

[54] **CLEANING DEVICE**

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239/288.5

[51] Int. Cl. **B08b 3/02**

[58] Field of Search **4/256; 134/172, 198, 166, 167,**
134/183; 239/288.5

[56]

References Cited

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[57]

ABSTRACT

This is a device for cleaning by the use of water or other liquids in which the cleaning is accomplished by a jet of liquid properly contained to avoid splashing and to concentrate the cleaning effect, in which a rubber cup is used to confine and assist in cleaning.

2 Claims, 4 Drawing Figures

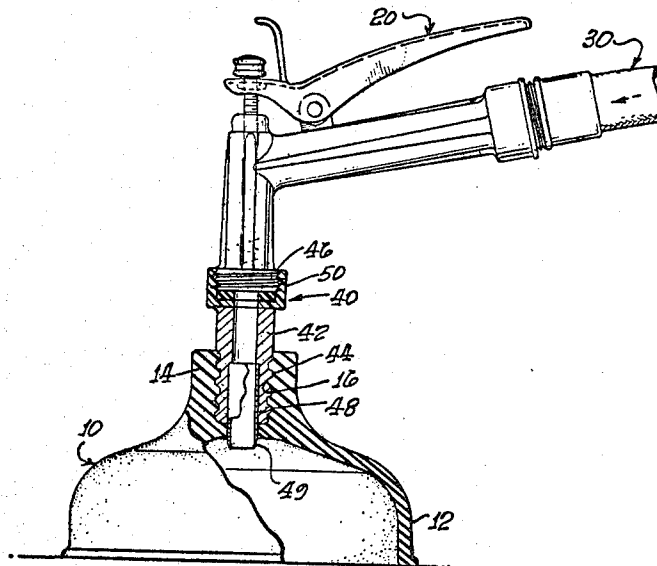


FIG. 1.

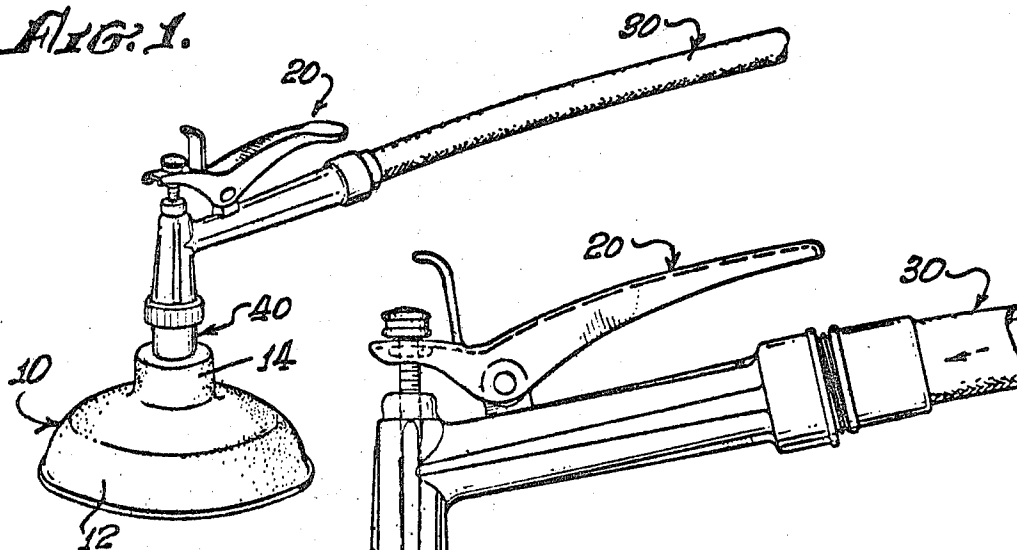


FIG. 2.

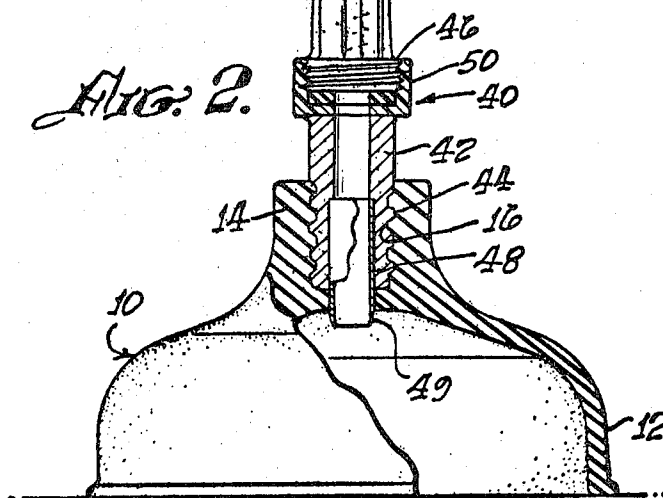


FIG. 3.

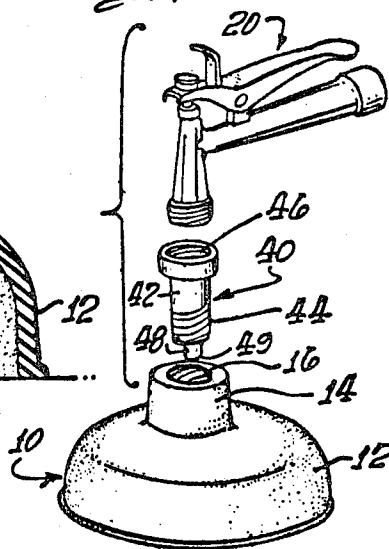
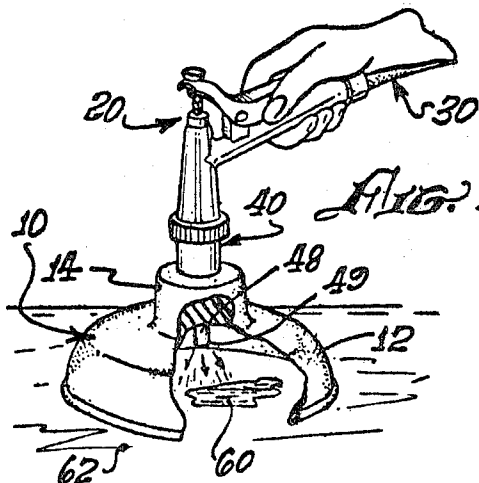


FIG. 4.



CLEANING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention is in the general field of cleaning devices and particularly pertains to a device adaptable to clean limited areas by jet action and so arranged that overspray and the like are contained within a very limited, confined area.

2. Description of the Prior Art

I am acquainted with a great deal of art in this field. The field of cleaning, and particularly cleaning by means of a jet stream, is an extremely crowded field.

The great requirements for appropriate cleaning within limited and concentrated areas, and particularly where liquid pressures and/or corrosive materials may be employed, has led to many developments designed to eliminate the many problems inherent.

Some of the U.S. Pats., for example, which might be deemed to be in the general field are as follows: Nos. 1,804,874; 2,736,906; 2,086,149; and 937,458.

I have examined the foregoing patents and other devices related to this field of endeavor and have come to the conclusion that there was still the need of a greatly improved device which could be made quite economically, controlled easily, and used widely. Such a device is the result of my investigation, development and inventive work, and is represented by this patent application.

SUMMARY OF THE INVENTION

This invention employs any type of liquid being delivered by appropriate pressure means. In its most common application, the device might use ordinary water pressure. In more sophisticated applications, the same device is suitable for the use of caustic or acid materials, material containing abrasives or detergents, steam jets, and the like.

I have combined a unique and new coupling arrangement with certain known devices available on the market and frequently available to the person desiring to perform specialized cleaning activities, the end result of which has been a unique combination with such items to provide an economical, easily used and safe jet stream cleaner.

I have done this by taking a proper flexible cup or the like to use as a shielding device and, also, to use for applying extra pressure, if desired in limited areas, together with an appropriate jet nozzle arrangement and an intermediate coupling combining suitable means to properly intercommunicate with the interior of a flexible cup device for proper application of pressure.

It is an object of this invention to provide a new and unique jet cleaning device utilizing a flexible and suction-like device for concentrating the action of the jet stream together with an intercommunicating means for inserting the jet stream.

It is a further object of this invention to provide a device as above mentioned in which, by a unique combination, certain commonly existing articles may serve a dual purpose.

It is a further object of this invention to provide a device as above described suitable to carry many different jet streams.

The foregoing and other objects and advantages of this device will be clear to those skilled in the art upon reading the detailed description of a preferred embodiment which follows, in conjunction with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of a preferred embodiment of a device utilizing the principles of this invention;

FIG. 2 is an enlarged cross-section on FIG. 1;

FIG. 3 is an exploded view of the various parts of this invention; and

FIG. 4 is a partially broken away perspective showing the device in use.

DESCRIPTION OF A PREFERRED EMBODIMENT

This invention is shown to consist of four (4) basic parts:

There is a shield 10 which also acts as a suction device when desired and as will be fully explained below; an appropriate nozzle arrangement 20 is provided for injecting the jet spray; a source of jet spray 30 is adaptable to connect with the nozzle arrangement; and a connection adapter 40 is provided for properly joining the nozzle and the shield in a proper operative and cooperative arrangement. The shield 10 is preferably a rubber suction cup such as the commonly known and usually available "plumber's helper." Customarily, such a device will consist of a suction cup 12 or the like with specialized threads 16 in a boss 14 on the top, such threads being of a normally standard pitch designed to intercommunicate with and cooperate with a wooden handle or the like for operating the plumber's helper. Normally at the base of the threads there will be a rubber web which is a part of the suction cup proper.

There are commonly used spray nozzles such as nozzle 20 usually with a pistol grip-like arrangement for opening, closing and adjusting the flow of liquid. Such nozzles are available in almost every location and normally have a specialized thread 46 at their open end such as a garden hose-type thread.

If it was desired directly to connect the nozzle and the suction cup of the type described, it would be found to be relatively impractical because of the web of rubber and also because the two would not make a firm seal, one with the other.

In the preferred embodiment shown, a hose 30 is indicated as being connected to the inlet of the nozzle arrangement, it being understood that the hose will be connected to a suitable source for the jet stream such as a steam generator, water under pressure, suitable acid, caustic or other material, and there can be additional inlets, not shown, for adding abrasives and similar matters as is well known in the art.

The construction of the shield 10 is seen to be in the shape of a rubber cup 12 having a boss 14 for connection. The construction of the nozzle is well known and, for example, will consist of the various elements as indicated, including valving arrangement and orifice control for adjusting the liquid flow.

The important connecting adapter which allows the various other portions to work cooperatively with one another to achieve the desired result comprises a main body portion 42 having threads 44 near one end, which threads are suitable to adapt to and fit the threads 16 in the suction cup shield 10.

Depending outwardly from this threaded end is a thin-wall tubular extension 48 having a sharpened edge 49 for cutting the rubber under the threaded boss and providing a sealed passageway for the jet stream to enter the shield.

The other end of the adapter is enlarged as indicated at 50 and is provided with internal threads 46 suitable to engage the external threads on a standard water hose nozzle or the like.

A passageway extends through the entire length of the unit, as indicated in the drawings, so that the jet stream will flow from its connecting hose through and be discharged at the cutter end.

In use, the entire item is assembled as shown into one cooperative piece being connected together with the unique cooperative attachment arrangement 40 and by properly activating the nozzle valve, the jet stream is forced into the cup 10. The cup may be held tightly against a surface, particularly if there is a drainhole through the surface, and the liquid may be forced through the drainhole for the purpose of cleaning the same or otherwise.

Likewise, the unit may be tilted slightly so that most of the jet stream is confined but that there is allowed an area about the perimeter of the shielding cup to allow the excess liquid to be removed. The positioning and use in individual circumstances will vary depending upon the needs of the particular application and the techniques of the operator. It will be seen that grease or the like 60 on concrete floors 62 and the like can be subjected to concentrated action while the rest of the area may be relatively protected.

By properly pressing downward or upward against the cup alternately, additional pressure or suction may be formed on the area being cleaned for additional actions.

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While the embodiment of this invention shown and described is fully capable of achieving the objects and advantages, modifications may occur to those skilled in the art without departing from the inventive concepts disclosed. The exact embodiment shown is for illustrative purposes not for limitation.

I claim:

1. A jet cleaning device comprising a source of cleaning material; regulatable nozzle means for adjusting the flow of cleaning materials attached to, and regulating the flow from, said source of cleaning material; suction cup means to confine and shield said cleaning material in use, attached to said nozzle by a removable connecting adapter having a passage through its length for passing cleaning materials from said nozzle to said suction cup means, and in which said connecting means is provided with threads on one end cooperable with threads on said suction cup means to attach the two, with a cutting device depending from the end connecting to said shield means capable of cutting through the material of which

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said suction cup is formed and making a seal therein so as to form a sealed passage into said suction cup, and in which said connecting device is provided at its other end with threads suitable to connect to said nozzle means.

2. A device for cleaning comprising a source of cleaning fluid; nozzle means to control said cleaning fluid, including an orifice for increasing the speed of travel and pressure of such materials; connector means attached at one end thereof to said nozzle at the end opposite the end of connection of said fluid cleaning source, said connector having an elongated, hollow body terminating on the exterior of its other end with threads suitable to engage the threads of a flexible shielding device, and having depending therefrom at its interior a cutting device suitable to cut through flexible materials; and a cup-like suction device threadedly connected to the said external threads in such manner that the interior of said connection device intercommunicates with the interior of said shielding arrangement.

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