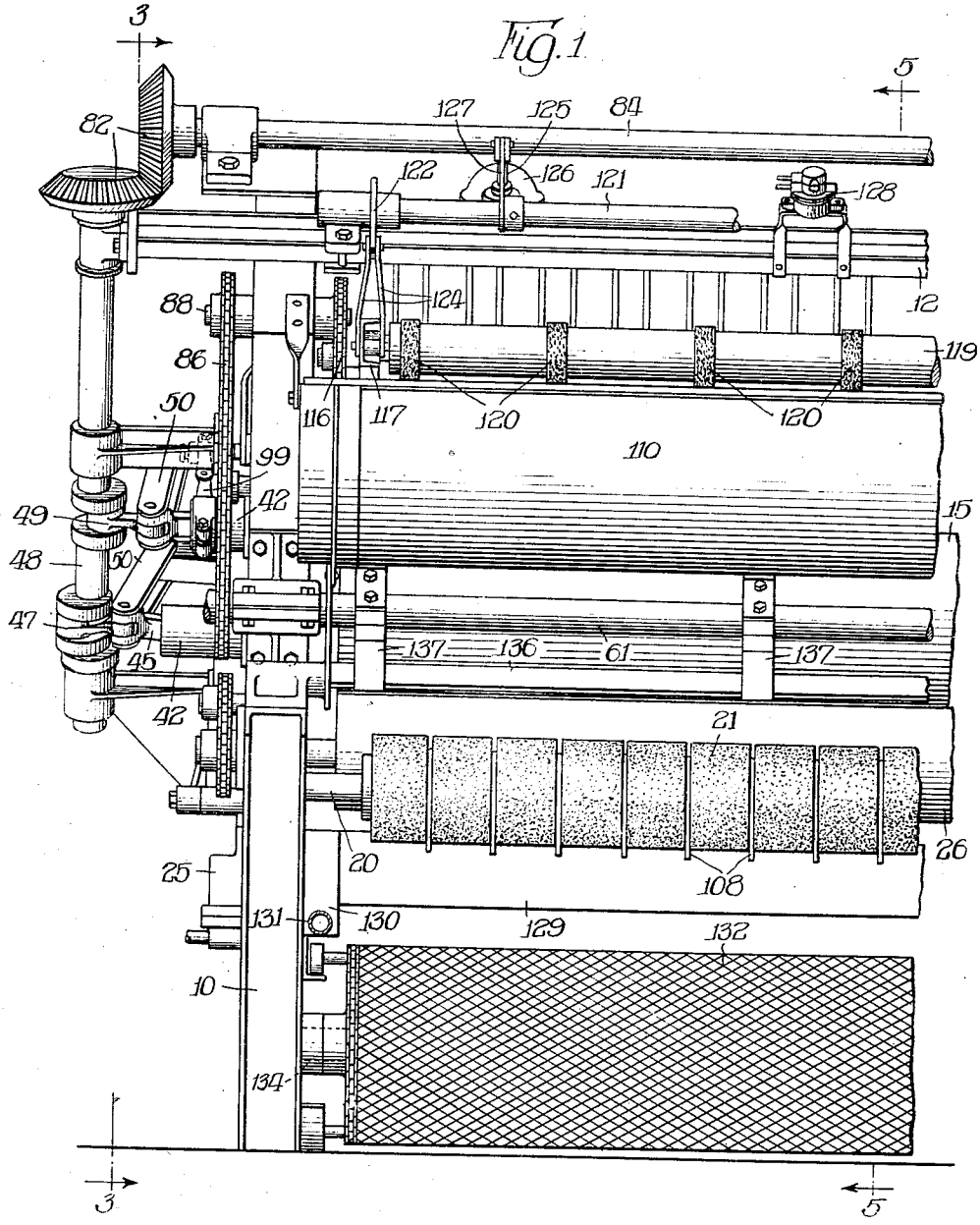
Jan. 12, 1937. S. CHASE, 4TH, ET AL 2,067,752

CARPET CLEANING MACHINE

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Fig. 1



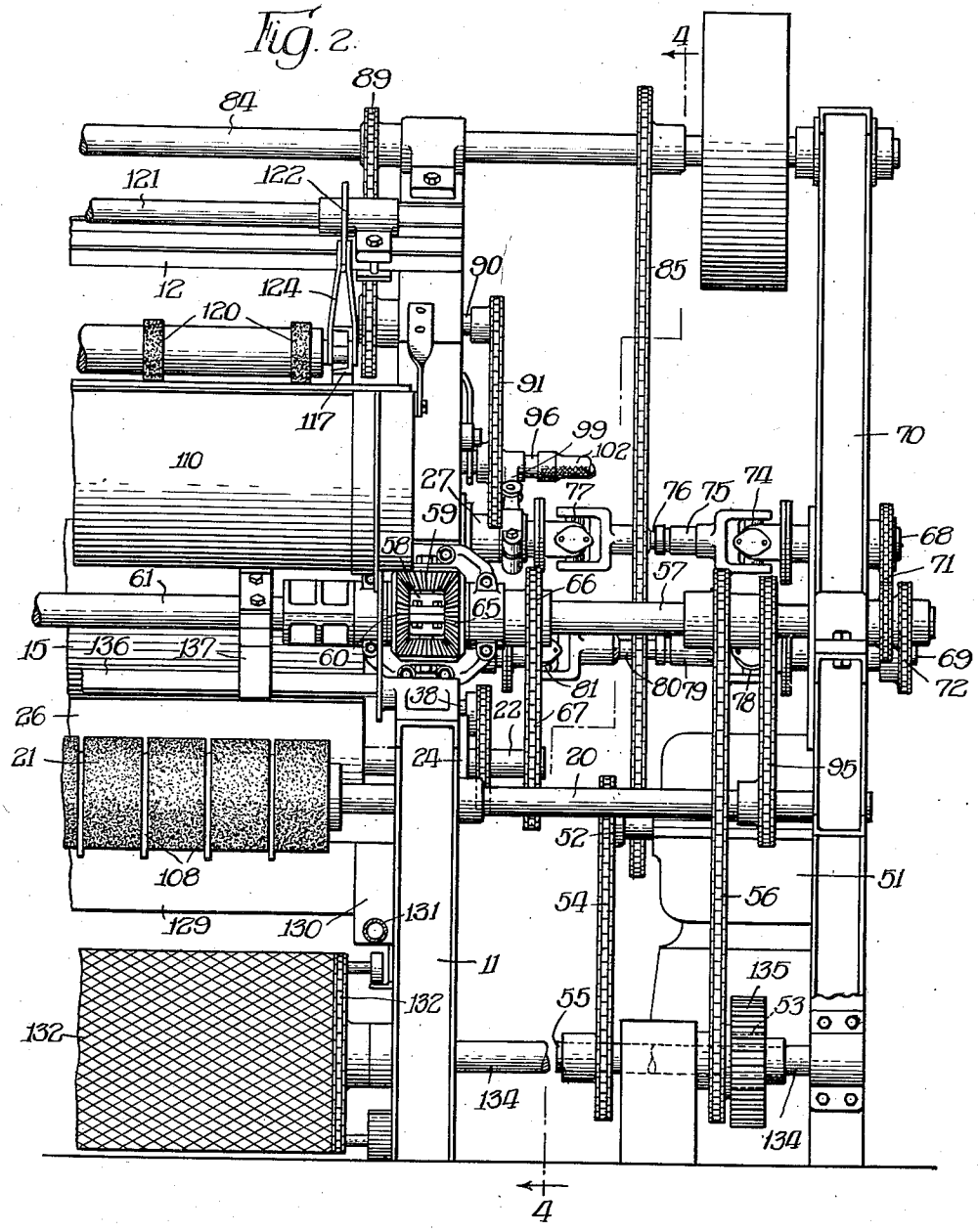
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CARPET CLEANING MACHINE

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Fig. 2.



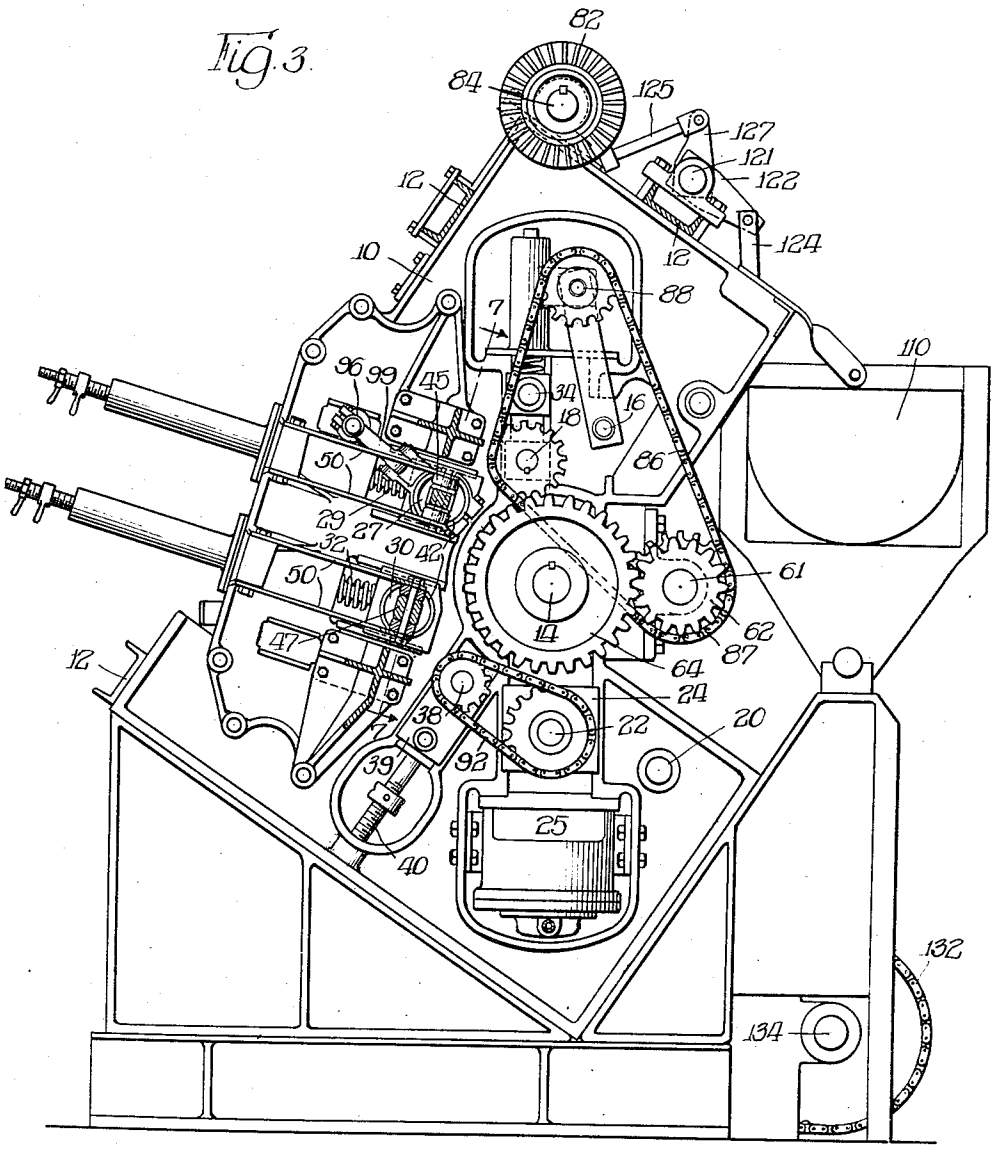
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CARPET CLEANING MACHINE

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Fig. 3.



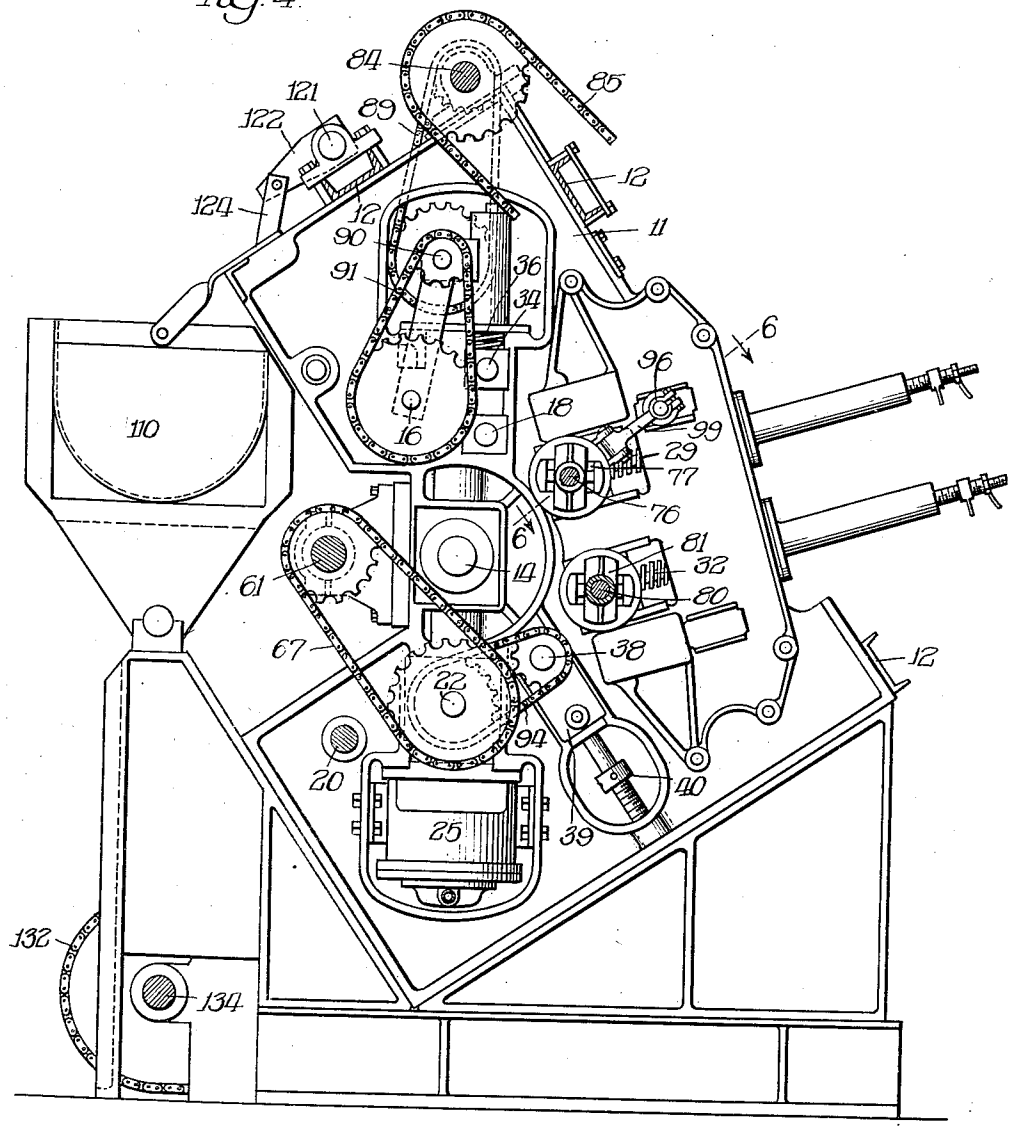
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CARPET CLEANING MACHINE

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Fig. 4.



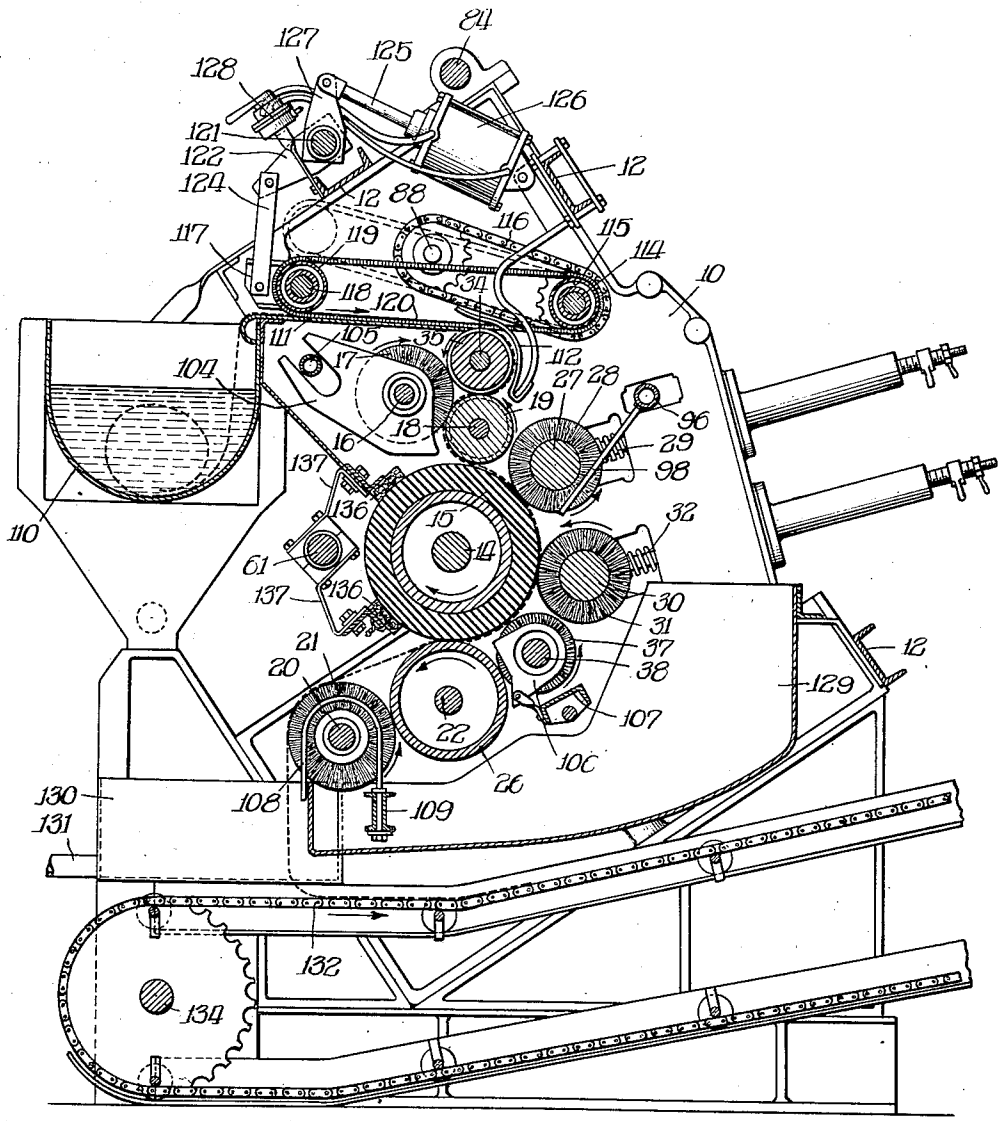
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CARPET CLEANING MACHINE

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Fig. 5



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CARPET CLEANING MACHINE

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Fig. 6.

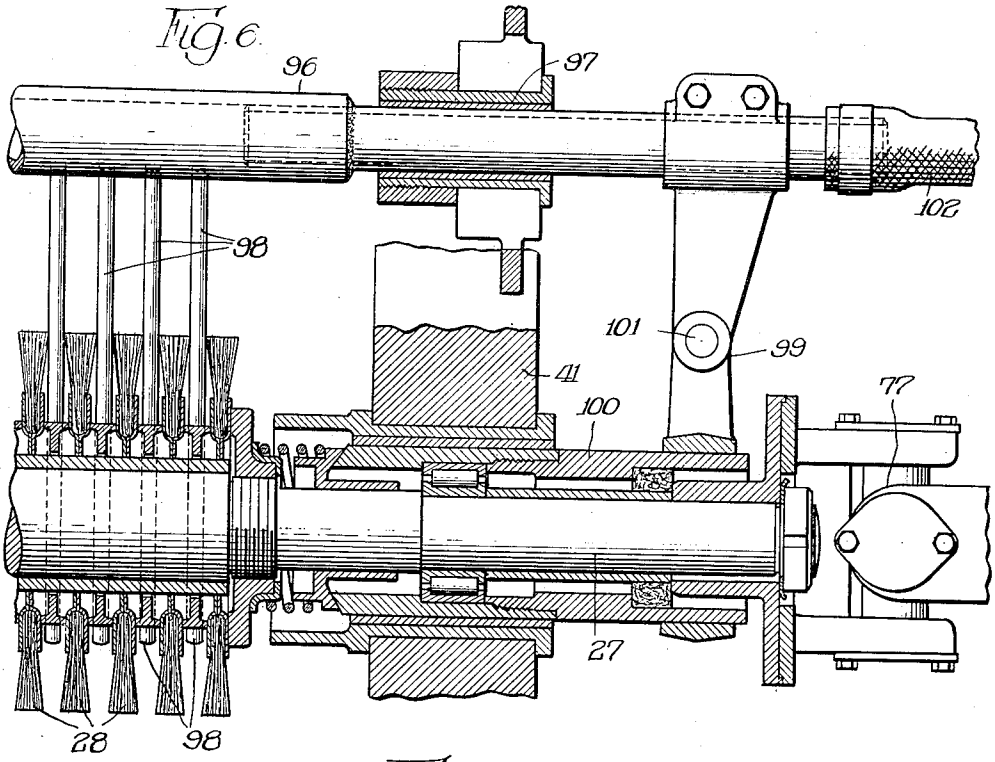
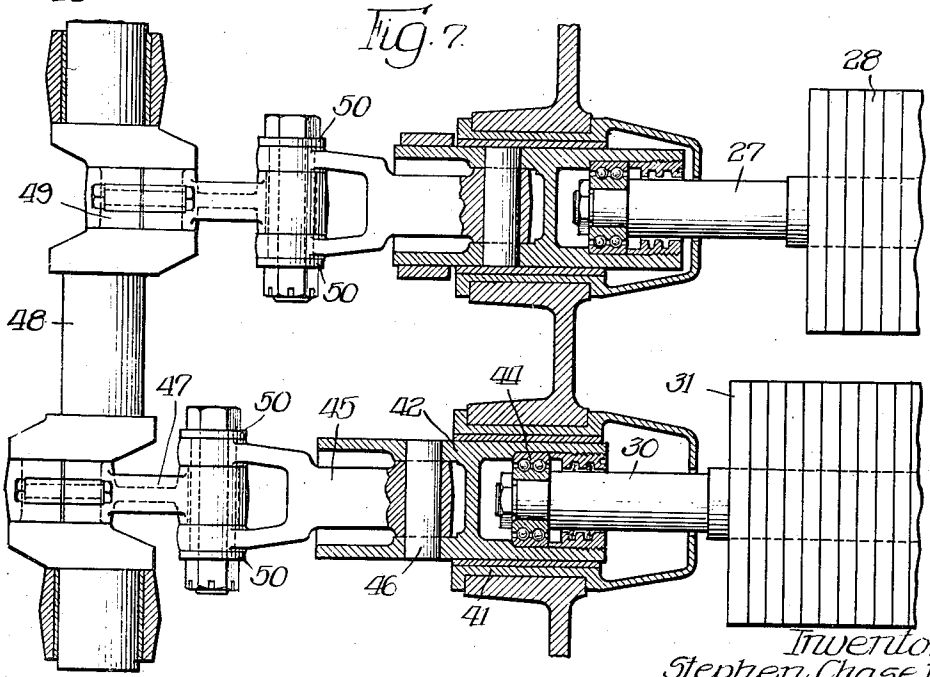


Fig. 7.



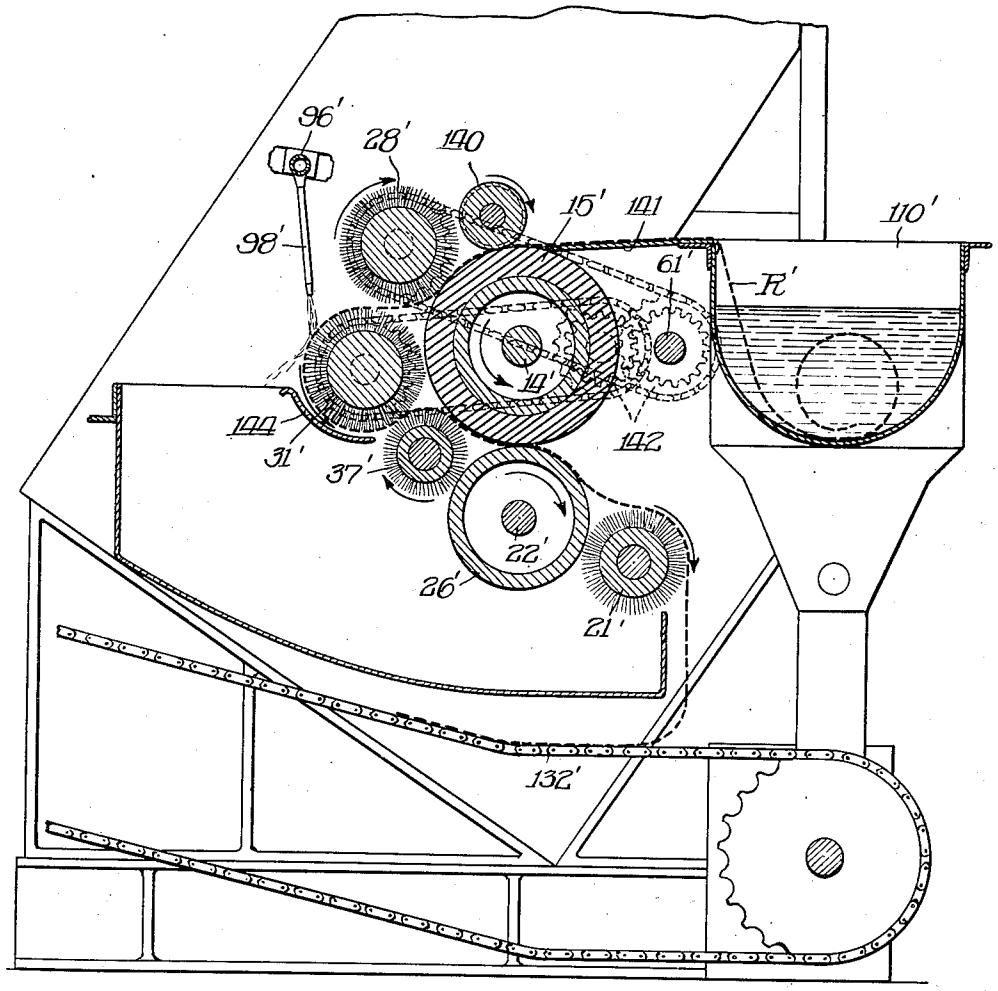
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CARPET CLEANING MACHINE

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Fig. 8



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UNITED STATES PATENT OFFICE

2,067,752

CARPET CLEANING MACHINE

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Application August 18, 1934, Serial No. 740,414

19 Claims. (Cl. 15—40)

This invention relates to apparatus for the cleaning or washing of fabrics, such as carpets, rugs, and the like.

A general object of the invention is the provision of an apparatus which will effectively and rapidly clean and wash a rug or the like incident to the passage of the same through the machine with a continuous progressive movement, the entire area of both sides of the rug being subjected to the cleaning operation uniformly, so that there will be no streaks or portions requiring additional washing.

Another object is the provision of such an apparatus which will deliver the washed rug in a condition such that it may be quickly and thoroughly dried at a moderate temperature, as in a drying apparatus through which the rug is moved progressively after its discharge from the washing machine.

Another object is the provision of such an apparatus through which a rug or series of rugs or the like may be passed at a suitable speed and subjected to an effective washing or cleaning without stretching, tearing or otherwise injuring the fabric.

Yet another object is the provision of such an apparatus which may be operated continuously to accomplish the washing and cleaning of a series of rugs of different sizes.

Yet another object is the provision of such an apparatus which will effectively clean floor coverings, such as rugs and carpets, without requiring a preliminary beating or dusting of them.

Yet another object is the provision of such an apparatus of very compact structure which will have a high output capacity and will not require an excessive amount of space for its installation and operation.

Other objects reside in the provision of improved mechanisms and combinations of mechanisms as hereinafter more particularly described, and still other objects will be pointed out or indicated hereinafter or will be apparent to one skilled in the art upon an understanding of the invention or its employment in use.

In the drawings forming a part of this specification I show one structural form in which the invention may be embodied, but it is to be understood that this is presented merely by way of illustration, and that the said illustrative embodiment, and the following description thereof, are not to be construed in any fashion calculated to limit the appended claims short of the true and most comprehensive scope of the invention in the art.

In said drawings,

Fig. 1 is a front elevation of the left hand portion of a machine embodying the invention;

Fig. 2 is a front elevation of the right hand portion of the machine;

Fig. 3 is an elevational view, partly in section, of the left hand end of the machine;

Fig. 4 is an elevational view, partly in section, of the right hand end of the machine;

Fig. 5 is a sectional elevation on approximately line 5—5 of Fig. 1, the front end of the machine being at the left;

Fig. 6 is a sectional detail on approximately line 6—6 of Fig. 4;

Fig. 7 is an elevational section on approximately line 7—7 of Fig. 3; and

Fig. 8 is a sectional elevation of a machine embodying features of the invention but of a somewhat different form.

The nature of the invention will probably be most quickly and accurately ascertained from a detailed description of the illustrative embodiment shown in the drawings.

The various parts of the machine are carried for the most part on the left end frame 10 (Fig. 1) and the right end frame 11 (Fig. 2) which are supported on a suitable foundation in upright position and in parallel relationship, being spaced a suitable distance from each other to permit the passage between them of a rug of substantial size (e. g., 14 feet) in outspread condition. These end frame members are connected by various transverse members 12, so as to constitute a supporting frame for the various operating parts. In suitable bearings on the end frame members are journaled the carrier roll shaft 14 which carries the rubber coated carrier roll 15, back brush shaft 16 which carries the back brush 17, lower feed roll shaft 18 which carries the lower feed roll 19, and finishing brush shaft 20 which carries the finishing brush 21. Wringer roll shaft 22 is journaled in slide bearings 24 which are guided on the end frame members and supported on the pistons of hydraulic elevators 25. Wringer roll shaft 22 carries the wringer roll 26 which cooperates with the carrier roll 15 and may be adjusted toward or from the same by the hydraulic elevators. The shaft 27 of the first washing brush 28 is journaled in slide bearings supported on the end frame members and movable toward and from the carrier roll 15 under the pressure of adjustable springs 29. The shaft 30 of the second washing brush 31 is likewise journaled in slide bearings on the end frame members, said bearings being pressed toward the carrier

roll by adjustable springs 32. The shaft 34 of the upper feed roll 35 is journaled in vertically slidable bearings on the end frames, which bearings are pressed downwardly by adjustable springs 36 to maintain the feed rolls 19 and 35 in contact. The doffing brush 37 is carried on shaft 38 which is journaled in slide bearings 39 which are adjustable toward and from the carrier roll 15 by screws 40.

Washing brushes 28 and 31 are reciprocable longitudinally through the medium of the mechanism illustrated in Fig. 7. In the slide bearings 41 are reciprocable bushings 42 in which are secured the outer races of ball bearings 44, the inner races of said bearings being secured respectively to the shafts 27 and 30, the construction thus holding the shafts against longitudinal movement relative to their respective bushings 42, yet permitting their rotation therein. Thrust yokes 45 are each connected at one end to the respective bushings 42 by a pin 46, and at the other end to a crank rod 47. The crank rods 47 are journaled on the cranks of crank shaft 48, which cranks are at approximately 180° angular displacement. Upon rotation of crank shaft 48, therefore, bushings 42 and washing brush shafts 27 and 30 are reciprocated longitudinally, moving simultaneously but in opposite directions. Guide links 50 resist eccentric thrust of yokes 45 on bushings 42.

The carrier roll 15 and wringer roll 26 are rotated by means as follows. The change speed gear mechanism 51 (Fig. 2) drives a sprocket 52 from which the chain 54 drives a stub shaft 55 which drives shaft 134 through spur gears 53 and 135. A chain 56 from a sprocket on shaft 134 drives the differential drive shaft 57. Differential drive shaft 57 carries the spider 58 carrying the planetary beveled pinions 59 of a differential gear. The planetary pinions engage at one side the pinion 60 of differential shaft 61 which extends across the front of the machine and carries spur pinion 62 (Fig. 3) which meshes with the spur gear 64 carried on the left hand end of carrier roll shaft 14. Differential gear pinion 65 (Fig. 2) is carried on a sleeve which rotates on differential drive shaft 57 and which sleeve carries a sprocket 66 that drives wringer roll shaft 22 through the medium of a chain and sprocket connection 67. Thus, while the speed of differential drive shaft 57 is constant, carrier roll 15 and wringer roll 26 may take different rotational speeds. The reasons for providing this differential driving linkage between the carrier roll and the wringer roll are explained hereinafter.

The washing brush shafts 27 and 30 are rotated by means as follows. Sprocket shafts 68 and 69 are journaled on an auxiliary end frame 70 and are driven from shaft 57 by sprocket and chain connections 71 and 72. Sprocket shaft 68 is connected by a coupling 74 to a sleeve 75. A stub shaft 76 is slidable longitudinally in sleeve 75 but is splined thereto so as to rotate therewith. Stub shaft 76 is connected by a coupling 77 with the right hand end of first washing brush shaft 27. Consequently, when sprocket shaft 68 is rotated, shaft 27 will be rotated with it, but may at the same time take its longitudinal reciprocating movement as above described. The couplings 74 and 77 provide a universal joint which accommodates movement of shaft 27 toward and from the carrier roll. Driving connection between sprocket shaft 69 and second washing brush shaft 30 is similarly made by coupling 78, sleeve 79, spline shaft 80, and coupling 81.

Crank shaft 48 (Fig. 1) is rotated through the medium of a beveled gear connection 82 with shaft 84, which latter shaft is driven by a chain and sprocket connection 85 with the change speed drive mechanism 51 (Fig. 2).

Lower feed roll shaft 18 is driven through the medium of a chain 86 (Fig. 3) which is actuated by a sprocket 87 on carrier roll differential shaft 61, said chain also actuating a sprocket shaft 88 that is journaled on the left hand end frame. The upper feed roll shaft 34 idles. Back brush shaft 16 is actuated from shaft 84 (Figs. 2 and 4) through the medium of a chain 89, sprocket shaft 90 which is journaled on the right hand end frame, and chain 91.

Doffing brush shaft 38 is driven through the medium of a chain and sprocket connection 92 with wringer roll shaft 22 (Fig. 3), and a similar chain and sprocket connection 94 with shaft 22 (Fig. 4) at its other end.

Finishing brush shaft 20 is driven through the medium of a chain and sprocket connection 95 (Fig. 2) with differential drive shaft 57.

The directions of rotation of all of said shafts are indicated by the arrows in Fig. 5.

As illustrated in Fig. 6, the first washing brush 28 is constructed in such fashion that a succession of circumferentially extending spaces are afforded between groups of its bristles, so that it is in effect made up of a series of narrow circular brushes. Slidably mounted on the end frames 10 and 11 and extending parallel with first washing brush shaft 27 is a pipe 96, said pipe being slidable longitudinally in bearings 97, which bearings are in turn slidable toward and from carrier roll 15. Pipe 96 carries a series of jet tubes 98 which extend into the circumferential spaces between the groups of bristles of brush 28. The jet tubes have jet openings at their ends directed to discharge against the periphery of carrier roll 15. Pipe 96 is reciprocated longitudinally in consonance with the longitudinal reciprocation of washing brush shaft 27. For that purpose, pipe 96 is connected at its left hand end to the sliding bushing 42 of the first washing brush shaft by means of a link 99 (Figs. 1 and 2), and at its right hand end to a sliding bushing 100 by a link 101. Since both bushings 42 and 100 reciprocate longitudinally with shaft 27, corresponding reciprocation will be imparted to pipe 96 by these connections, so that jet tubes 98 will be moved back and forth in consonance with the longitudinal reciprocation of the brush 28. The left hand end of pipe 96 is closed, and at its right hand end it is provided with a flexible connection 102 from a suitable source of liquid supply, so that it may be supplied with liquid under high pressure to be ejected through jet tubes 98. Since brush 28 is yieldably urged toward carrier roll 15, the sliding mounting of pipe bearings 97 permits pipe 96 to move laterally in consonance with such movements of brush 28. Pipe 27 is preferably rotatably adjustable in its bearings 97 so that the direction of the jets may be altered as desired.

The bristling of back brush 17 is interrupted at intervals considerably farther apart than is the case with brush 28, and in the spaces are arranged thin stripper plates 104 (Fig. 5) which have guide noses that extend beyond the lower periphery of the brush, said stripper plates being supported on shaft 16 and engaged with a rod 105 to hold them against rotating about said

shaft. The bristling of doffer brush 37 is similarly interrupted at intervals, and thin stripper plates 106 are mounted on the shaft 38 in the spaces and anchored to a transverse member 107. Stripper plates 106 have noses which extend beyond the periphery of the brush. The bristling of finishing brush 21 is similarly interrupted at intervals and stripper rods 108 arranged in the spaces, said rods being supported on a transverse member 109 and having their end portions projecting beyond the lower peripheral portion of the brush.

Extending across the machine at its upper front portion is a trough 110 and leading rearwardly from the trough is an apron 111 which terminates at the upper periphery of the upper feed roll 35. Guide fingers 112 extend forwardly over the rearward portion of this apron and curve downwardly around the rearward periphery of the upper feed roll and forwardly to a position adjacent the bite of the two feed rollers 19 and 35. A stationary shaft 114 is mounted rearwardly and above the upper feed roll and extends transversely of the machine and carries a tubular shaft 115 which is rotatable thereon, said tubular shaft 115 being driven by a chain and sprocket connection 116 from sprocket shaft 38 (Fig. 1). A pair of swinging arms 117 are supported at their rear ends on shaft 114, one adjacent each side of the machine, and at their forward ends are connected by a swinging shaft 118 which has a tubular shaft 119 rotatably mounted thereon. Belts 120, of carding cloth, are carried on tubular shafts 115 and 119. A rocking shaft 121 is journaled on the frame above the forward ends of swinging frame members 117, and is connected to the latter by means of crank arms 122 and links 124. The piston rod 125 of an air cylinder 126 is connected to rocking shaft 121 by crank 127, and a hand operable valve device 128 is arranged to control the admission of pressure fluid to the respective sides of the piston in cylinder 126. The rocking shaft 121 may thus be rocked to elevate the forward ends of swinging members 117 and tubular shaft 119 carried thereby from the lowered position shown in Fig. 5 to the elevated position shown in dotted lines. In the lowered position, the belts 120 travel rearwardly across the upper surface of the apron 111, whereas in the elevated position the belts 120 are spaced a considerable distance above the apron.

Below the assembly of rollers and brushes is arranged a pan 129, which extends from end frame to end frame and discharges into waste tanks 130 which are drained through outlets 131. A wire mesh conveyor belt 132, which spans almost the full distance from end frame to end frame, travels rearwardly below the machine from a point in front of the finishing brush 21, said conveyor being driven by a shaft 134 actuated by a gear connection 135 to stub shaft 56 (Fig. 2).

Wipers 136 are carried on arms 137 which are supported on shaft 61 and maintained in wiping contact with the periphery of carrier roll 15.

The operation of the various parts having been described above, the operation of the machine for the cleaning of a rug will now be described, and the description may be followed most readily by reference to Fig. 5.

The course of the rug is designated by the dotted line. The rug is rolled up and placed in the trough 110, wherein it is submerged in a suitable cleaning solution, which may be a soap or other solution, so as to be quite thoroughly wetted therewith. The valve 128 is operated by hand to elevate the feeding belts 120. The leading margin of the rug is withdrawn from the trough by hand and laid flat upon the apron 111 with the pile or nap side up, care being taken to see that the leading margin of the rug is square or straight across the apron. Then the valve 128 is operated to effect the lowering of the feeding belts into contact with the rug on the apron. Since these belts are running continuously, they will immediately engage the rug and feed it rearwardly across the apron in outspread condition. The leading margin of the rug passes beneath the forward ends of the feed fingers 112 and into engagement with the upper feed roll 35, and it is guided around the rearward periphery of that feed roll by the guide fingers and into the bite between the feed rolls 35 and 19, which feed rolls are actuated at the same peripheral speed as the belts 120. Due to the peripheral grooving of feed rolls 19 and 35, the cleaning solution is not squeezed out of the rug incident to its passage between them. As soon as the leading margin of the rug is passed through the bite of the feed rolls, valve 128 is operated to effect movement of the feeding belts 120 to the elevated position, the feeding of the rug from the tank being thereafter accomplished by the feed rolls.

Upon passing between the feed rolls, the rug meets the back brush 17, which is running at a higher peripheral speed than the feed rolls, and causes the leading margin of the rug to follow the periphery of the lower feed roll 19 toward the carrier roll. Back brush 17 is thus effective to scrub the back of the rug. The projecting noses of the stripper plates 104 insure the separation of the rug from the back brush and direct it between the lower feed roll 19 and the carrier roll 15. On coming into contact with the rubber coated carrier roll 15, the rug is guided rearwardly against first washing brush 28 which is running at approximately the same or slightly higher peripheral speed than the carrier roll. The rug is thus fed between the carrier roll and the brush 28, and incident to its passage therebetween it is subjected to the scrubbing action resulting from the longitudinal reciprocating movement of that brush, the brush operating on the upper or pile surface of the rug. The friction between the rubber coated carrier roll and the back of the rug is greater than that imposed by the brush, and this, together with the retention exercised by the feed roll and/or wringer roll, holds the rug in position on the carrier roll so that it is not moved laterally by the brush. The extent of reciprocating movement of the brush is comparatively short (e. g., 2½ inches) but exceeds somewhat the width of the spaces between the groups of brush bristles and the space between the jet tubes, and the speed of the reciprocating movement of the brush is considerably greater than the progressive speed of the rug. Since the brush is urged toward the carrier roll by spring pressure, the bristles penetrate into the pile and accomplish a thorough scrubbing of the fabric which is still thoroughly wet with the cleaning solution. In passing from contact with the brush 28, the rug is subjected to the forcible impingement of the high pressure jets of liquid (e. g., water) from the jet tubes 98, the effect of said jets being to further loosen and flush out dirt from the rug. Due to the reciprocating movement of the jet tubes and the progressive movement of the rug, the traces or lines of impact of the jets upon the rug are caused to take a zigzag course, and due to the fact that the extent of

reciprocatory movement of the jet tubes exceeds the spacing of adjacent jet tubes, the traces of the jets have an inter-lapping relationship. Thus substantially the entire surface of the rug is subjected to the forcible impact of the jets, the water penetrating deeply into the fabric and exercising both a beating and flushing effect. The rug next meets the second cleaning brush 31, which subjects it to a further scrubbing by the reciprocatory movement of the brush. Upon passing second washing brush 31, the leading margin of the rug meets doffing brush 37 which holds the rug in contact with the carrier roll 15 and leads it into the bite of carrier roll 15 with rubber covered wringer roll 26, the projecting noses of the stripper plates 106 preventing the leading margin from following the doffer brush. The doffer brush may be rotated at a peripheral speed somewhat less than that of the carrier roll, so that, as the rug is advanced by the carrier and wringer rolls, it will operate to lay the nap or pile uniformly in the rearward direction. In passing between the carrier and wringer rolls, the rug is subjected to high compression or squeezing which presses out the free liquid. From the wringer roll the rug passes, pile side downward, over the finishing brush 21, which raises the pile and brushes it uniformly in the same direction. Passing downwardly from finishing brush 21, the rug drops on conveyor belt 132 in outspread condition with its pile surface up, and is carried rearwardly by the conveyor at the same linear rate that it is delivered from the machine, the speed of the conveyor being accurately synchronized with the speed of the machine so that neither any tensioning of the rug nor any piling up of the rug on the conveyor may occur.

It will be apparent that the machine is adapted to handle rugs or carpets of any length, and that two or more rugs may be passed through it simultaneously side by side, and that it will take rugs one immediately after another without regard to their lengths. It is to be observed also that the entire areas of both sides of the rug are subjected to scrubbing.

The interdependent differential action between the carrier roll and wringer roll provides a safeguard against stretching or creasing of the fabric. Rugs and carpets vary a great deal in thickness, and relative rotational speeds of the carrier roll and wringer roll which would be suitable when operating on a thin rug might be such as to cause a rubbing action between the rolls when operating on a thick rug. The interdependent differential drive arrangement above described provides an automatic adjustment of the relative rotational speeds of the carrier and wringer rolls such that their peripheral speeds are properly related to avoid any rubbing action on the rug.

In Fig. 8 is illustrated a machine similar in general respects to that above described, but in which the arrangement of operating parts is varied therefrom in certain respects. In this illustration the carrier roll shaft is designated 14' and the carrier roll 15', the wringer roll shaft 22', the wringer roll 26', and the finishing brush 21'. A peripherally grooved feed roll 140 is mounted for cooperation with the carrier roll at its top, and the apron 141 extends from the tank 110 to a point adjacent the bite of the feed roll and carrier roll. The first washing brush 28' and second washing brush 31' are actuated as above described with reference to brushes 28 and 31 to effect their reciprocation longitudinally, said brushes moving simultaneously in opposite directions. Brushes 28' and 31' are rotated in directions indicated by the arrows in Fig. 8 through the medium of chain and sprocket connections designated generally by the reference numeral 142, said connection being actuated from differential shaft 61'.

The course of the rug through the machine is indicated by the dotted line R'. The leading margin of the rug is inserted in the bite of the feed roll 140 and carrier roll 15', the pile side of the rug being upward. By operation of these rolls the rug is fed to the action of brush 28', which scrubs its upper pile surface. The rug is then led around the rearward side of brush 31', which scrubs its back or under surface. The jet tubes 98' from pipe 96' are directed so that the jets therefrom forcibly impinge the rug as it passes about brush 31', preferably at an angle nearly tangent. Thus as the rug passes around brush 31' its pile is open or spread, and the washing out and carrying away of the dirt by the jets from tubes 98' is facilitated. A guide plate 144 directs the rug into the bite between scrub brush 31' and doffing brush 37', which latter brush carries it toward the bite of carrier roll 15' and wringer roll 26'. As the rug passes between the last mentioned rolls, it is squeezed to press out liquid, and it is then passed over the finishing brush 21'. In this instance, as in the first form of apparatus described, the finishing brush 21' may be rotated at the same peripheral speed as wringer roll 26' or at a higher or lower peripheral speed to raise or lay the nap or pile of the rug. From the finishing brush 21', the rug feeds onto the traveling conveyor belt 132', whereon it is deposited with its pile side upward. The conveyor belt 132' carries the rug to the dryer.

Excepting for the mechanism for rotating the washing brushes 28' and 31', the means for actuating the various moving parts of the machine may be substantially the same as those for the machine previously described above, and longitudinal reciprocation of the pipe 96' may likewise be effected.

What we claim is:

1. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, feed means operable to feed rugs one after another to the carrier roll, a brush cooperating with the carrier roll to feed the rugs progressively, means for actuating the brush to scrub the rugs while they are passing the carrier roll, and a wringer roll cooperating with the carrier roll to squeeze the rugs after they have passed the brush.

2. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, a feed roll arranged to guide a rug toward the carrier roll, a brush associated with the feed roll and operable to brush one side of a rug thereon toward the carrier roll, a brush cooperating with the carrier roll and arranged to brush the other side of the rug in the direction of its progressive movement, and means for actuating the last mentioned brush to scrub the rug on the carrier roll incident to and transversely of its progressive movement.

3. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, means for feeding a rug progressively to the carrier roll, a brush cooperating with the carrier roll to propel the rug in progressive movement about the axis of the carrier roll, and means for reciprocating the brush longitudinally of the carrier roll to scrub the rug thereon.

4. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, means for feeding a rug progressively to the carrier roll, a brush cooperating with the carrier roll to impart progressive movement to the rug, means for reciprocating the brush longitudinally of the carrier roll to scrub the rug thereon, and means for projecting jets of liquid at high pressure against the rug adjacent the brush.

5. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, means for feeding a rug progressively to the carrier roll, a brush cooperating with the carrier roll to impart progressive movement to the rug, means for reciprocating the brush longitudinally of the carrier roll to scrub the rug thereon, jet tubes arranged at short intervals along the carrier roll in position to project jets of liquid against the rug on said roll adjacent the brush, means for supplying liquid under high pressure to said jet tubes, and means for reciprocating the jet tubes to shift the traces of their jets longitudinally of the carrier roll.

6. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, means for feeding a rug progressively to the carrier roll, a brush associated with the carrier roll to contact the rug incident to its progressive movement, means for reciprocating the brush longitudinally of the carrier roll to scrub the rug thereon, jet tubes arranged at short intervals along the carrier roll in position to project jets of liquid against the rug on said roll adjacent the brush, means for supplying liquid under high pressure to said jet tubes, and means for reciprocating said jet tubes longitudinally of the carrier roll in consonance with the reciprocation of the brush.

7. In a rug cleaning machine, in combination, a carrier roll, means for rotating same, means for feeding a rug progressively to the carrier roll, a pair of rotary brushes associated with the carrier roll and operable to brush the rug in the direction of its progressive movement, and means for reciprocating the brushes longitudinally of the carrier roll to scrub the rug thereon, said means for reciprocating said brushes moving them simultaneously but in opposite directions.

8. In a rug cleaning machine, in combination, a carrier roll adapted to impart progressive feeding movement to a rug, a wringer roll cooperating with the carrier roll to squeeze a rug incident to its passage between them, and actuating means including a differential gear for driving said rolls and effective automatically to permit variation of their relative angular speeds.

9. In a rug cleaning machine, in combination, a carrier roll rotatable to impart progressive feeding movement to a rug, a rotatable wringer roll cooperating with the carrier roll to squeeze a rug incident to its passage between them, a drive shaft, and a differential gear connecting said drive shaft and rolls whereby the rolls are driven by the shaft and variation of their relative speeds permitted.

10. In a rug cleaning machine, in combination, means for supporting and feeding a rug progressively, a rotary brush cooperating with said means and having its bristling arranged to afford circumferentially extending spaces at intervals lengthwise the brush, jet tubes extending into said spaces and arranged to direct jets against a rug supported by said means, means for supplying the jet tubes with liquid under pressure, and means for reciprocating the brush and jet tubes transversely of the direction of progressive movement of the rug.

11. In a rug cleaning machine, in combination, a feed roll, an apron for guiding a rug to said feed roll, an endless belt arranged to engage a rug on said apron, said belt being adjustable to a position in which it is at a substantial distance from the apron to permit the spreading of a marginal portion of a rug on the latter, and means for actuating the belt to move a rug on the apron into engagement with the feed roll.

12. In a rug cleaning machine, in combination, a trough adapted to hold a rug in a body of liquid, a carrier roll extending horizontally parallel with said trough, feed means arranged above the carrier roll for feeding a rug to it from said trough, a rotary brush extending parallel with and alongside the carrier roll in position to brush a rug supported thereon, means for projecting forcible jets of liquid against the rug adjacent said brush, a second brush extending alongside the carrier roll in position to brush a rug thereon after it has been struck by the jets, and a wringer roll disposed below the carrier roll in position for cooperation therewith to squeeze a rug incident to its passage between them.

13. In a rug cleaning machine, in combination, a feed roll, a carrier roll, a wringer roll cooperating with the carrier roll to squeeze a rug between them, brushes cooperating with said feed roll and carrier roll to feed the rug progressively to the wringer roll, said brushes arranged to brush both sides of the rug, and means for actuating the carrier roll and brushes.

14. In a rug cleaning machine, in combination, a carrier roll, a feed roll and a wringer roll cooperating with the periphery of said carrier roll and spaced apart from each other circumferentially thereof, a brush associated with the periphery of the carrier roll between the feed roll and wringer roll, means for rotating said rolls, and means for reciprocating the brush longitudinally of the carrier roll to scrub a rug in the course of its movement from the feed roll to the wringer roll.

15. In a rug cleaning machine, in combination, a carrier roll, means for rotating same to impart progressive movement to a rug, a rotary cylindrical brush associated with the carrier roll for operating on the rug in the course of its progressive movement, and means for rotating the brush oppositely to the carrier roll and reciprocating it longitudinally of the carrier roll incident to rotation of the latter.

16. In a rug cleaning machine, in combination, means for applying cleaning material to a rug, a carrier roll for supporting and progressively moving the rug, a plurality of jet tubes arranged at intervals longitudinally of the carrier roll to direct jets of fluid against the rug incident to its movement by said roll, means for supplying liquid under high pressure to said jet tubes, and means for reciprocating the jet tubes longitudinally of the carrier roll to cause the traces of the jets to change direction and take interlapping courses on the rug incident to its travel past the jets.

17. In a rug cleaning machine, in combination, means for applying cleaning material to a rug, a carrier roll for supporting and progressively moving the rug, a plurality of jet tubes arranged at intervals longitudinally of the carrier roll to direct jets of fluid against the rug incident to its movement by said roll, means for supplying liquid under high pressure to said jet tubes, and means for reciprocating the jet tubes longitudinally of

the carrier roll through a distance exceeding the intervals of the jet tubes, to cause the traces of the jets to take inter-lapping zigzag courses on the rug incident to its travel past the jets.

18. In a rug cleaning machine, in combination, means for applying cleaning material to a rug, a carrier roll for supporting and progressively moving the rug, a plurality of jet tubes arranged at intervals longitudinally of the carrier roll to direct jets of fluid against the rug incident to its movement by said roll, means for supplying liquid under high pressure to said jet tubes, and means for reciprocating the jet tubes longitudinally of the carrier roll through a distance exceeding the intervals of the jet tubes at a linear speed exceeding the peripheral speed of the carrier roll.

19. In a rug cleaning machine, in combination, a carrier roll for supporting and progressively moving a rug, a plurality of jet tubes arranged at intervals longitudinally of the carrier roll to direct jets of fluid against the rug incident to its movement past said roll, means for supplying liquid under high pressure to said jet tubes, and means for reciprocating the jet tubes longitudinally of the carrier roll through a distance exceeding the intervals of the jet tubes.

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