Dec. 8, 1925. 1,564,453

P. J. SHAMPAY

RUG CLEANING MACHINE

Filed March 18, 1920 3 Sheets-Sheet 1

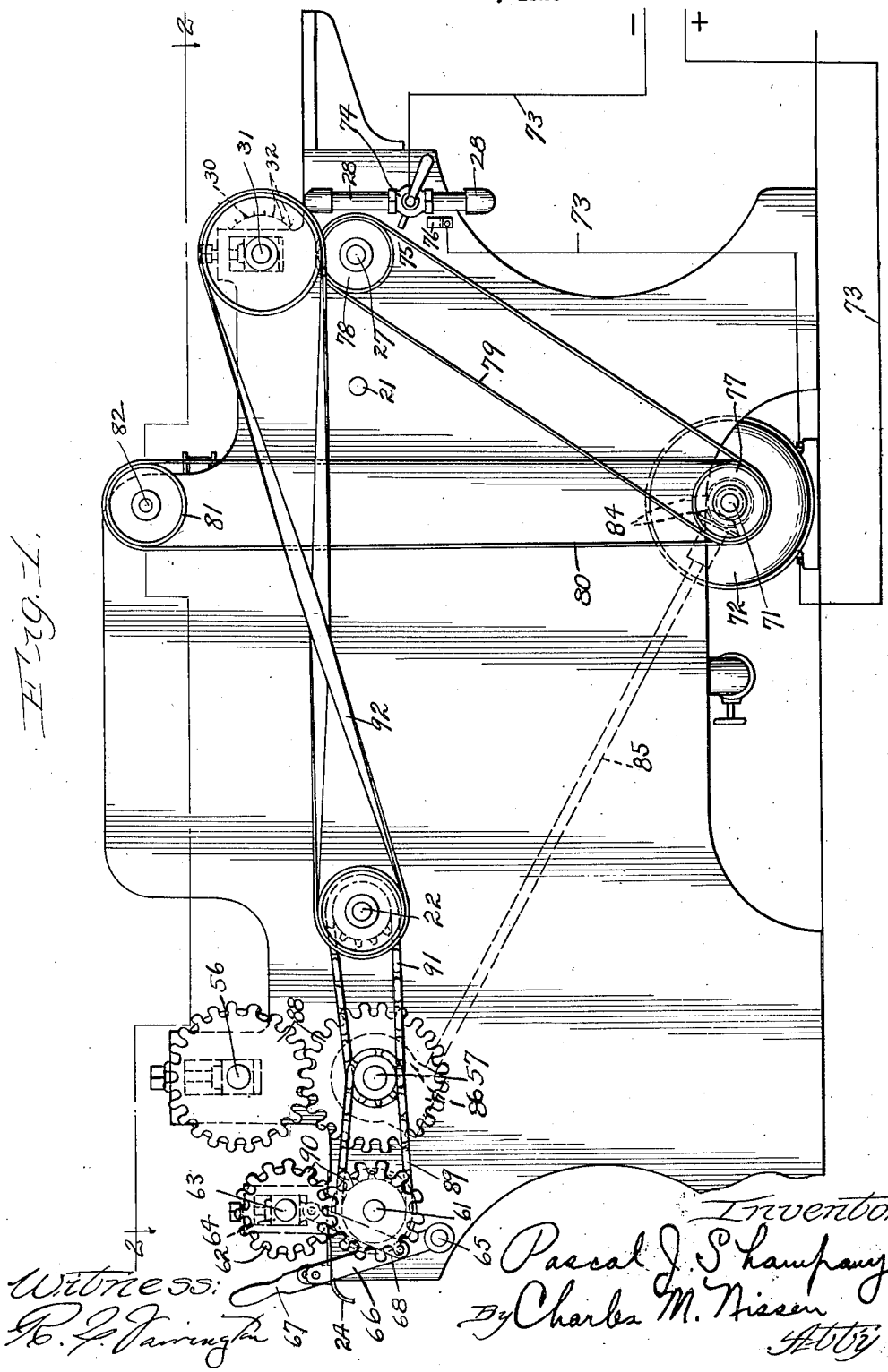


Fig. 1.

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Filed March 18, 1920 3 Sheets-Sheet 2

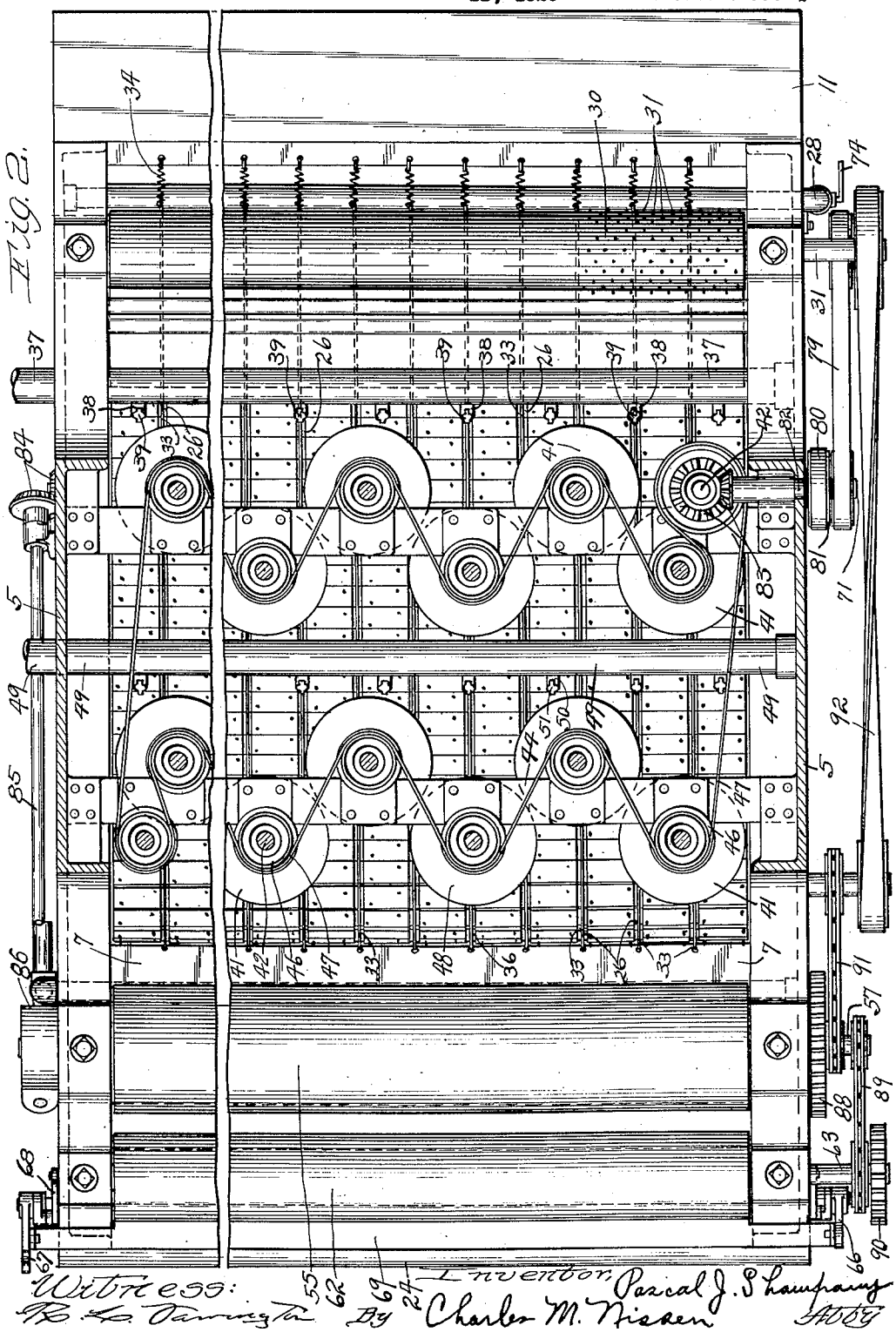


Fig. 2.

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RUG CLEANING MACHINE

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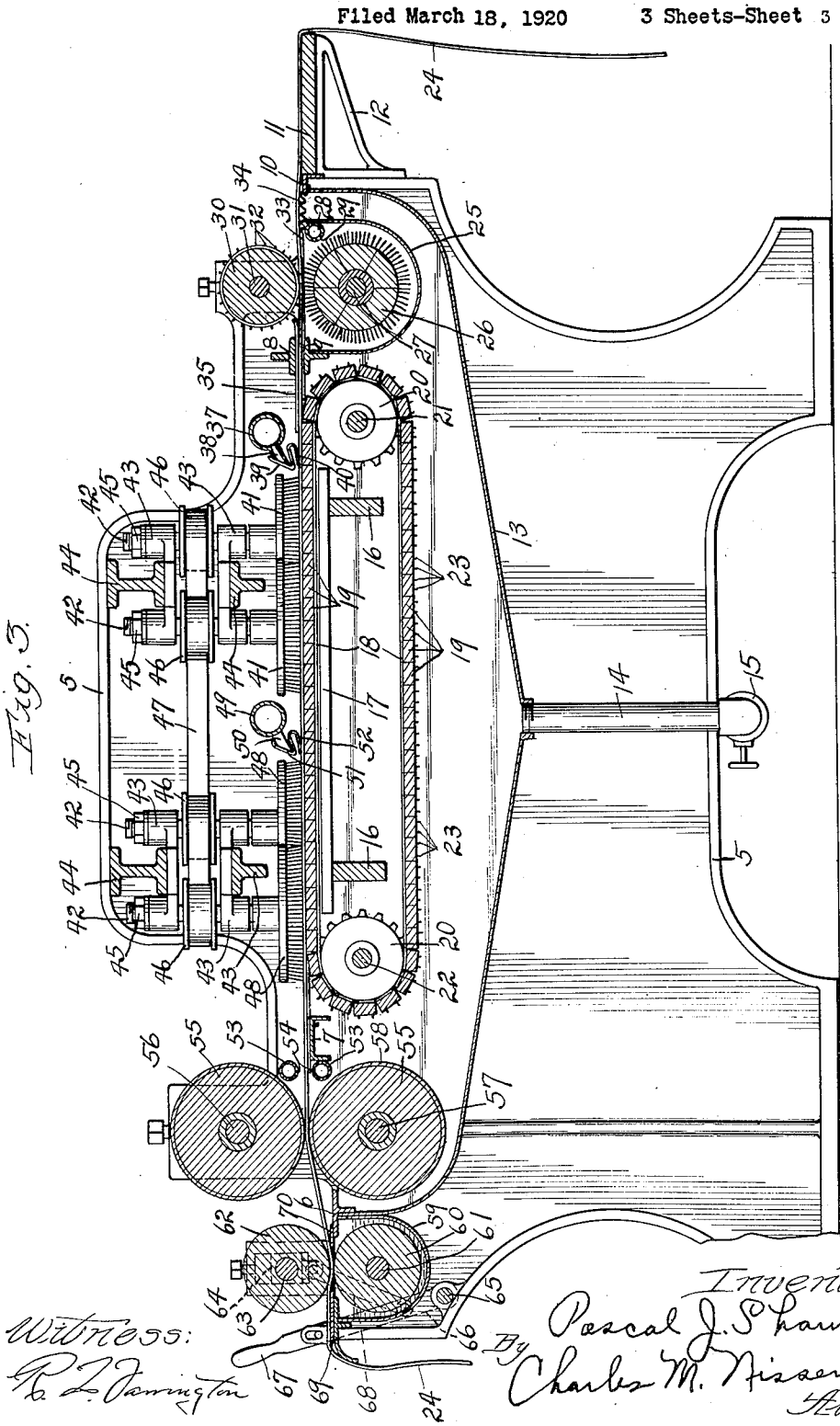


Fig. 3.

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Patented Dec. 8, 1925. 1,564,453

UNITED STATES PATENT OFFICE.

PASCAL J. SHAMPAY, OF CHICAGO, ILLINOIS.

RUG-CLEANING MACHINE.

Application filed March 18, 1920. Serial No. 366,926.

To all whom it may concern:

Be it known that I, PASCAL J. SHAMPAY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rug-Cleaning Machines, of which the following is a specification.

My invention relates to rug cleaning machines and has for one of its objects the provision of a simple and efficient machine for cleaning rugs, and the like.

Another object is the provision of a machine having a moving table with disc-shaped brushes above the table for scrubbing a rug, or the like.

Another object is the provision of a cleaning machine having a cleansing agent dispensing means adapted for feeding the cleansing means to a rug, or the like, before acted upon by the scrubbers of the machine.

A further object is the provision of a machine of the character mentioned adapted to clean the upper and lower sides of a rug separately.

A still further object is the provision of a cleaning machine adapted to thoroughly clean and rinse a rug, or the like, and finally size the bottom of such rug.

Other objects will appear hereinafter.

An embodiment of my invention is illustrated in the accompanying drawings, forming a part of this specification, and in which—

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

Fig. 2 is a horizontal section taken on line 2—2 of Fig. 1; and

Fig. 3 is a vertical section taken through the central part of the machine.

Referring more particularly to the drawings, I have indicated a frame having end members 5 which may be of various shapes and sizes to accommodate mechanism for operating upon rugs, carpets, and the like, of various sizes. The end members 5 are connected together by members 6, 7, 8, 9 and 10. These connecting members may be secured to the ends 5 in any desirable manner. At the front or feeding end of the machine I have indicated a table 11 mounted on brackets 12. This table is a convenience and may be dispensed with if so desired.

Between the ends 5 I have shown a tank 13 having a discharge pipe 14 with a valve 15 in the discharge pipe for controlling the flow of fluid from the tank 13. In the form shown the tank 13 tapers toward the middle of the machine, but it will be understood that any other portion of the tank 13 may be made lowest for draining purposes.

Also, disposed across between the end members 5 are two or more supporting members 16 and on the members 16 are slats forming tracks 17 for an endless table. In the form of the invention shown the table comprises endless chains 18 having slats 19 thereon with the chains 18 mounted on sprocket wheels 20. The sprocket wheels at one end of the endless table are fixed on a shaft 21, and at the other end of the table the sprocket wheels are fixed on a shaft 22. The shafts 21 and 22 are mounted in suitable bearings in the end frames 5. In each of the slats 19 I provide a plurality of points 23 for engaging the bottom of a rug 24 which is to be cleaned. These points penetrate the rug sufficiently far to hold the latter against movement by the cleaning members and should be of small enough sizes to prevent injuring the rug or other article to be cleaned.

At the front end of the machine I have indicated a small tank 25 disposed within the large tank 13 and secured to the end members 5 and cross member 9 in any desirable manner. Disposed within the tank 25 is a rotary brush 26 fixed on a shaft 27 and the latter journaled in the end members 5. At one side of the brush 26 I provide a liquid soap or other cleaning agent dispensing pipe 28 which has openings 29 directed toward the brush 26. The arrangement is such that as soap or other cleaning agent is dispensed from openings 29 onto brush 26 the latter operates on the bottom of rug 24 with such soap or cleaning agent, together with water which may be placed in the tank 25. The tank 25 is placed within the tank 13 so that the water and other cleaning agent can wash out over the top of tank 25 into the tank 13 and be conducted away through pipe 14.

Above the brush 26 is a feed roller 30 fixed on a shaft 31. The roller 30 is provided with a plurality of points 32 for holding the rug against movement by the brush 26. To overcome a tendency of the rug 24 to fall down into tank 25 as it passes over the latter I provide an open bridge-work comprising a plurality of wires 33 which reach from cross member 10 to cross member

7. Each wire 33 may have a tension spring 34 provided therein for maintaining the wires taut. Also, to facilitate the passage of the rug from feed roller 30 on top to wires 33 a thin plate 35 may be secured to cross member 8 above the rug. With this arrangement the rug will be held firmly by the points 32 and be conducted along on the wires 33 over the tank 25 as it is scrubbed on its lower side by the brush 26. The slats 19 are each provided with grooves 36 for the reception of the wires 33 where they pass over the movable table. These wires also serve as a stripping means for stripping the rug off the points 23 as the rug leaves the moving table toward member 7.

Adjacent the plate 35 and above the latter I mount a dispensing pipe 37 for dispensing soap or other cleaning agent to the top of the rug 24 as the latter leaves plate 35. The pipe 37 is provided with a plurality of laterally extending discharge pipes 38 each having a valve 39 at its outer end for controlling the flow of the cleaning agent from such pipe. The valves 39 may be spring-pressed or otherwise mounted to hold them normally shut. From each of the valves 39 is an arm 40 extending downwardly and under a pipe 38 close to the moving table so that when the rug 24 passes under such arm 40 the thickness of the rug will cause the valve 39 to be opened sufficiently to permit the liquid soap or other cleaning agent to flow out onto the rug.

Adjacent the pipe 37 I provide a plurality of disc-shaped brushes 41 mounted to rotate in opposite directions and operate on the rug immediately after it passes under the arms 40. The brushes 41 may be mounted in any desirable manner. In the present instance I have indicated vertical shafts 42 mounted in bearings 43 carried on members 44 which are secured to the end frames 5. Each of the shafts 42 is indicated as having a nut 45 thereon for adjusting the brush 41 toward and away from the moving table. Fixed on the shafts 42 are pulleys 46 with a belt 47 running around all of the pulleys in a manner to cause the brushes to rotate in opposite directions.

A second set of disc-shaped brushes 48 are mounted above the moving table in a manner to operate on the rug after the latter has left the brushes 41. The mountings for the brushes 48 are substantially the same as the mountings already described for brushes 41, and the description of the mountings for the latter brushes will describe the mounting for brushes 48.

Between the brushes 41 and 48 I provide a dispensing pipe 49 having discharge pipes 50 extending laterally therefrom. The members 49 and 50 are adapted to conduct water to the top of the rug under the action of the brushes 41 to dilute and further clean the rug after the latter leaves brushes 48. The pipes 50 have valves 51 with arms 52 on said valves. The construction of the valves 51 and arms 52 is similar to the valves 39 and arms 40 already described. Said arms 52 are so arranged that a rug passing between them and the moving table will open the valves 51 to discharge water onto the rug before the latter reaches brushes 48. The brushes 48 are also rotated by the belt 47, as clearly indicated in Fig. 3.

A plurality of rinsing water pipes 53 are disposed across between the frames 5 with discharge openings 54 directed toward the rug 24 as it leaves the brushes 48. The pipes 53 are arranged on both the upper and lower sides of the rug so as to thoroughly rinse the latter.

After the rug passes the pipes 53 it is engaged by a pair of wringing rolls 55 which are fixed on shafts 56 and 57, the shaft 56 being mounted in adjustable bearings to vary the distance between said rollers. The rollers may also be provided with rubber coverings 58 when so desired.

Outside of tank 13 and adjacent one side of the latter is a tank 59 adapted to contain sizing material for sizing the under side of the rug after the latter has been wrung. In the tank 59 is a sizing roll 60 fixed on a shaft 61. Above the roll 60 is a feed roll 62 adapted to engage the upper side of the rug to hold the latter in operative engagement with the roll 60 when the latter is in operation. The roll 62 is fixed on a shaft 63 and the latter mounted in bearings 64 which are slidable vertically, as clearly indicated. Adjacent the tank 59 I have indicated a shaft 65 suitably mounted in the ends 5. Fixed on the shaft 65 are two upwardly extending arms 66 one of which has a handle 67 thereon for manual operation. Each of the bearings 64 is connected by a link 68 with an arm 66 so that upon movement of shaft 65 the bearings 64 may be moved upwardly to raise the roller 62 away from the roller 60. Connected to the arms 66 is a plate 69 which is moved so that when the roller 62 is raised away from roller 60 the plate 69 will be moved over the top of roller 60 against a strip 70 for holding the rug out of contact with roller 60. With rugs having a fringe it is not desirable to size the fringe, therefore, as the rug passes from wringing rolls 55 the operator moves rollers 62 upwardly and plate 69 over roller 60 by means of the handle 67 so that the fringe passes over roller 60 without being sized. Then as soon as the fringe passes roller 60 the operator moves handle 67 back to its position indicated in Fig. 3, thereby moving plate 69 away from rollers 60 and moving roller 62 down onto the rug to size the body of the rug. When the last end of the rug reaches roller 60 the same operation

is performed again to prevent sizing the fringe at this end.

At some convenient position I provide a driving shaft 71 which is suitably mounted in the end members 5. The shaft 71 may be driven by a motor 72, or, in any other desirable manner.

When an electric motor is used it is desirable to connect the feed wires 73 of the motor to a switch member in a manner so that the cleansing agent can be fed to pipe 28 at the time the motor is started, although this is not essential in the performance of the machine. I have indicated a valve 74 in the pipe 28 having a switch member 75 adapted to engage a stationary switch member 76 in the circuit 73 so that when the valve 74 is opened the switch member 75 will engage member 76 to close the circuit, and when the valve 74 is open the member 75 will be disengaged from member 76, therefore, breaking the current.

A driving connection for the brush 26 is provided by a pulley 77 on the motor shaft 71 and a pulley 78 on the shaft 27 with an endless belt 79 connecting said pulleys. The brushes 41 and 48 are operated by a belt 80 on pulley 77 and a pulley 81 on a shaft 82 journaled in one of the end members 5. The shaft 82 is connected to one of the shafts 42 by means of beveled gears 83 to operate said brushes.

A pair of beveled gears 84 connect the driving shaft 71 with a shaft 85. The shaft 85 is connected to shaft 57 by a worm gear 86 so as to drive the lower wringing roll 55. The upper wringing roll is driven from shaft 57 by means of gears 88. A sprocket and chain gearing 89 is indicated for driving shaft 61 from shaft 57 to effect operating the sizing roll 60. The feed roll 62 is driven from shaft 61 by means of gears 90 on said shaft 61 and shaft 63.

The shaft 22 of the endless table is driven from shaft 57 by a sprocket gearing 91 on said shaft 57 and shaft 22. The feed roll 30 may be driven from shaft 22 by a belt gearing 92 connecting shaft 22 with shaft 31. The driving means indicated for the different parts is simply representative of driving means, and these parts may be driven in any desirable manner.

The rug is passed over apron 11 and is fed along by feed roll 30 over the brush 26 which cleans the under side of the rug. The roll 30 still feeds the rug along under plate 35 onto the moving table where the front edge of the rug opens valve 39 permitting the cleaning agent to engage the rug and the rug is then fed under brushes 41 where the concentrated cleaning agent is scrubbed into the rug. The rug next passes under the valves 51 which are caused to be opened by the front edge of the rug to feed clean water to the rug where this water is scrubbed into the rug by brushes 48, thereby finishing the scrubbing of the top of the rug. The rug next passes between pipes 53 which rinse both the top and bottom and then through the wringing rolls 55. After the rug has been wrung it passes through the sizing apparatus already described and comes out of the machine thoroughly cleansed and sized.

I claim:

1. A cleaning machine comprising a movable table; a cleaning fluid pipe above the table having discharge openings directed toward the latter valves associated with the discharge openings; and arms attached to the valves and extending forwardly of the openings of the latter so that a rug approaching the valves on the table will engage said arms and open the valves before the forward edge of the rug reaches said valves.

2. A cleaning machine comprising a movable table; scrubbing elements above the table; a cleaning fluid dispensing member above the table with discharge openings adjacent the scrubbing elements; valves associated with said discharge openings for controlling the flow of cleaning fluid therefrom; and arms associated with the valves and extending away from the scrubbing elements so as to be engaged by a rug on the table to open said valves before the forward edge of said rug reaches said scrubbing elements.

3. A cleaning machine comprising a movable table having grooves in its upper side; points extending upwardly from the table and adapted to enter a rug on the latter; scrubbing elements above the table adapted to operate on a rug on said table; and stripping means extending into said grooves for stripping the rug off said points as such rug leaves the table.

4. A cleaning machine comprising a table; bearings at one side of the table; a shaft disposed at right angles to the table and journaled in said bearings; a disc-shaped scrubbing element fixed on the end of the shaft adjacent the table; a nut threaded on the end of the shaft away from the table; and adjustably and unyieldingly supporting said shaft against vertical movement, and a spacing member between said nut and the bearing adjacent said nut.

5. A rug sizing device comprising two rollers, one roller being adapted to apply sizing material to a rug; bearings for mounting the other roller; manually operable means associated with said bearings for moving the last-mentioned roller toward and away from the other roller; and a plate connected with the manually operable means adapted to be moved between the rollers when the latter are separated for holding a rug out of engagement with the roller having the sizing material thereon.

6. A cleaning machine comprising sizing rollers; means for separating the sizing rollers; a plate mounted for movement between the sizing rollers; and wringing rollers adapted to feed an article over said plate and between the sizing rollers when the latter are separated.

7. A cleaning machine comprising a moving table; a scrubbing element above the table adapted to scrub the upper side of a rug on said table; a scrubbing element at one side of the table; a feed roller adjacent the last-mentioned scrubbing element; and an open-work bridge extending between said last-mentioned scrubbing element and the feed roller and between the moving table and said first-mentioned scrubbing element.

8. A cleaning machine comprising a moving table having grooves therein; a scrubbing element above the table adapted to scrub the upper side of a rug on said table; a scrubbing element at one side of the table; a feed roller adjacent the last-mentioned scrubbing element; wires extending between said last-mentioned scrubbing element and the feed roller and between the moving table and said first-mentioned scrubbing element and disposed in said grooves; and a soap dispenser above the table adapted to be engaged by a rug before the latter engages the first-mentioned scrubbing element.

9. A cleaning machine comprising a moving table having grooves therein; points extending upwardly from the table and adapted to enter a rug on such table; scrubbing elements above said table and adapted to operate on a rug on said table; stripping wires extending across the table and disposed in said grooves; and resilient securing means attached to the wires.

10. A cleaning machine comprising a table in the form of an endless belt having longtitudinal grooves therein; scrubbing elements above the table adapted to operate on a rug on said table; and stripping wires having their ends extending beyond the upper run of said table belt and having intermediate parts disposed in said grooves.

11. In combination, a rug scrubbing means; a pair of sizing rolls adjacent the scrubbing means; means for moving one of said rolls manually away from the other; means for guiding a rug from said scrubbing means between said rolls; and means adapted for movement between the rolls when the latter are separated for holding a rug out of engagement of said rolls while passing between the latter.

12. A scrubbing machine comprising a frame; an endless belt table in said frame and having longitudinal grooves therein; bridge wires attached to said frame and disposed in the grooves of said table; a scrubbing brush below said bridge wires at one side of said table; a feed roller above said bridge wires and said scrubbing brush and adapted to cooperate with the latter for feeding a rug across said bridge wires to said table; and a plate above said bridge wires between said feed roll and said table for facilitating the guiding of a rug from said feed roller to said table.

In testimony whereof I have signed my name to this specification on this 11th day of March, A. D. 1920.

PASCAL J. SHAMPAY.