

April 7, 1953

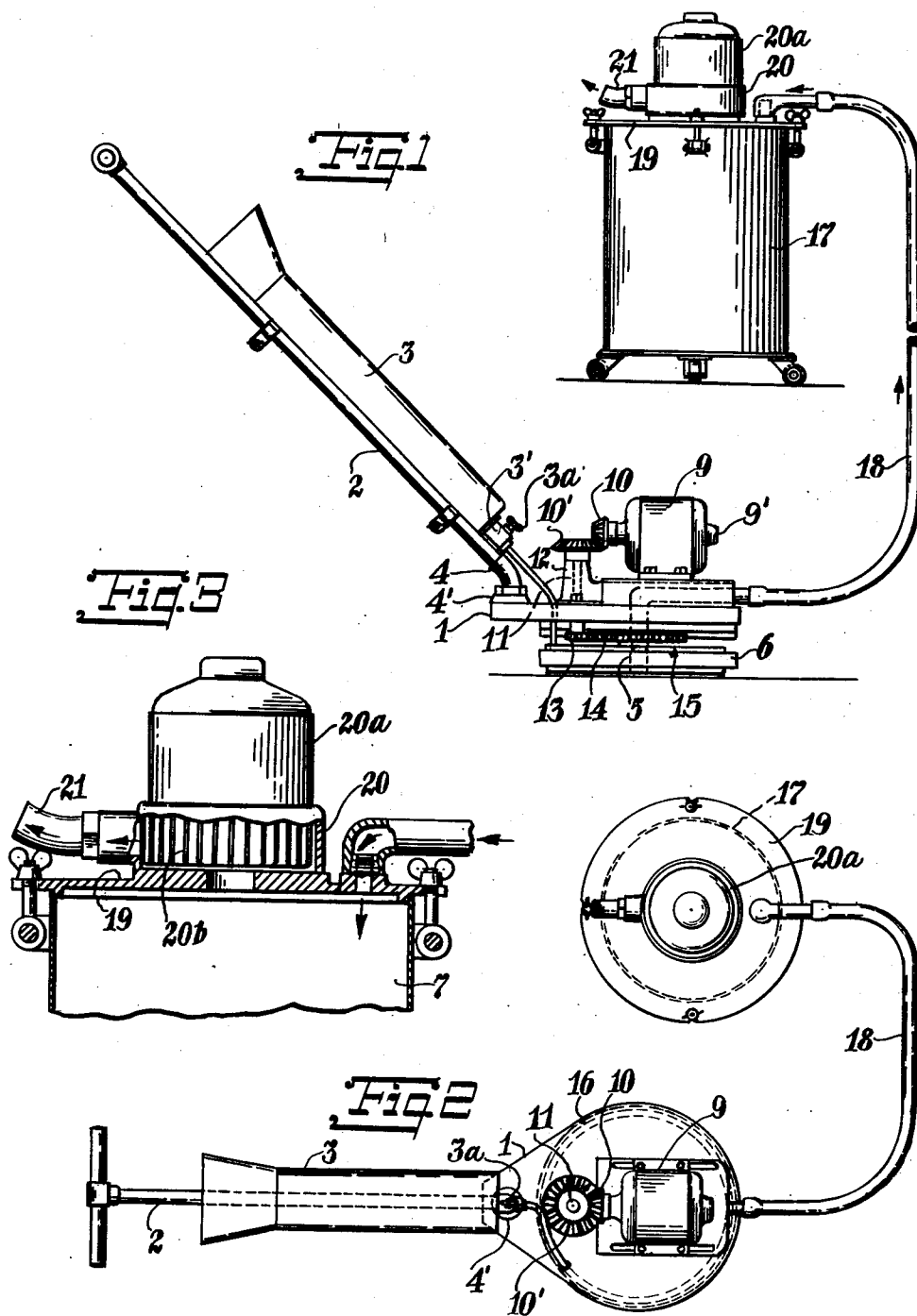
E. BERBERIAN

2,633,595

RUG CLEANING AND SHAMPOOING MACHINES

Original Filed Nov. 17, 1941

2 SHEETS—SHEET 1



INVENTOR.

Edward Berberian

BY

Joseph F. O'Quinn
ATTORNEY

April 7, 1953

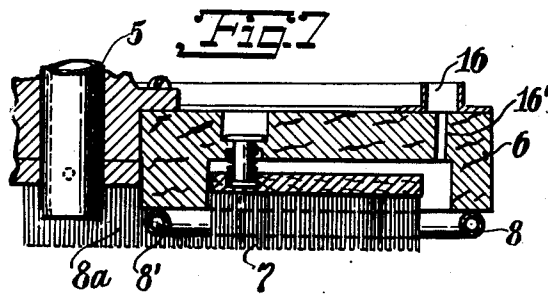
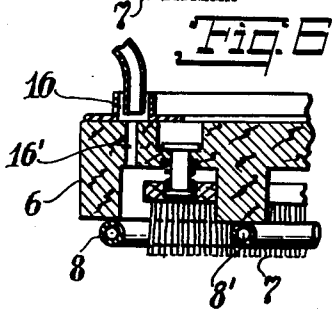
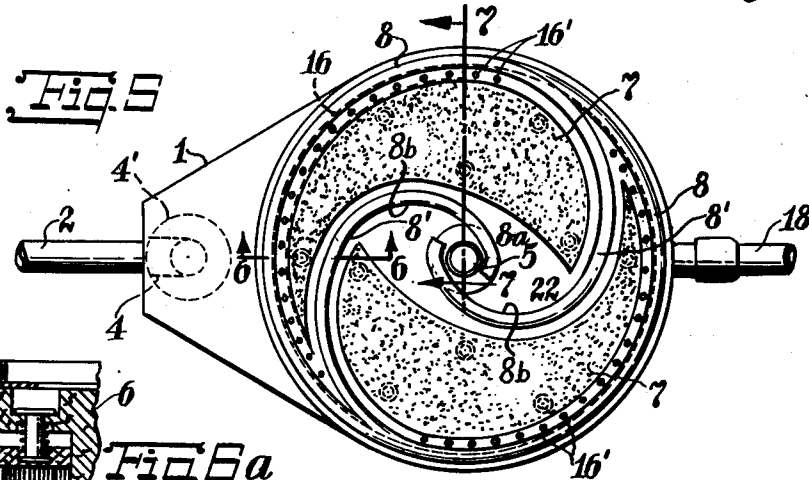
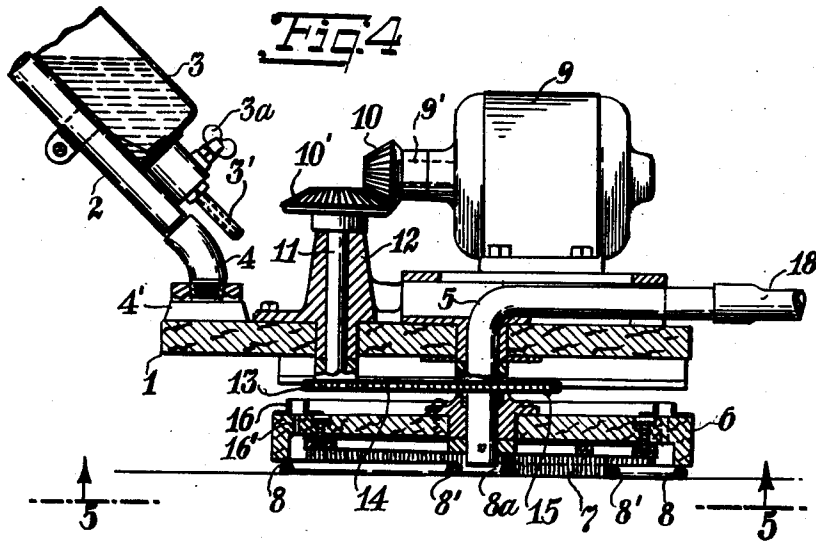
E. BERBERIAN

2,633,595

RUG CLEANING AND SHAMPOOING MACHINES

Original Filed Nov. 17, 1941

2 SHEETS—SHEET 2



INVENTOR.

Edward Berberian

BY

Joseph E. O'Neil
ATTORNEY

UNITED STATES PATENT OFFICE

2,633,595

RUG CLEANING AND SHAMPOOING
MACHINE

Edward Berberian, Union City, N. J.

Substituted for abandoned application Serial No.
419,446, November 17, 1941. This application
December 6, 1945, Serial No. 633,162

4 Claims. (Cl. 15—321)

1

This invention relates to improvements in Rug Cleaning and Shampooing Machines and is a substitution of my earlier abandoned application Serial No. 419,446, filed November 17, 1941.

One of the objects of this invention is to provide an efficient machine or apparatus adapted to be manually moved or reciprocated for the purpose of efficiently scrubbing or shampooing surfaces to be cleaned, and particularly for the purpose of scrubbing and shampooing with a suitable cleaning agent the nap surfaces of rugs, carpets or the like so as to loosen and cause a suspension or solution of the dirt and grease and then to remove from such nap surfaces the spent cleaning agent with such dirt and grease.

Another object of my invention is to produce a portable apparatus having a motor-driven rotatable head adapted to scrub a given area of the nap of a rug, carpet or the like with a suitable liquid cleaning material for the purpose of loosening, suspending or dissolving dirt or grease in such nap and simultaneously squeegeeing the same area to remove from said area of the rug the spent cleaning material together with its load of dirt and grease.

Another object of my invention is, in a device of the character above specified, to utilize a vacuum or suction element for applying suction or vacuum at the axis of the rotatable head, to collect or gather the spent liquid cleaning material, dirt and grease at such axis and to remove the same.

Another object of my invention is, in a device of the character specified, to utilize a rotatable motor-driven cleaning head, to provide said head with scrubbing brushes to scrub a given surface and employing squeegee devices operating over the same area for guiding and deflecting the used cleaning fluid and dirt to a removal center preferably located at the axis of the rotatable head.

Still another object of my invention is, in a device of the character described, to utilize a squeegee device having one portion extending along the outer perimeter of a revolvable head to provide, along said perimeter, a perimetric protecting apron to prevent splashing or centrifugal spreading of the cleaning material and another continuous portion extending from said perimetric portion to an axially located suction pipe.

Still another object of my invention is to utilize a squeegee having, in combination, an axially-located suction element, a perimetric protecting apron and a continuous deflecting portion comprising a curved portion of lesser

2

diameter than the rotating head having its curve disposed in the direction of rotation of the head.

Another object of my invention is, in a device of the character described, to provide on a motor-driven rotatable head a plurality of squeegee elements each comprising a perimetric circular section and a curved inwardly-extending arcuate section having its concave side facing in the direction of movement of the head.

Still another object of my invention is, on a motor-driven rotatable head, to provide a squeegee device of the character described, in combination with cleaner-feed perforations arranged within the perimetric protective section of the squeegee device.

Still another object of my invention is to provide, in combination with a sectional squeegee device of the type hereinabove specified, a segmental brush covering areas at opposite sides of the deflecting section of the squeegee device.

Another object of my invention is to provide a plurality of segmental brushes extending between said deflecting squeegee portion and said liquid feed perforations, and to provide liquid-guiding channels between said segmental brushes and adjacent to said deflecting squeegee sections.

With these and other objects in view the invention comprises the combination of members and arrangement of parts so combined as to co-act and cooperate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of apparatus embodying my invention;

Fig. 2 is a view in plan of the apparatus shown in Fig. 1;

Fig. 3 is an enlarged view partly in elevation and partly in section of the top portion of the vacuum tank shown in Fig. 1;

Fig. 4 is a vertical section partially broken away substantially through the center of the apparatus shown in Figs. 1 and 2;

Fig. 5 is a bottom plan view viewed from the line 5—5 of Fig. 4, looking in the direction of the arrows;

Fig. 6 is a large section substantially on the line 6—6 of Fig. 5, looking in the direction of the arrows;

Fig. 6a is a similar section showing a modified form of apparatus; and

Fig. 7 is a section on the line 7—7 of Fig. 5, looking in the direction of the arrows.

Referring now to these drawings which illus-

trate a preferred embodiment of my invention, 1 indicates a portable platform composed of wood or other suitable material and having a removable handle bar 2 preferably having mounted thereon a cleaning tank 3 and adapted to be engaged in a pipe fitting 4 suitably mounted on a base 4' on the platform 1. Revolvably mounted beneath the platform 1 on an axially disposed pipe shaft 5 is a revolving head 6 provided on its under surface with brushes 7 and a squeegee element comprising a perimetric portion 8^a positioned at the perimeter of the head outside of the scrubbing brushes and one or more inwardly-extending arcuate portions 8^{a'} continuous with the perimetric portion 8^a which are adapted simultaneously to contact with a rug, carpet or other similar material to be cleaned. The head 6 is revolved by a motor 9 through shaft 9', beveled gears 10, 10', stub shaft 11 mounted in bearing 12 and having at its lower end a sprocket 13 which transmits motion through the chain 14 with a sprocket 15 mounted axially of the pipe shaft 5.

In the embodiment illustrated, cleaning liquid from the tank 3 is passed through the valve outlet pipe 3' to a groove or gutter 16 formed adjacent to the perimeter of the head 6 and having liquid perforations or outlets 16' extending inside the perimetric portion of the squeegee members so that liquid coming from the tank 3 through the pipe 3' will, upon the rotation of the head 6, be caused to move down on to the rug at a position inside said perimetric squeegee portion 8. The liquid thus dropping onto the surface of the rug will be brushed into the nap of the rug by the adjacent brushes to loosen any dirt or grease contained therein and the spent material will then come in contact with the squeegee members 8, 8' and caused to be deflected toward the conduit 5 which is provided with suitable vacuum or suction means to suck up the spent or exhausted liquid. As shown, a plurality of pair of squeegee elements or members are each composed of a perimetric portion 8^a and an inwardly-extending arcuate portion 8^{a'} continuous therewith and said arcuate portions each have concave sections 8^{b'} facing in the direction of rotation so as to bound concave head areas and portions of said scrubbing brushes extending into said concave head areas. As illustrated, the pipe 5 is connected with a portable vacuum tank 17 through a long flexible hose 18. As illustrated, the vacuum tank 17 comprises a suitable metallic tank having mounted at its upper end a cover 19 on which is mounted a conventional vacuum element 20 comprising a motor 20^a and fan 20^b adapted to cause a suction inside the tank and through the hose 18 and pipe 5 to a position closely adjacent to the surface of the rug and to the inside ends of the squeegee members which are suitably positioned in relation to the pipe and cause the spent material to be passed through gates 8^a to a position directly beneath the pipe which, through its suction means hereinabove described, then sucks up the material and passes the same to the tank 17. The suction tank has a suitably controlled air outlet 21.

The operation of my device is as follows: the tank 3 is filled with a suitable cleaning material and manually moved into position over a rug surface to be cleaned. The motor 9 is then started to revolve the head 6 and the valve 3^a is opened to permit liquid to pass through the channel 16 and through the perforations 16'. This material would then be thoroughly brushed into the rug

by the segmental brushes 7 and the same area of the rug which is so brushed with the said material will be squeegeed by squeegee members 8, 8' and the spent material and dirt will be deflected inwardly toward the axis of the machine by the members 8, 8', a large part of the material, after the brushing, following the channels 22 to the gates or entrances 8^a between adjacent segmental squeegee members to an axial position directly beneath the pipe 5 through which vacuum or suction being applied will suck up the spent and deflected material and cause the same to be conducted into the vacuum tank 17. Of course, the machine or apparatus will be manually moved or reciprocated from spot to spot over the rug so that the entire rug will be treated and thoroughly cleaned. It will be seen that in accordance with my invention the used or spent cleaning material with its load of dirt and grease is conducted inwardly by the deflecting portions of the squeegee members and that the perimetric portions of the squeegee members not only assist in deflecting the material but prevent such material from being scattered or broadcast through centrifugal motion of the head and definitely act as confining elements as well as squeegee members.

By moving the portable apparatus with a reciprocatory motion the cleaning liquid may be thoroughly brushed into the rug both by the reciprocating and revolving motions and the cleaning liquid with its load of dirt will be confined and prevented from spreading by the rotation of the head and furthermore will be continuously deflected by the squeegees toward the center and sucked up by the tube 5.

Having described my invention, I claim:

1. A portable rug cleaning and shampooing machine embodying, in combination, a disk-shaped rotatable head having a bottom surface adapted to be moved over an area to be cleaned, a squeegee element mounted on said bottom surface in position to have a rubbing contact with said surface to be cleaned, said squeegee element comprising a perimetric portion substantially encircling the bottom surface of said head and an arcuate portion having its concave side faced in the direction of rotation and extending outwardly from a point adjacent to the axis of rotation of the head to said perimetric portion, means for feeding a liquid cleaning material within the space encircled by said perimetric portion, said perimetric squeegee portion being adapted to retain and prevent the escape outwardly of cleaning material fed to the surface to be cleaned below and within the space bounded thereby and said arcuate portion being adapted to guide and deflect cleaning material used on such area to be cleaned to a collection place at the axis of said head beneath the bottom surface thereof, a removal conduit at said axially-located collection place, and vacuum means for applying suction through said removal conduit to remove spent cleaning material through said head.

2. A portable rug cleaning and shampooing machine as claimed in claim 1 in which scrubbing brushes are also mounted on the bottom surface of said disk-shaped rotatable head within spaces bounded by said perimetric and arcuate portions of said squeegee element, said scrubbing brushes being operable simultaneously with the said squeegee element to have a rubbing contact over substantially the same area of the surface to be cleaned.

5

3. A portable rug cleaning and shampooing machine embodying, in combination, a disk-shaped rotatable head having a bottom surface adapted to be moved over an area to be cleaned, a squeegee element mounted on said bottom surface in position to have a rubbing contact with said surface to be cleaned, said squeegee element comprising a perimetric portion substantially encircling the bottom surface of said head and a plurality of arcuate portions spaced from each other and each having its concave side faced in the direction of rotation and extending outwardly from a point adjacent to the axis of rotation of the head to said perimetric portion, scrubbing brushes mounted on the bottom surface of said disk-shaped head within the spaces bounded by said plurality of arcuate squeegee portions and having, simultaneously with said squeegee, a rubbing contact over the same area of the surface to be cleaned, means for feeding a liquid cleaning material within the space encircled by said perimetric portion, said perimetric squeegee portion being adapted to retain and prevent the escape outwardly of cleaning material fed to the surface to be cleaned below and within the space bounded thereby and said arcuate portion being adapted to guide and deflect cleaning material used on such area to be cleaned to a collection place at the axis of said head beneath the bottom surface thereof, a removal conduit at said axially-located collection place, and vacuum means for applying suction through said removal conduit to remove spent cleaning material through said head.

4. A portable rug cleaning and shampooing machine embodying, in combination, a disk-shaped rotatable head having a bottom surface adapted to be moved over an area to be cleaned, a perimetric squeegee element mounted on said bottom surface and encircling the same to positively retain and prevent the escape outwardly of liquid cleaning material and another squeegee portion

6

having a curved surface faced in the direction of rotation, extending outwardly from a point adjacent to the axis of rotation of the head to said perimetric squeegee portion and being arranged to guide and deflect liquid cleaning material used on the surface to be cleaned to a collection place at the axis of said head beneath its said bottom surface, scrubbing brushes also mounted on said bottom surface within the space encircled by said perimetric squeegee element, said brushes being arranged in sections spaced from each other to provide a liquid-guiding channel extending from the middle portion of the head into contiguity to said perimetric squeegee element, a removal conduit at said axially-located collection place and vacuum means for applying suction through said removal conduit to remove spent cleaning material through said head.

EDWARD BERBERIAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
928,456	Johnson	July 20, 1909
935,559	Spangler	Sept. 28, 1909
1,211,948	Koster et al.	Jan. 9, 1917
1,498,255	Winchester	June 17, 1924
1,506,016	Lundgren	Aug. 26, 1924
1,537,273	Tully	May 12, 1925
1,596,361	Landgren	Aug. 17, 1926
1,661,412	Deptula	Mar. 6, 1928
1,720,630	Eiermann	July 9, 1929
1,923,689	Rosenberg	Aug. 22, 1933
2,153,207	Petty	Apr. 4, 1939
2,168,692	Vidal	Aug. 8, 1939
2,193,571	Siemund	Mar. 12, 1940
2,250,177	Boccasile	July 22, 1941