

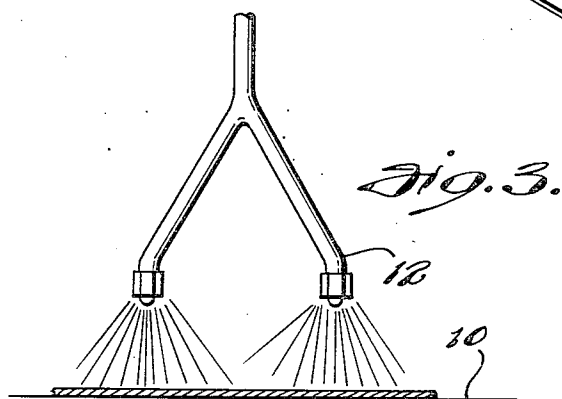
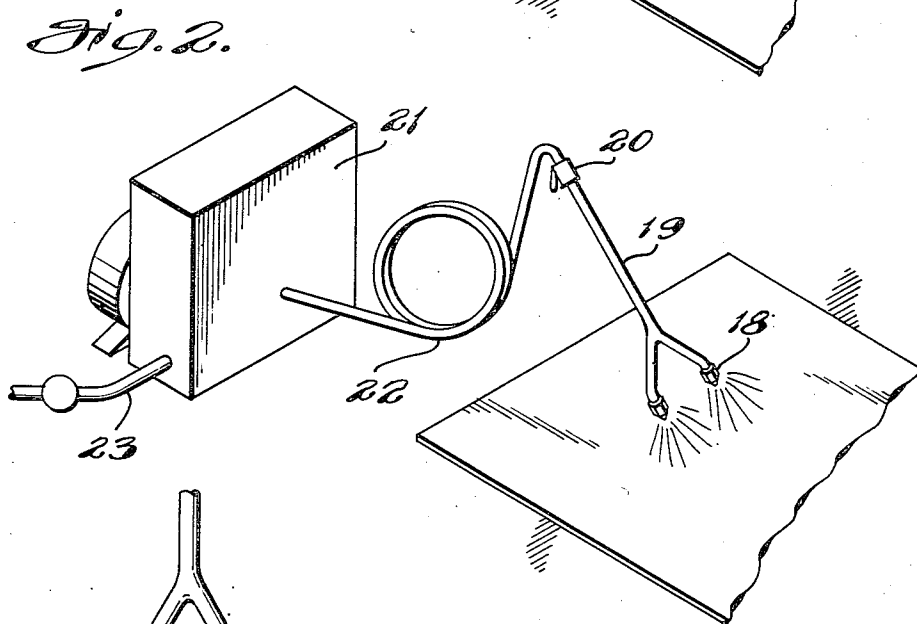
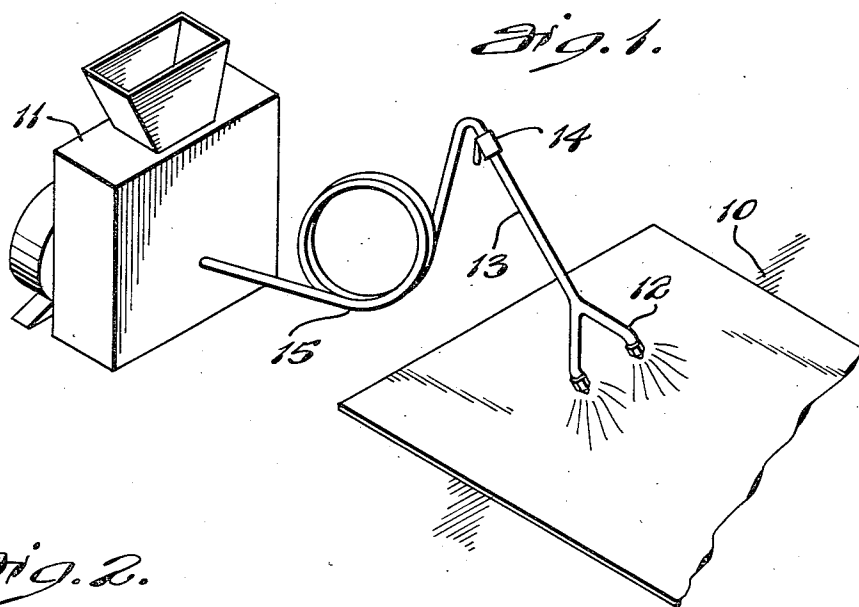
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METHOD OF CLEANING RUGS

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METHOD OF CLEANING RUGS

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This invention relates to a method of cleaning rugs. Rugs are usually cleaned by beating the same to remove as much as possible of the foreign matter such as dust, dirt and the like, after which the under sides of the rugs are rinsed with water, then scrubbed with a soap or detergent solution, and then rinsed with water to remove the soap or detergent solution. The upper faces of the rugs are then scrubbed with the soap or detergent solution, squeezed, and rinsed to remove the soap solution, after which they are run through wringers to remove as much of the water as possible, and then hung to dry. This method requires considerable handling of the rugs and the use of cumbersome and expensive machinery or equipment.

The beating is performed in a beating machine in which the rugs are run through one at a time to progressively present a rug to the action of straps secured to a revolving spindle which are caused to strike against the under side of the rug by the centrifugal action of the speed of the rotating spindle. The rug travels through the machine on an endless platform and the dust from the beating operation is conducted off by a blower and discharged into bags. A considerable portion of the dust escapes from the machine, however, so that the inside of the building where the cleaning operation takes place is usually enveloped in a cloud of dust.

The scrubbing operation is usually carried out by means of a motor-driven rotary brush which is moved by hand over the faces of the rugs to impart a rotary motion of the bristles thereagainst and to apply a soap or detergent solution with the rotation of the bristles. The rugs are rinsed by means of a hose connected with the street supply main for directing a stream of water thereagainst at the usual water pressure of approximately 40 pounds per square inch. The rugs are squeezed by means of a scraper or squeegee which is moved by hand over the faces of the rugs and the wringers consist of upper and lower pressure rollers between which the rugs are drawn. The aforesaid machinery requires considerable floor space for the handling of the rugs and feeding of the same thereto and the straps of the beating machine and the brushes of the scrubbing machine, and the scraper or squeegee require frequent replacement from time to time.

The present invention comprehends a method of cleaning rugs and the like which eliminates the necessity of using the aforesaid beating and brushing machines and the squeezing device, and also eliminates the repeated handling of the rugs which is made necessary by the use of such machines.

An object of the present invention is to provide a

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method of cleaning rugs by which the rugs are expeditiously cleaned and which is efficient and removes substantially all of the solid foreign matter and dust, dirt, stains and the like from the rugs.

Another object of the invention is to provide a method of cleaning rugs and the like which is carried out by applying a soap or detergent solution to one of the faces of a rug under relatively high pressure to effect a complete penetration of the fibers of the rug with the solution and a wetting and loosening of the foreign matter, and by applying rinse water under relatively high pressure and velocity against the said face of the rug to rinse and flush away the soap or detergent solution together with the foreign matter in suspension therein, and thereafter to repeat the cleaning and flushing operations on the other side of the rug.

Still another object of the invention is to provide a method of cleaning rugs by which the rugs are subjected to a soap or detergent solution and to rinse water under relatively high pressures such as 100 to 800 pounds per square inch at the outlets against the rugs, and preferably at a pressure between 250 to 450 pounds per square inch for efficient operation and expeditious cleaning.

The method may be carried out by the use of the equipment shown in the drawings, in which,

Fig. 1 is a perspective view showing the apparatus employed in carrying out the step in the method of applying the soap or detergent solution.

Fig. 2 is a perspective view of the apparatus employed in carrying out the step in the method of applying the rinse water.

Fig. 3 is a view in elevation showing the manner in which the soap or detergent solution and the rinse water are applied.

In carrying out the method, the rugs are arranged on a flat support, preferably a concrete floor, upon which the rugs are disposed in flat formation to adequately support the rugs against the pressure of the soap or detergent solution and the rinse water. As illustrated, a rug is placed in position on a flat support indicated generally by the reference character 10, with one side thereof disposed uppermost such as the under side, and the soap or detergent solution applied against the said side of the rug through one or more outlets under a pressure of 100 to 800 pounds per square inch, and preferably at a pressure between 250 to 450 pounds per square inch. The soap or detergent solution is fed to a pump such as the motor-driven pump 11 and is applied against the rug in the form of jets issuing from one or more nozzles 12 located at the lower end of a tubular member 13 having a valve 14 at its upper end and connected with the outlet of the pump by a hose section 15. The nozzles 12 are arranged to direct the solution in the form of a plurality of downwardly directed jets which spread out from each of the nozzles in the form of a fan and issue therefrom at the pressure desired which is preferably between 250 to 450 pounds per square inch at the nozzles for expeditious cleaning of the rug. The tubular member 13 is held by an operator to dispose the nozzles about 12" from the rug and beginning at one end of the rug, the operator directs the solution against the under side thereof from one side to the other and then continues back and forth and forwardly until the solution is applied to the entire surface of the rug. The pressure of the jets effects a com-

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plete penetration of the interstices and the fibers of the rug and a wetting and loosening of the foreign matter which is washed away by suspension thereof in the solution.

After the soap or detergent solution has been applied as aforesaid to the under side of the rug, rinse water is then applied thereto from one or more nozzles under pressures of 100 to 800 pounds per square inch, and preferably at a pressure between 250 to 450 pounds per square inch. As illustrated in the drawings, the rinse water is applied against the rug in the form of jet sprays issuing from one or more nozzles 18 located at the lower end of a tubular member 19 having a valve 20 at its upper end and which is connected with the outlet of a pump such as the motor-driven pump 21 by a hose section 22. The pump 21 is connected by piping 23 with the water supply main (not shown) and which pump provides the desired pressure at the outlets of the nozzles. The tubular member 19 together with the nozzles 18 are similar to the tubular member 13 and nozzles 12 for directing the soap or detergent solution, and in directing the rinse water the tubular member 19 is held by the operator to dispose the nozzles about 12" from the rug, which is applied to the under side of the rug from side to side until the entire under surface thereof is rinsed so as to flush away and remove the soap or detergent solution together with the solid foreign matter in suspension therein.

The rug is then turned to dispose the right side thereof uppermost and the aforesaid cleaning and rinsing operations repeated.

This method has distinct advantages over the old methods and in addition to eliminating the use of expensive and cumbersome machinery, the aforesaid method of the invention effects a more complete penetration of the fibers of the rugs with the soap or detergent solution and with the rinse water so as to brighten and remove substantially all of the foreign matter from the rugs and produce a more hygienically clean rug. Furthermore, by the method of the invention the foreign matter is removed by the rinse water and the same does not escape into the atmosphere in the form of dust which has been one of the occupational hazards to the workers by the use of the beating machine in the method heretofore employed. More hygienic working conditions for the workers can thus be obtained by the use of the method of the invention and due to the thorough rinsing and removal of the soap or detergent solution browning or burning of cotton fibers in the rugs as well as browning and discoloration of the fringes thereof is eliminated. This frequently happens by the soap or detergent solution remaining in the rugs when the rinse water is at the pressure of the street main as in the methods heretofore employed. The use of rotary brushes to clean and apply the soap or detergent solution imparts a swirl to the pile of the rug which is clearly noticeable when the rugs are dried. The action of the rinse water under relatively high pressure, in the invention, effects a smoothening of the pile uniformly in one direction.

What is claimed is:

1. A method of cleaning rugs which consists in supporting a rug flatly on a support with one face outermost, applying a cleaning solution in the form of a spray at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch entirely over the outermost face of the rug, applying rinse water in the form of a spray at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch entirely over said face of the rug, supporting the rug flatly on a support with the opposite face outermost, applying a cleaning solution in spray form at the aforesaid pressure entirely over said opposite face of

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the rug, thereafter applying rinse water in spray form at said pressure entirely over said last mentioned face of the rug, and developing the necessary pressure directly on the cleaning solution and rinse water by passage of said solution and water through mechanical pump means.

2. A method of cleaning rugs which consists in supporting a rug flatly on a support with one face outermost, applying a cleaning solution in the form of a spray at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch projected at a distance of approximately twelve inches entirely over the outermost face of the rug, applying rinse water in the form of a spray at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch projected at a distance of approximately twelve inches entirely over said face of the rug, supporting the rug flatly on a support with the opposite face outermost, applying a cleaning solution in spray form at the aforesaid pressure and distance entirely over said opposite face of the rug, thereafter applying rinse water in spray form at said pressure and distance entirely over said last mentioned face of the rug, and developing the necessary pressure directly on the cleaning solution and rinse water by passage of said solution and water through mechanical pump means.

3. A method of cleaning rugs which consists in applying a cleaning solution in the form of a spray at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch entirely over one face of a rug, applying rinse water in the form of a spray at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch entirely over said face of the rug, supporting the rug flatly on a support with one face outermost during said cleaning and flushing operations to withstand the said pressure thereagainst and to permit the solution and rinse water to spread thereover, applying a cleaning solution in spray form at the aforesaid pressure entirely over the opposite face of the rug, thereafter applying rinse water in spray form at said pressure entirely over said last mentioned face of the rug, supporting the rug flatly on a support with said opposite face outermost during said last mentioned cleaning and flushing operations to withstand the said pressure thereagainst and to permit the solution and rinse water to spread thereover, and developing the necessary pressure directly on the cleaning solution and rinse water by passage of said solution and water through mechanical pump means.

4. A method of cleaning rugs and the like comprising disposing the rugs flatly on a support with the area to be cleaned outermost, applying a cleaning solution progressively over the area to be cleaned in spray form issuing at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch, and thereafter applying rinse water progressively over said area of the rug in spray form issuing at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch, and developing the necessary pressure directly on the cleaning solution and rinse water by passage of said solution and water through mechanical pump means.

5. A method of cleaning rugs comprising supporting a rug flatly on a support with the area of the rug to be cleaned disposed outermost, applying a cleaning solution progressively over the area of the rug to be cleaned in spray form issuing at approximately twelve inches from the rug at a pressure of not less than one hundred pounds per square inch and not more than eight hundred pounds per square inch, thereafter applying rinse water to said area of the rug progressively over said area in spray form issuing at approximately twelve inches from the rug at a pressure of not less than one hundred

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pounds per square inch and not more than eight hundred pounds per square inch, and developing the necessary pressure directly on the cleaning solution and rinse water by passage of said solution and water through mechanical pump means.

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