodiment herein set forth may be broadly defined as including a cast block of concrete or similar heavy material provided with means for dispensing a controlled supply of fuller's earth or equivalent decolorizing agent to the under surface. A manipulating means extending within easy reach of the operator is provided to move the block over the stained surface. In operation, movement

of the block over the rough stained surface effectively forces the fuller's earth into the interstices of the stained surface. Frictional action between the rough under surface of the block and the stained surface provides a helpful abrasive action. After the application of the decolorizing agent, surplusage of the material may be swept or washed from the surface to leave the surface free from stain, and without danger of adversely affecting the adjacent lawn, shrubbery, gardens or the like.

From the foregoing it will be seen that the present invention provides a novel, effective, efficient method of eradicating hydrocarbon stains from concrete surfaces of driveawys, patios, garage floors, brickwork and the like together with novel, improved means for the application of a decolorizing agent such a fuller's earth with pressure andf riction in order to intimately contact the decolorizing agent with the hydrocarbon stain to eradicate the color of the stain and absorb surface oil or grease.

Moreover, the present invention presents no sharp edges that may injure objects upon the accidental bumping thereof, during operation of the invention as well as presenting no edges of the invention itself that might chip or crack away during the accidental contacting of other objects.

These and other features and advantages of the present invention will be more clearly understood from consideration of the following specification in conjunction with the accompanying drawings in which like characters of reference designate corresponding parts throughout and in which:

FIG. 1 is a perspective view of one preferred embodiment of the present invention.

FIG. 2 is a vertical cross-sectional view taken along the line 2—2 of FIG. 1.

These drawings and the following detailed description disclose one specific embodiment of the present invention but the invention is not limited to the details disclosed herein, since the invention may be embodied in other specific forms.

In the apparatus of the present invention herein shown by way of example there is provided a relatively heavy elliptical shaped base member **10**, having a flat under surface **11** and may be conveniently formed of molded concrete or some similar weighty material. The under surface **11** of the base member **10** is purposely left unpolished to present a rough texture of abrasive character, and, in the movement of the base member **10** over a rough stained surface, this lower surface **11** frictionally contacts a stained surface due to the weight of the base member **10**. Thus a grinding, burnishing and abrasion action may take place between the under surface **11** and the stained surface to dislodge the stain producing particles from the stained surface. Movement of the base member **10** along its minor axis presents a wide area of contact perpendicular to the axis of movement while a minimum of material used in the manufacturing of the base member **10**. Moreover, the elliptical shape of the base member **10** presents no sharp vertical edges as shown in FIG. 1 to damage objects during the movement of the base member **10**.

A decolorizing agent deposited between the under surface **11** and a stained surface is distributed over a width of the stained surface equal to the major axis of the base member **10** upon movement of the base member **10** along its minor axis. However, the fuller's earth or some similar decolorizing agent acts not only as a decolorizing agent, but may also act as the buffing compound or lubricant, serving to ameliorate this grinding, burnishing and abrasive action while being forced into the interstices of the stained surface where it contacts the stain for decolorization.

The base member **10** defines a bore **12**, terminating at an open pocket **13** in the under face **11**. Within the bore **12**, there is snugly mounted a cylindrical tube **14** for directing the fuller's earth, or a like decolorizing agent, to the pocket **13** to be distributed by the under surface **11**. The pocket **13** allows the decolorizing agent flowing through the cylindrical tube **14**, to accumulate therein, rather than in the tube **14** and presents a large area of the stained surface to the decolorizing agent to facilitate the injection of the decolorizing agent between the under surface **11** and the stained surface.

For providing a continuous supply of the fuller's earth for use over sustained periods of operation a cylindrical container **15** is provided, which is a conventional polyethylene bottle of the type used in the packaging of detergents, bleaches, and the like. Moreover, the container **15** is flexible to prevent injury to accidentally bumped objects during movement of the base member **10**. As indicated in FIGS. 1 and 2, the container **15** has a reduced portion **16** flattened on one side to accommodate a curved handle **18**, and the container **15** is secured in the inverted discharging position shown by a vertical rod **19**, imbedded in base member **10**, together with an attaching clip **20**.

To facilitate the filling of the container **15**, an aperture **30** is provided in the top thereof as viewed in FIGS. 1 and 2. To prevent inadvertent spilling of the decolorizing agent from the container **15** through the aperture **30**, there is provided a cap **31** fixedly yet removably positioned in the aperture **30**. Thus, the present invention may be easily loaded while sitting on the stained surface to be cleaned without removing the container **15** from the vertical rod **19**, and may be used without the possibility of inadvertent tipping causing spillage of the decolorizing agent within the container **15**. The terminal portion of the cylindrical neck **17** integral with the reduced portion **16** engages the upwardly projecting end of the tube **14**.

For controlling the flow of the decolorizing agent from the container **15** through the neck **17** thereof and the tube **14** to the under surface **11**, there is slidably inserted through slots **35** in the reduced portion **11** of the container **15** immediately above the neck **17**, a flat apertured valve plate **21**. The valve plate **21** has a limiting lip **33** at each end thereof that serves to limit the movement of the valve plate **21** from that position whereby the aperture **34** in the valve plate **21** is registering with the neck **17** to that position whereby no flow of decolorizing agent through the neck **17** is permitted.

To preclude deterioration of the edges of the base member **10** by inadvertent contact with the objects whereby the base member **10** might be chipped, a metallic band **23** is provided and secured to the base member **10** around the periphery thereof, by screws **24** engageable through the band **23** with nuts **25** imbedded within the base member **10**. A bumper strip **26** of rubber or the like material is positioned behind the band **23** which terminates at the upper edge of the base member **10**. A bead **27** of the strip **26** extends peripherally around the upper edge of the base member **10** beyond the band **23** thereby precluding damage to objects with which the side of the base member **10** may come in contact, and an inwardly extending lip **37** extends over the base member **10** to preclude downward movement of the strip **26** to expose the edge of the base member **10** and injure objects during operation.

For manual manipulation of the device, spaced handle mounting ears **28** imbedded in the base member **10** pivotally secure a tubular handle **29** having a band grip **36** on the extending end thereof.

In operation, it will be understood that the method comprises the application to common stains on concrete of like surfaces of a decolorizing agent as for instance, fuller's earth, together with the pressure of the base member **10** and the rubbing of such material into the interstices of the stained surface. This pressure by the base member **10** produces a degree of friction, which may act to disengage the stain particles from the surface material and allow these particles to adhere to the surface of the particles of the decolorizing agent. A continuous and controllable supply of decolorizing agent is supplied by the container **15** through the aperture in the stop plate **21** and the cylindrical tube **14** for distribution over the stained surface by movement of the base member **10**.

It will be obvious to those skilled in the art that many variations may be made in the embodiment chosen for the purpose of illustrating the present invention without departing from the scope thereof as defined by the appended claims.

What I claim as my invention is:

1. A method of eradicating hydrocarbon stains from a substantially flat horizontal concrete surface comprising:
   - engaging the stain of the surface with the substantially flat concrete face of a heavy object,
   - distributing fuller's earth through the concrete face over the stain of the surface,
   - working the concrete face of the heavy object over the stain to grind the fuller's earth into the interstices of the surface about the stain, and
   - removing the fuller's earth from the surface.

2. The invention if claim **1** wherein the step of distributing fuller's earth comprises continually feeding fuller's earth through the face of the heavy object at a controlled rate.

3. A method for eradicating hydrocarbon stains from concrete surfaces, said method comprising the steps of:
   - distributing fuller's earth over the stains, grinding the fuller's earth with the substantially flat face of a concrete weight into the interstices of the surface by working the weight over the stain, and distributing additional fuller's earth over the stain through the weight as the weight is worked over the stain.

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