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LIQUID SPREADING DEVICE

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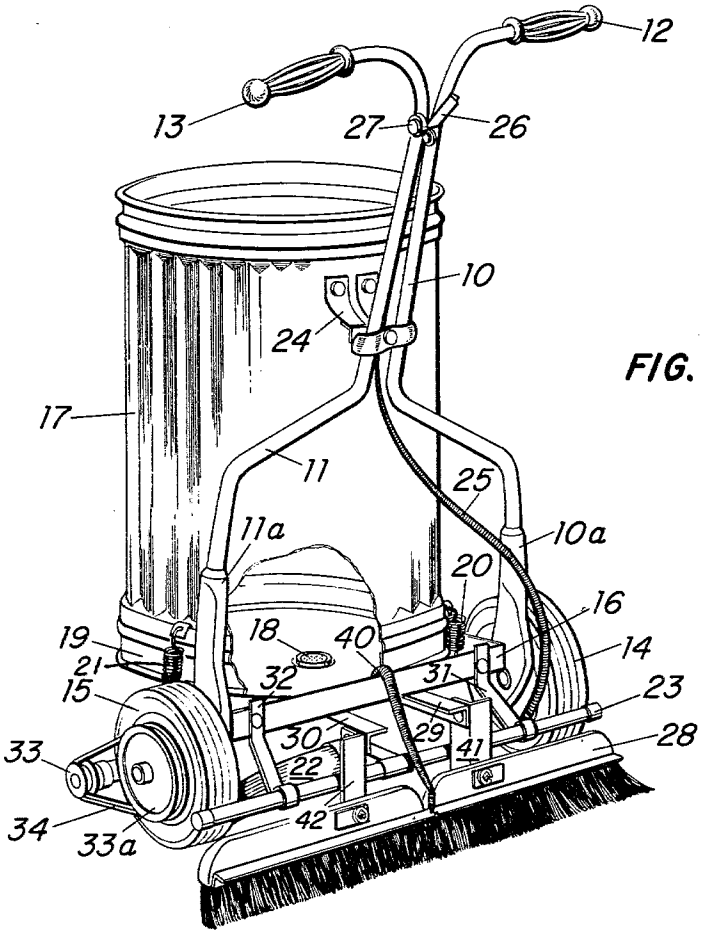


FIG. 1.

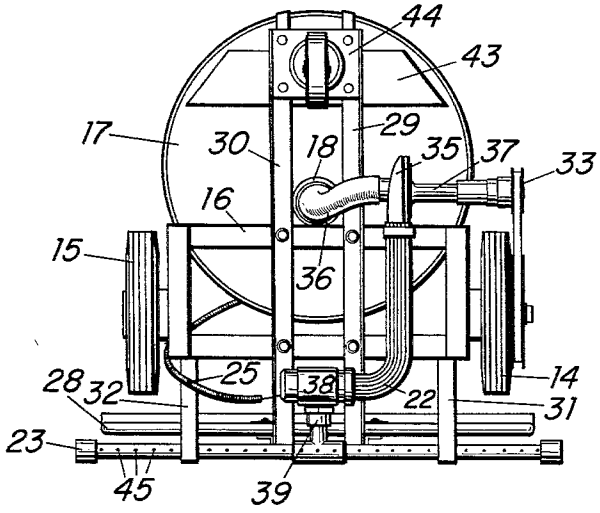


FIG. 2.

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LIQUID SPREADING DEVICE

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The present invention relates to cleaning devices. More particularly, the invention relates to devices for washing floors. More especially, the invention relates to a liquid laying device, i.e., a device for applying and spreading liquid to a surface in controlled manner.

In the prior art it has been the custom to apply cleaning liquids to a surface such as a plane floor surface by wetting a mop and moving the wetted mop about. Such a mechanism for wetting floor surfaces is inefficient, and extremely erratic with respect to the application of a predetermined degree of liquid as well as the depth of liquid employed. It is therefore highly desirable to provide a liquid-laying device which eliminates the need for time consuming, intermittent applications of the liquid.

It is therefore an object of the invention to provide an improved liquid spreading device for applying liquid onto a surface at a predetermined rate and in a predetermined depth.

A further object of the invention is to provide an improved liquid spreading device which is more efficient.

Still another object of the invention is to provide an improved liquid spreading device that is highly maneuverable.

Yet another object of the invention is to provide an improved liquid spreading device which is highly efficient in operation.

Other and further objects of the invention will be apparent from the following description taken in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In accordance with the invention there is provided a liquid spreading device. The device includes a movable carriage means. A vertically displaced container is coupled to the carriage for storing liquid to be spread. An elongated conduit is coupled to the carriage transverse to the direction of motion of the carriage. The conduit has linearly disposed outlets and is coupled to the container for conducting the fluid from the container to the outlets. Valving means are coupled between the container and the conduit for controlling the flow of the liquid. Pump means are coupled to the container and the carriage for propelling the liquid through the conduit at a relatively constant pressure. The pump means is inoperative when the liquid extends above a predetermined level in the container. A brush-like spreader means is coupled to the carriage and the conduit. In this manner the liquid is conducted from the conduit through the brush-like spreader onto a surface. The spreader means is retractable.

In the drawings:

FIG. 1 is a rear perspective view of a liquid spreading device embodying the invention; and

FIG. 2 is a bottom view of device in FIG. 1.

Referring now to the drawings and with particular reference to FIG. 1, there is here illustrated a liquid spreading device embodying the invention. The device includes a movable carriage means having a bifurcated yoke structure with members **10** and **11** formed to provide handles **12** and **13**. The yoke members **10** and **11** are coupled to a pair of wheels **14** and **15** which are supported by means of ball-bearings, which are not shown, carried on axles connected to the members **10** and **11**. A platform **16** is carried by the flanged ends **10***a* and **11***a* of the yoke members **10** and **11**. The platform frame **16** supports a container **17** for storing the fluid to be spread. The cutaway view of the container reveals an opening **18** in the

bottom of the container for releasing the fluid. The container has an annular band **19** surrounding it for attachment to a pair of spring members **20** and **21** to provide additional support. The members **20** and **21** are attached to the platform **16**. The outlet **18** is coupled through a flexible hose **22** through a valve to a conduit **23**. The yoke members **10** and **11** are attached together and to the container **17** with a bracket **24**. A cable release **25** is coupled to a manual control lever **26** which is attached to the members **10** and **11** by means of an enclosed shaft **27**. A brush-like spreading member **28** is connected, for example, with nuts and bolts to a pair of brackets **41** and **42** which are pivotally connected to frame members **29** and **30** which are, in turn, attached to the support frame **16**.

The conduit **23** is supported by a pair of brackets **31** and **32** which are connected to the frame **16**, for example, by bolts and rivets. A drive pulley **33***a* is connected for rotation with the wheel **15**. The pulley **33***a* is coupled to a smaller drive pulley **33** through a drive belt **34**. The pulley **33** is coupled through a shaft to a pump **35** shown particularly in FIG. 2. There a flexible hose section **36** extends between the outlets **18** and the container **17** and a force pump **35**. The pump is coupled to the pulley **33** through a drive shaft **37**. The flexible hose **22** is coupled to a control valve **38** which is coupled through a pipe **39** to the conduit **23**.

As shown in FIG. 2 the brush member **28** is retracted from its spreading position. The member **28** is rotatable against the spring tension of a spring member **40** shown particularly in FIG. 1. Member **28** is fastened to a pair of brackets **41** and **42** which are rotatably attached to the support frame members **29** and **30**. Attached to the members **29** and **30** is a support base member **43**. A caster wheel assembly **44** is attached to the frame members **29** and **30** as shown in FIG. 2 to provide additional movable bearing support for the container **17**. Referring again to FIG. 2 it may be seen that the conduit **23** has formed therein a linearly disposed series of orifices **45** providing outlets for the liquid.

In operation the lever **26** is rotated in a position for controlling the valve **38** to permit free fluid flow through the outlets **45** of the conduit **23**. The handles **12** and **13** are manually grasped and the yoke structure is pushed to rotate the wheels **14** and **15**. When the container **17** is fully filled the force of gravity is sufficient to provide a relatively steady pressure to control the flow of fluid through the conduit **23**. The brush member **28** is extended into contact with the surface to be wetted. Fluid flows from the container **17** through the opening **18**, hose **38**, pump **35**, hose section **22**, valve **38**, pipe **39** through the conduit **23** out through the orifices **45**. The fluid flow is directed to the member **28** by introducing the flow of liquid ahead of the member **28**. The motion of the carriage forwardly causes the brush member **28** to capture the liquid and spread it on the surface. When the fluid level drops to a point below which the force of gravity overcomes the action of the pump **35**, the pump **35** operates to maintain fluid under relatively constant pressure flowing through the conduit **23**.

Any of a number of well-known rotary force pumps for liquids may be useful in the invention. The valve may be the well-known on-off hot water control valve and operated mechanically as shown or with an intermediate solenoid.

It will be apparent from the foregoing description that the present invention has broad application to the problem of spreading liquid in a controlled manner on a surface.

While there has hereinbefore been presented what is at present considered to be the preferred embodiment of the invention, it will be apparent to those of ordinary

skill in the art that many and various changes and modifications may be made with respect to the embodiment described and illustrated without departing from the spirit of the invention. It will be understood, therefore, that all such changes and modifications as fall fairly within the scope of the present invention, as defined in the appended claims, are to be considered as a part of the present invention.

What is claimed is:

1. A liquid cleaning solution spreading device, comprising:

a movable carriage means having a bifurcated yoke structure with yoke members formed to provide handles;

a pair of bearing supported wheels carried on axles coupled to the ends of said yoke members;

a platform means coupled between said yoke member ends and carried thereby;

a container carried by said platform for storing said liquid cleaning solution and having an outlet in the bottom of said container for releasing said cleaning solution;

valve means coupled through a flexible hose to said container outlet;

elongated, perforated conduit means coupled to said valve means for releasing said cleaning solution through said perforations;

rotary force pump means coupled between said valve means and said flexible hose to said container outlet;

drive means coupling one said wheel and said pump means for driving said pump when said device is in motion, said pump operating to maintain fluid pressure relatively constant through said elongated, perforated conduit after the fluid level in said container drops to a point below which the force of gravity overcomes the action of said pump; and

a retractable brush-like spreader means pivotally coupled to said carriage means and said conduit whereby said liquid solution is conducted from said conduit through said brush-like spreader onto a surface.

2. The device of claim **1**, wherein:

an additional front wheel is coupled to said platform to provide extra support for said container.

3. The device of claim **1**, wherein:

a cable release control is coupled from said yoke structure to said valve means.

4. The device of claim **1**, wherein:

an annular band surrounds said container and is resiliently coupled to said platform.

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