March 6, 1928. 1,661,510

E. SPROSTON

FLOOR TREATING MACHINE

Filed March 27, 1926 3 Sheets-Sheet 1

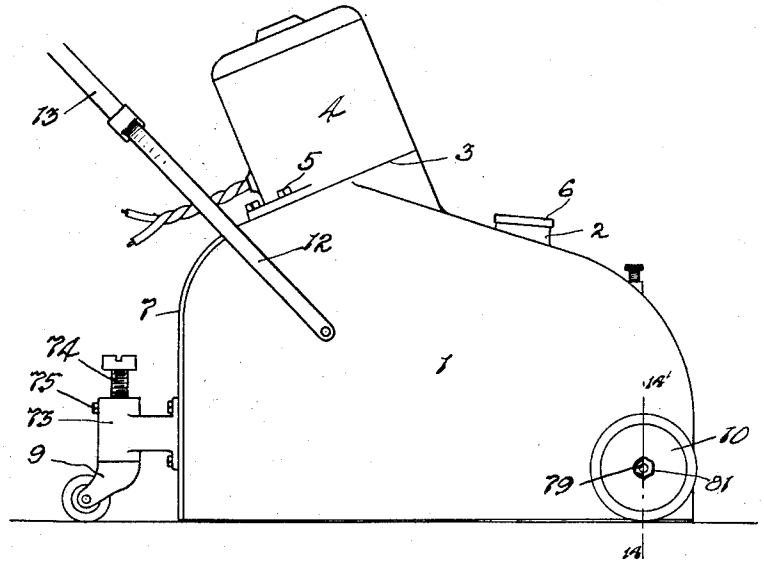


Fig 1

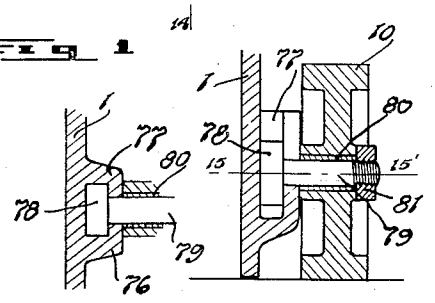


Fig 15 Fig 14

Fig 3

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FLOOR TREATING MACHINE

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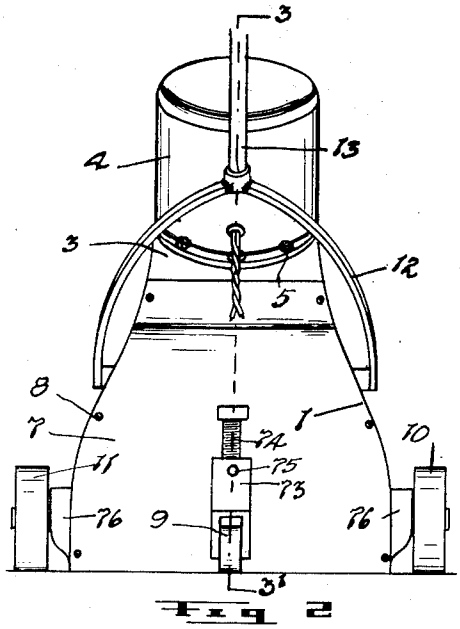


Fig 2

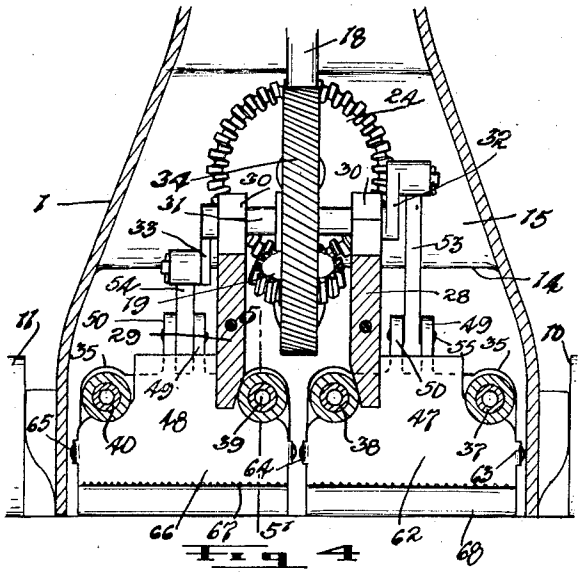


Fig 4

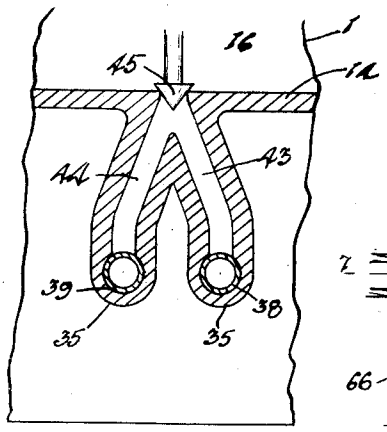


Fig 6

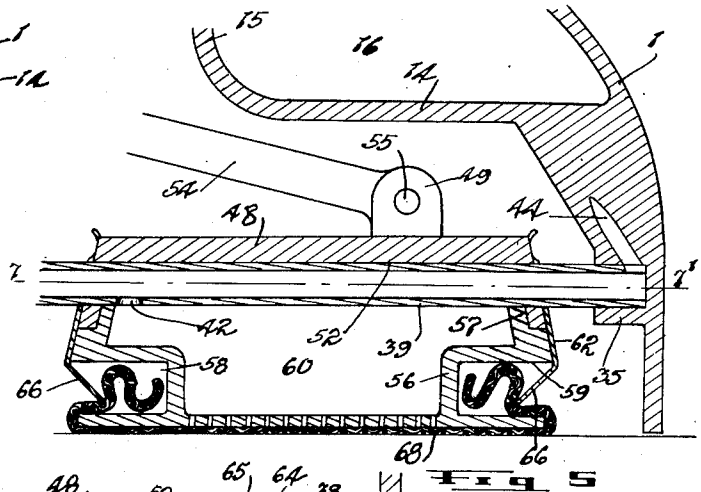


Fig 5

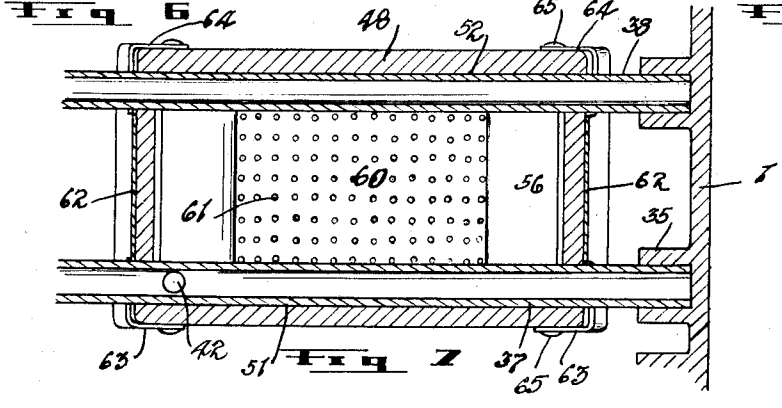


Fig 7

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FLOOR TREATING MACHINE

Filed March 27, 1926 3 Sheets-Sheet 3

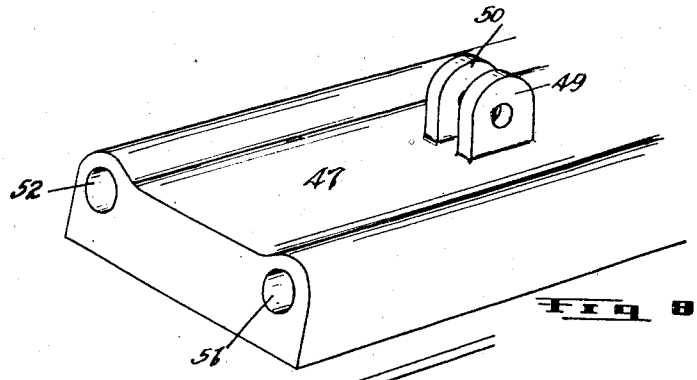


Fig 8

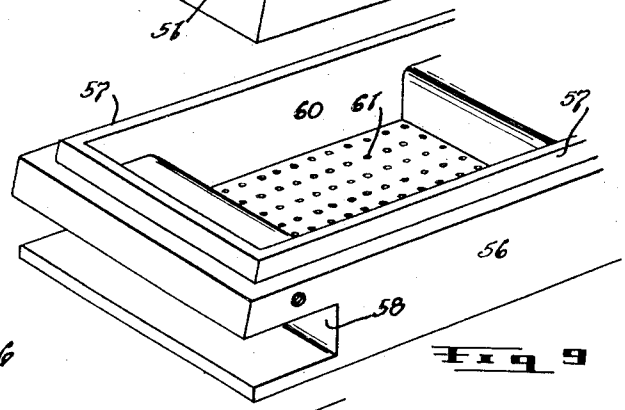


Fig 9

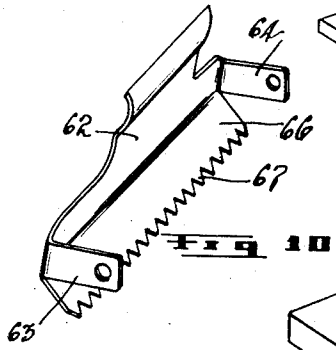


Fig 10

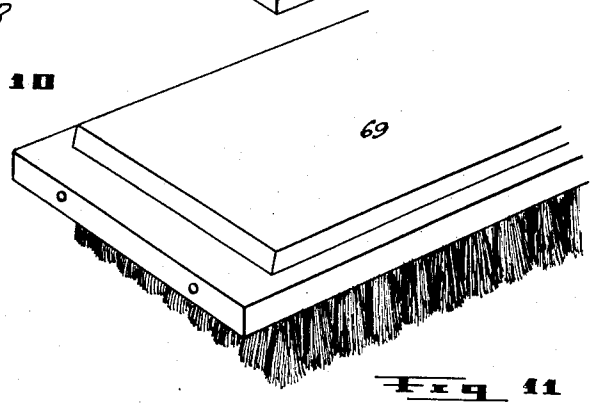


Fig 11

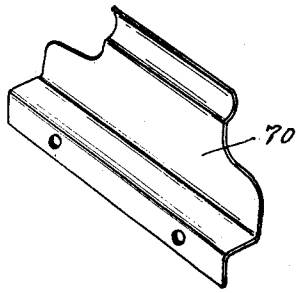


Fig 12

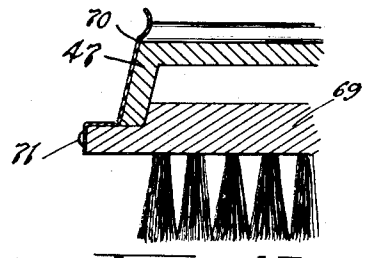


Fig 13

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UNITED STATES PATENT OFFICE.

EDMUND SPROSTON, OF WINNIPEG, MANITOBA, CANADA.

FLOOR-TREATING MACHINE.

Application filed March 27, 1926. Serial No. 98,049.

The invention relates to improvements in floor treating machines and an object of the invention is to provide an electrically driven machine by the use of which one can do the various types of work required on a floor such as sand papering, brushing, washing, waxing, oiling and so forth.

A further object of the invention is to construct a machine having reciprocating carriages to which the various appliances used on the floor can be easily and quickly attached and which are arranged such that oil or wax or other liquid can be readily fed thereto during their reciprocation.

A further object is to construct the machine so that the flow of the oil, wax or such liquid can be readily controlled and such that the liquid can be constantly stirred to keep it in a free running condition.

A further object of the invention is to construct the machine so that all the interior working parts can be readily inspected or removed as occasion demands.

A further object is to construct the machine so that it can be readily adjusted in respect to the floor on which it is operating.

With the above more important objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawings, in which:

Fig. 1 is a side view of the complete machine.

Fig. 2 is a rear view thereof.

Fig. 3 is an enlarged detailed vertical sectional view at 3—3′ Figure 2, the motor and certain other interior parts being shown in side elevation.

Fig. 4 is a vertical sectional view at 4—4 Figure 3.

Fig. 5 is an enlarged detailed vertical sectional view at 5—5′ Figure 4.

Fig. 6 is an enlarged detailed vertical sectional view at 6—6′ Figure 3.

Fig. 7 is a horizontal sectional view at 7—7′ Figure 5.

Fig. 8 is a perspective view of a portion of one of the carriages.

Fig. 9 is a perspective view of the demountable heads utilized for feeding oil or wax to the floor cloth.

Fig. 10 is a perspective view of one of the spring clips utilized to hold the head to the carriage.

Fig. 11 is a perspective view of a portion of the brush utilized.

Fig. 12 is a perspective view of the type of spring clip utilized to attach the brush to the carriage.

Fig. 13 is a vertical sectional view through the end of the brush and carriage and showing how the spring clip attaches the brush to the carriage.

Fig. 14 is an enlarged detailed vertical sectional view at 14—14′ Figure 1.

Fig. 15 is a horizontal sectional view at 15—15′ Figure 14.

In the drawings like characters of reference indicate corresponding parts in the several figures.

The various working parts of the machine other than the motor and the carirage wheels are housed within a casing 1 of a suitable design, the casing being provided forwardly with a filling opening 2 and rearwardly of the filling opening with an inclined bearing face 3 to which an electric motor 4 of any approved design is fastened by bolts 5. A filling cap 6 covers the opening 2 and the back end of the casing is closed by a removable back 7 fastened by removable screws 8 to the casing sides.

Rearwardly the casing is adjustably supported by a centrally located castor wheel 9 and forwardly it is adjustably supported by similar carriage wheels 10 and 11, the structural details of which are hereinafter described. A forked arm 12 is attached to the sides of the casing and is provided with a suitable handle 13. Interiorly the forward part of the casing is provided with transversely extending, horizontal and vertical partitions 14 and 15 which confine a forward oil, wax or other liquid containing chamber 16, the entrance to which is had through the filling opening 2. A bearing lug 17 is cast integral with the partitions and this provides a bearing for the lower end of the motor shaft 18.

On the lower end of the motor shaft I mount a bevel pinion 19 fastened thereto by a jam screw 20 and above the pinion the motor shaft presents a spiral thread or worm 21. The partition 15 is provided with a bearing 22 which rotatably supports a short shaft 23 having one end provided with a gear wheel 24 meshing with the bevel pinion 19 and the other end fitted with a paddle 25 operating in the rear part of the compartment 16. The gear wheel and paddle are fastened to the shaft 23 by jam screws 26 and 27.

It will be observed that when the bevel pinion 19 is meshing with the gear 24, there is a clearance space underneath it. This is provided so that if I do not desire to operate the paddle I can release the screw 20 and thereby permit the bevel pinion to slip down into a position resting on the bearing lug where the said pinion will be out of mesh with the gear wheel.

The removable back 7 carries a pair of similar spaced bearing brackets 28 and 29 which extend inwardly of the casing and carry similar aligned bearings 30, the bearings supporting rotatably a counter shaft 31, the ends of which are provided outside the bearings with cranks 32 and 33 disposed 180 degrees apart. Between the bearings and on the shaft, I mount a worm wheel 34 which is fastened to the shaft and which is driven by the worm 21.

Forwardly the casing is provided with four horizontally disposed suitably spaced sockets 35 and the removable back 7 is also provided with four suitably spaced horizontally disposed sockets 36 and these front and rear sockets are utilized to support four tubes or pipes 37, 38, 39 and 40 arranged in pairs. Jam screws 41 are provided to fasten the ends of the pipes in the rear sockets. According to this arrangement, when the back 7 is removed, the pipes pull out of the front sockets and accordingly withdraw from the casing with the back.

The inner tubes or pipes are provided centrally of their length and on their under sides each with a feed opening 42 and the forward end of each casing is provided with interior branching ducts 43 and 44 which communicate through the front bosses with the interior of the latter pipes or tubes. The meeting ends of the ducts open through the bottom of the partition 14 to the compartment 16 and an adjustable valve 45 is supplied for controlling the flow from the compartment through the ducts, the stem of the valve being screw threaded and mounted in the casing and the upper end thereof being supplied with a finger piece 46 for adjustment purposes.

The pairs of tubes carry carriages 47 and 48 and as the carriages are both of similar construction the description of one will suffice. Centrally on the upper side the carriage presents spaced upstanding lugs 49 and 50 and it is provided also with lengthwise extending parallel holes 51 and 52 adapted to slidably receive a pair of the rods or pipes. In this way each carriage is slidably mounted for endwise reciprocation on the rods and the carriages are reciprocated by links 53 and 54 attached to the cranks at one end and having the other ends fastened to the lugs 49 and 50 by pivot pins 55. The under sides of the carriages are hollow or open and they present substantially rectangular frames which receive block like holders later described. The amount of reciprocation given the carriages by the cranks is such that the feed openings 42 never pass outside of the carriage walls or frames.

The carriages are utilized to carry the various floor working attachments which will obviously require to be changed depending on the nature of the work to be done on the floor. When it is desired to apply a liquid such as oil or wax on the floor, I utilize a substantially rectangular block-like holder 56 for each carriage, each holder being provided on the top face with a rectangular rim 57 adapted to pass into the carriage frame and being provided at the ends with transverse end slots 58 and 59 and having the interior thereof providing a liquid distributing compartment 60 presenting a perforated bottom as indicated at 61. I might here point out that the ends of the carriages and the ends of the holders above the slots, both converging upwardly, such construction being best shown in Figure 3.

The holders are detachably fastened to the carriages by similar pairs of end clips 62, these clips each being provided with side arms 63 and 64 fastened to the sides of the blocks by similar screws 65. Each clip also is provided with an inwardly extending and downwardly inclining jaw 66 which has the lower edge thereof provided with a row of teeth 67. The jaws are adapted to enter the slots 58 and 59.

When a floor cloth 68 is to be attached to the holder, it is spread over the bottom face of the holder and the ends of the cloth are entered in the slots, it being understood that at this time the holder is free of the carriage and accordingly the upper ends of the spring clips can be swung inwardly over the holder to clear the jaws from the slots. The ends of the cloth having been placed within the slots, the upper ends of the clips are then pulled outwardly and such action causes the jaws to move in and grip the ends of the cloth and hold it in place as best shown in Figure 5. The holder with the cloth so attached is then placed on the carriage, the upwardly extending and inwardly converging ends of the clips at this time being slipped up the ends of the carriage. The

floor cloth resiliently resists the outspreading of the upper ends of the clips so that when the holder is finally in place, there is enough pressure exerted by the floor cloth on the clips to hold the holder in place on the carriage. This arrangement of clips provides a very convenient fastening not only for the floor cloth but also a very simple method of demountably attaching the holder to the carriage. Whilst I have mentioned a floor cloth, it will be readily understood that sand paper or other strips of material which might be required for working on a floor, could be attached to the holder in the same manner as the floor cloth described.

When the several floor cloths have all been attached to the holders and the holders placed on the carriages, it will be apparent that the floor cloths will be reciprocated by the running motor and that the liquid from the compartment 16 can flow to the floor cloth, the amount used depending on the setting of the valve 45. Here it is explained that the liquid flows down the ducts and into the innermost tubes and from the tubes through the holes 42 into the distributing compartment 60 and through the perforations 61 to the floor cloths. The rapid reciprocation of the carriages will cause the liquid admitted to the compartments 60 to be distributed well over the perforated bottoms of the compartments so that there will be an even distribution on the floor cloths.

If sand paper or other strips are to be used which require no liquid, one will naturally close the valve to prevent the feed of the liquid from the compartment 16. When it is desired to polish say a waxed floor, I provide similar brushes 69 which can be used instead of the holders 56. These brushes have the backs thereof constructed to seat in the carriage frames in the same manner as the holders and they are provided at the ends with similar spring clips 70 fastened by screws 71 to the ends of the brush and adapted to clip on the inclined ends of the carriage.

The castor wheel 9 is provided with a shank 72 which is rotatably mounted within a sleeve-like bearing 73 secured to the back 7 of the casing and the shank is also mounted so that it will slide endwise within the sleeve. An adjusting screw 74 is carried by the sleeve and engages the upper end of the shank and a jam screw 75 is provided for locking the adjusting screw in any set position. Obviously upon the adjusting screw being screwed down, the shank will be shifted downwardly and such will cause the raising of the rear end of the casing from the floor.

The carriage wheels 10 and 11 are mounted in the following manner. Each side of the casing is provided with vertical guides 76 and 77 which receive slidably therebetween a block 78. The block carries a horizontally disposed spindle 79 which extends outwardly between the guides and on the spindle I locate a sleeve 80 on which the carriage wheel is rotatably mounted. The free end of the spindle is screw threaded and carries a jam nut 81 which engages the outer end of the sleeve. According to this arrangement I can adjust the spindle in each instance by undoing the nut, then sliding the block between the guides up or down as required and then tighten up the nut to cause the sleeve to jam against the faces of the guides and in so doing frictionally hold the block in its adjusted position. Whilst I have described in detail the manner in which the carriage wheels and castor wheel can be adjusted, it will be readily understood that I do not desire to be limited to such particular construction as any convenient adjustable arrangement of these wheels will suit my purpose.

I wish here to point out that all the working parts of this machine can be readily inspected or removed when desired and in this connection, it will be apparent that if the screws 8 be removed, the back of the casing will pull out and will carry with it the brackets, the crank shafts and parts associated therewith, the tubes and the carriages. This being done, one can readily inspect the lower end of the motor shaft and the bevel gear and pinion.

What I claim as my invention is:—

1. A floor treating machine comprising a casing, wheels adjustably supporting the casing, a driving motor mounted on the casing, a plurality of parallel tubular guides carried by and within the casing and extending from the front to the rear thereof, similar carriages slidably mounted on the guides, a liquid containing compartment associated with the casing, driving connections between the motor and the carriages causing the reciprocation of the carriages, floor treating members detachably secured to the carriages and presenting liquid distributing chambers and means for feeding the liquid in regulated quantities from the former compartment to the latter compartments and through the tubular guide members.

2. A floor treating machine comprising a casing, wheels adjustably supporting the casing, a driving motor mounted on the casing, a liquid receiving compartment contained within the casing, parallel guide tubes passing lengthwise within and carried by the casing, said guide tubes having each an outlet opening in the under side thereof, similar carriages slidably mounted on the guide tubes driving connections between the motor and the carriages causing the reciprocation of the carriages in the operation of the motor, holders detachably secured to the carriages, said holders providing interior liquid

receiving compartments having perforated bottoms, means for feeding the liquid in regulated quantities from the former compartment to the latter compartments and through the tubes and floor working members carried by the holders and underlying the same.

3. A floor treating machine comprising a casing, wheels adjustably supporting the casing, a driving motor mounted on the casing and presenting a motor shaft extending downwardly into the casing, a rotatably mounted counter shaft within the casing, cranks carried by the shaft, parallel guides carried by and extending from the front to the rear of the casing, similar carriages slidably mounted on the guides, links pivotally connecting the cranks with the carriages and floor working members demountably attached to the carriages.

4. A floor treating machine comprising a casing, adjustable wheels supporting the same, a driving motor mounted on the casing and presenting a driving shaft extending downwardly into the casing, a counter shaft rotatably mounted within the casing, cranks secured thereto, a worm on the motor shaft, a gear wheel secured to the counter shaft and meshing with the worm, a plurality of similar parallel guide members contained within and passing from the front to the back of the casing, similar carriages slidably mounted on the guide members, a link pivotally connecting each carriage with a crank on the crank shaft and floor working members detachably secured to the carriages.

5. A floor treating machine comprising a casing, said casing being provided with a demountable back, wheels adjustably supporting the casing, a driving motor mounted on the upper part of the casing and having the driving shaft thereof extending downwardly therewithin and presenting a worm, brackets contained within the casing and secured to the removable back thereof, a counter shaft rotatably carried by the brackets, cranks secured to the counter shaft, a worm wheel secured to the counter shaft and engaging with the worm, a plurality of parallel guide members extending from the front to the back of the casing and having their rear ends secured to the casing back and their forward ends withdrawably supported in the forward end of the casing, carriages slidably mounted on the guide members, links pivotally connected to the cranks and to the carriages and floor working members detachably secured to the carriages.

6. A floor treating machine comprising a casing, wheels adjustably supporting the casing, a driving motor on the top of the casing and having the driving shaft thereof extending downwardly into the casing and presenting a worm, a liquid receiving compartment contained within the casing, a shaft rotatably mounted in the wall of the compartment, a paddle wheel secured to the latter shaft and within the compartment, a bevel gear secured to the latter shaft, a bevel pinion secured to the motor shaft and meshing with the bevel gear, a counter shaft rotatably mounted within the casing, cranks secured to the counter shaft, a worm wheel secured to the counter shaft and meshing with the worm, parallel horizontal tubular guides carried by and extending from the front to the rear of the casing, said guides being provided on the under sides with feed openings, carriages slidably mounted on the guides and having their under sides open, links pivotally connected to the cranks and to the carriages, holders detachably secured to the under sides of the carriages and providing interior liquid receiving compartments having perforated bottoms, means for feeding the liquid from the former compartment in regulated quantities into the forward ends of the guides and floor working members detachably secured to the holders and underlying the same.

7. In a floor treating machine, in combination, tubular guides having feed openings in the under sides thereof, carriages slidably mounted on the guides and having their under sides open, holders detachably secured to the carriages and presenting interior liquid receiving compartments having openings in the bottoms thereof and means for attaching floor treating members to the holders, the said members underlying the holders.

8. In a floor treating machine, in combination, a reciprocating carriage, a holder underlying the carriage and having the ends thereof presenting horizontally disposed end notches, similar spring clips having their ends pivotally attached to the ends of the holder and detachably fastening the holder to the carriage, said clips being provided with downwardly extending and inwardly inclining jaws entering the end notches and a floor cloth underlying the holder and having the ends thereof entering the end notches and held therein between the jaws and the bottoms of the notches in the attached position of the holder to the carriage.

9. In a floor treating machine the combination of a liquid reservoir, a fountain reciprocating tool movable relative to said reservoir and equipped with a liquid receiving chamber and a hollow tube passing through said tool and supporting the same for reciprocating movement, said tube having a liquid inlet communicating with the reservoir and a liquid outlet communicating with the liquid receiving chamber of the tool.

10. In a floor treating machine the combination of a casing having a liquid reservoir formed therein, a pair of parallel hollow guide tubes mounted in said casing, a pas-

sage formed in the casing and establishing communication between the liquid reservoir and the end of one of said tubes, there being an opening formed in the lower portion of the said tube intermediate the length thereof for the discharge of liquid received through said passage and a fountain tool slidably mounted on said tubes and including a liquid receiving chamber arranged to receive the liquid discharged through said opening.

Signed at Winnipeg this 6th day of January, 1926.

EDMUND SPROSTON.