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SHIFTABLE PICK-UP SQUEEGEE UNIT FOR FLOOR TREATING MACHINE

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2 Sheets-Sheet 1

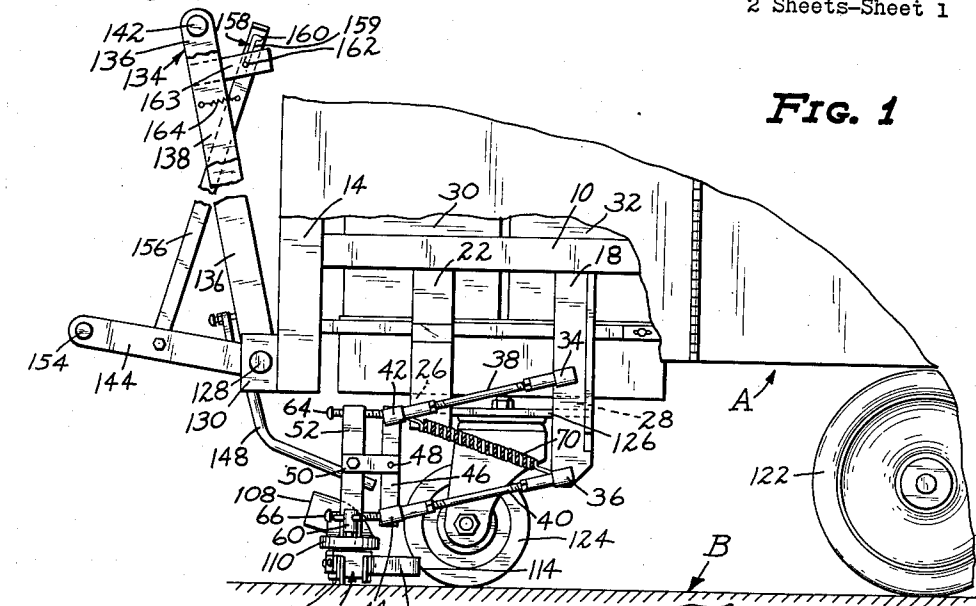


FIG. 2

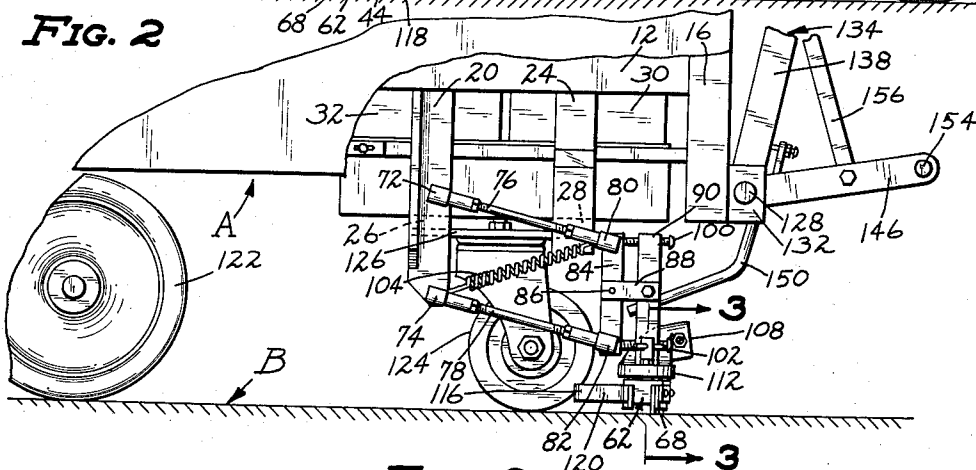


FIG. 3

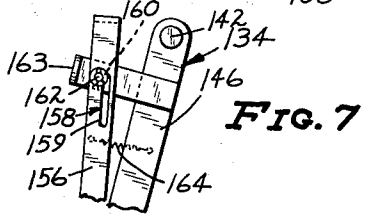
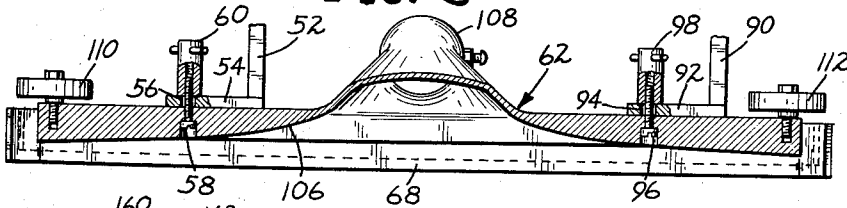


FIG. 7

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**SHIFTABLE PICK-UP SQUEEGEE UNIT FOR  
FLOOR TREATING MACHINE**

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4 Claims. (Cl. 15—359)

The invention relates to an improvement in floor treating machines of the type having a brush and a wet or dry pickup squeegee member positioned behind the brush. The pickup member is connected to a vacuum unit mounted on the machine.

In the above mentioned type of conventional machines, the length of the pickup member is greater than the width of the path covered by the brush to assure complete coverage by the squeegee of the path treated by the brush. As a result, it is impossible to place the brush against a wall to treat the floor right up to the wall due to the extent of the pickup squeegee.

It is an object of this invention to provide a pickup squeegee unit for a floor treating machine which upon pressure contact will move laterally of the machine upon which it is mounted. It is also an object to provide a pickup squeegee which is movable vertically. It is a further object to provide a pickup squeegee unit having means for allowing lateral as well as vertical movement thereof.

It is a still further object to provide a pickup squeegee having a construction whereby the same will track behind the brush member of the machine when the machine is moved forward in an arc.

It is a further additional object to provide a pickup squeegee unit for a floor treating machine which may be retracted upwardly and retained in spaced relation to the surface on which the machine is used.

It will not be here attempted to set forth and indicate all of the various objects and advantages incident to the invention, but other objects and advantages will be referred to in or else will become apparent from that which follows.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings, showing by way of example a preferred embodiment of the inventive idea wherein like numerals refer to like parts throughout.

In the drawings forming part of this application:

FIGURE 1 is a side elevational view of the rear portion of the floor treating machine showing the pickup unit embodying the invention.

FIGURE 2 is a side elevational view of the machine and pickup unit opposite to that of FIGURE 1.

FIGURE 3 is a sectional view on the line 3—3 of FIGURE 2.

FIGURE 4 is a rear elevational view of the pickup unit and a portion of the rear of the machine.

FIGURE 5 is a sectional view on the line 5—5 of FIGURE 4, showing the squeegee pickup unit in a shifted position.

FIGURE 6 is transverse section of the pickup housing with a portion of the pickup connection broken away.

FIGURE 7 is a detailed view of the upper ends of the handle and locking lever for the pickup housing.

Referring to the drawings in detail, the floor treating machine A, only the rear portion of which is shown, includes the main longitudinal frame members 10 and 12 connected at their outer rear ends to the upright rear frame members 14 and 16. Secured to and depending from the main frame member 10 is the main vertical support member 18, and secured to and depending from the main frame member 12 is the main vertical support member 20 oppositely disposed to the member 18. Also

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secured to the main frame members 10 and 12 are the vertical support members 22 and 24, respectively.

The numerals 26 and 28 designate a pair of horizontal braces which are connected to the main vertical support members 18 and 20 and the vertical supports 22 and 24, respectively. The horizontal braces 26 and 28 carry the storage batteries 30 and 32 used to power the machines.

Further provided are a pair of spaced forward upper and lower ball joint connectors 34 and 36, respectively, connected to the main vertical support member 18. Connected to the ball joint connectors 34 and 36 are the rod arms 38 and 40, respectively. The rear ends of the rod arms 38 and 40 are connected to the spaced rear upper and lower ball joints 42 and 44 which are connected to the outer ends of the vertically disposed bar 46 pivotally mounted by means of the pin 48 on the outer free ends of a pair of short bars 50 secured to the upright support 52. The lower end of the upright 52 is secured to a plate member 54 formed with a slot 56 in which is positioned the upstanding bolt 58 on which is screwed the threaded hold down member 60. The bolt 58 is secured to the pickup housing 62, and with the hold down 60 tightly engaging the plate 54, the pickup housing 62 is thereby secured at one end to the upright 52.

The angular relation of the upright support 52 with respect to the vertically disposed bar 46 may be adjusted by means of the screws 64 and 66 which are threadedly mounted in the upright 52 and which engage the upper and lower ends of the vertical bar 46. Adjustment of the position of the upright support 52 determines the angular position of the pickup housing 62 and consequently the angular relation of the rubber squeegee blade 68 to the floor on which the machine rests.

The numeral 70 designates a coil spring which is connected to the ball joint 42 and the ball joint 36 and which urges the rod arm 38 in a downwardly direction at its rear end and as a result the pickup housing 62 is urged downwardly upon the surface through the connecting members heretofore described. The spring 70 moves freely with the arms 38 and 40 in their lateral and up and down movement hereinafter described.

Further provided are a pair of spaced forward upper and lower ball joints connectors 72 and 74, respectively, connected to the main vertical support member 20, particularly FIGURE 2. Connected to the ball joint connectors 72 and 74 are the rod arms 76 and 78, respectively. The rear ends of the rod arms 76 and 78 are connected to the spaced rear upper and lower ball joints 80 and 82 which are connected to the outer ends of the vertically disposed bar 84 pivotally mounted by means of the pin 86 on the outer free ends of a pair of short bars 88 secured to the upright support 90. The lower end of the upright support 90 is secured to a plate member 92 formed with a slot 94 in which is positioned the upstanding bolt 96 on which is screwed the threaded hold down member 98. The bolt 96 is secured to the pickup housing 62, and with the hold down 98 tightly engaging the plate 92, the pickup housing is thereby secured at one end to the upright 90 and together with the connection with the upright 52 the pickup housing 62 is securely held in a floating position more fully hereinafter described.

The angular relation of the upright support 90 with respect to the vertically disposed bar 84 may be adjusted by means of the screws 100 and 102 which are threadedly mounted in the upright 90 and which engage the upper and lower ends of the vertical bar 84. Adjustment of the position of the upright support 90 determines the angular position of the pickup housing 62 and consequently the angular relation of the rubber squeegee blade 68 to the floor on which the machine A rests. Such adjustment is made in connection with the adjust-

ment of the position of the upright support 52 hereinbefore described.

The numeral 104 designates a coil spring which is connected to the ball joint 80 and the ball joint 74 and which urges the rod arm 76 in a downwardly direction at its rear end thereby urging the pickup housing downwardly with the blade 68 upon the surface by means of the members heretofore described. The spring 104 moves freely with the rod arms 76 and 78 in their lateral and up and down movement hereinafter described.

The pickup housing 62 is an elongated member formed with the internal wide mouth formation 106 which leads to the end opening connection 108 to which is connected a tubing 109 leading to a vacuum device mounted in the machine A but not here shown. Mounted each end of the pickup housing 62 are the rotatable bumper wheels 110 and 112 the outer limits of which are substantially that of the outer ends of the blade 68, and also secured to the outer ends of the pickup housing are the deflector brackets 114 and 116 presenting the edges 118 and 120, respectively, which are angularly disposed to the longitudinal axis of the pickup for deflecting the squeegee when the same strikes an object.

The machine A is supported on a pair of wheels 122 connected to the frame members 10 and 12 and a caster wheel 124 mounted on the plate 126 connected to the horizontal braces 26 and 28.

Further provided is the support rod 128 connected to the lower ends of the upright rear frame members 14 and 16 by means of the blocks 130 and 132. Also provided is a handle 134 formed of the spaced upright members 136 and 138, the lower ends of which are connected to the sleeve 140 pivotally mounted on the support rod 128. The upper ends of the members 136 and 138 are connected by a cross bar handle member 142.

So that the pickup housing 62 and blade 68 may be lifted free of the surface B, the following is provided: A pair of spaced arms 144 and 146 are pivotally mounted at their inner ends on the support rod 128 and extending from the inner ends thereof are the lift arm portions 148 and 150, respectively. The lift arm portions 148 and 150 are so formed and positioned that the same engage under the transverse rod 152 which is secured to the inside of each of the upright supports 90 and 52.

The outer ends of the spaced arms 144 and 146 are connected by a pedal bar 154; and as the operator pushes downwardly on the pedal bar 154, the lift arms 148 and 150 lift upwardly under the rod 152 and thereby lift the pickup housing 62 and blade 68 upwardly from the surface B.

To maintain the blade 68 in an upward retracted position the following is provided: A long lever 156 is connected at its lower end to the arm 146, and formed in the upper end of the arm 156 is the slot 158 formed of the straight portion 159 and the L or offset portion 160. A pin 162 is secured to the bracket 163, connected to the upright 138, which is adapted to move in the slot 158. When the blade 68 is in the lowered position, the pin 162 is in the lower portion of the slot portion 159 of the slot 158. When the pedal bar 154 is depressed, the arm 146 is thereby lowered, and the pin 162 is brought into the offset portion 160 of the slot 158 by means of the spring 164 urging the long lever 156 towards the handle member 138 thereby moving the pin 162 into the offset portion 160 of the slot 158. As a result, the arms 144 and 146 are held in a downward position thereby holding the lift arms 148 and 150 in an upward position up against the rod 152 whereby the pickup housing 62 and blade 68 are held in a raised position.

When it is desired to lower the blade 68, the upper end of the long lever 156 is pushed forwardly of the machine (to the left in FIGURE 7) whereby the pin 162 is forced from the offset slot portion 160 into the straight slot portion 159, and due to the weight of the pickup housing 62 and the supports therefor, the same is free to fall to

the surface B in the position shown in FIGURES 1, 2, 4 and 5.

The machine is equipped with a circular floor treating brush 166 indicated in broken lines in FIGURE 4, and the same is driven by a power unit not shown. It will be seen that the brush 166 is mounted off center of the longitudinal center of the machine, and that the pickup housing 62 and squeegee blade 68 are also mounted off center with regard to the frame center so that a wet or dry pickup may be effected directly behind the brush. The length of the pickup 62 is greater than the width of the area covered by the brush so that pickup is complete.

It will be seen, in FIGURE 4, that with the roller 110 and the end of the squeegee blade 68 just touching the wall C, that the brush 166 cannot treat the surface B up to the wall C. Such is true of present day floor machines. However, with the improvement herein disclosed in the pickup mounting the squeegee blade, the brush 166 may be moved and guided against the wall as illustrated in FIGURE 5 due to the fact that the pickup is shifted or moved to the position shown in FIGURE 5 wherein it will be seen the angular disposition of the rod arms 38 and 76, FIGURE 5, together with the coating structure. Such shifted position of the pickup housing 62 allows the brush to treat right up to the wall C with the roller 110 contacting the wall and the squeegee blade 68 also being effective up to the wall.

In addition, a further advantage of the shiftable pickup squeegee lies in the fact that as the machine is directed to turn in an arc, the pickup squeegee follows the brush 166 in substantially the same arc. It will be seen also that the shiftable mechanism mounting the pickup housing 62 also allows the pickup housing 62 to be moved up and down by the mechanism hereinbefore described.

Further, the up and down movement of the pickup housing, as the squeegee rides on the floor, allows the squeegee to follow the contour of the floor which is not always flat. Either of both sides of the squeegee may lift due to the two sets of rod arms 76 and 78 and 38 and 40.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a floor treating machine, frame means, a pair of spaced rigid vertical support members connected to said frame means, a pickup housing, a pair of parallelly disposed upper and lower rod arms each pivotally connected at the front end thereof to one of said pair of vertical support members and pivotally connected at the rear end to said pickup housing for vertical and horizontal movement, a second pair of parallelly disposed upper and lower rod arms each pivotally connected at the front end thereof to the second of said pair of vertical support members and pivotally connected at the rear end to said pickup housing for vertical and horizontal movement, spring means connecting the upper rod arm of each pair thereof to a vertical support arm to urge said pickup housing downwardly upon a surface and means for positioning said pickup housing in a position raised from the surface on which the machine rests.

2. In a floor treating machine frame means, a vacuum pickup housing having a squeegee mounted thereon, rod means pivotally connected at one end to said frame means by single pivot means and pivotally connected at the opposite end to said pickup housing by single pivot means for vertical and horizontal movement, spring means urging said pickup housing in a downward direction and means operatively associated with said pickup housing for raising said pickup housing against the action of said spring means to a selected non-operating position against the action of said urging means.

3. In a floor treating machine, frame means, a vacuum

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pickup housing having a squeegee mounted thereon, spaced rod means connecting said frame means with said pickup housing, said rod means being connected at each end at a single pivot point and movable vertically and laterally with respect to said frame means, spring means urging said pickup housing in a downward direction from said frame means, and means operatively associated with said pickup housing for raising said pickup housing to a selected non-operating position against the action of said spring means.

4. In a floor treating machine, frame means, first and second vertical spaced support members connected to said frame means, a pickup housing, a first pair of spaced parallelly disposed upper and lower rod arms, a ball joint connecting the front end of each of said arms to said first vertical support member and the rear ends to said pickup housing, a second pair of spaced parallelly disposed upper and lower rod arms, a ball joint connecting the front end

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of each of said second arms to said second vertical support member and the rear ends to said pickup housing to allow vertical, horizontal, and angular movement of said pickup housing, spring means connected to each of said upper first and second rod arms and said pickup housing to normally urge said pickup housing downwardly upon a surface on which the machine rests.

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