Nov. 18, 1941. H. A. FALLON 2,262,839

SURFACE TREATING MACHINE

Filed Feb. 26, 1940

Fig. 1.

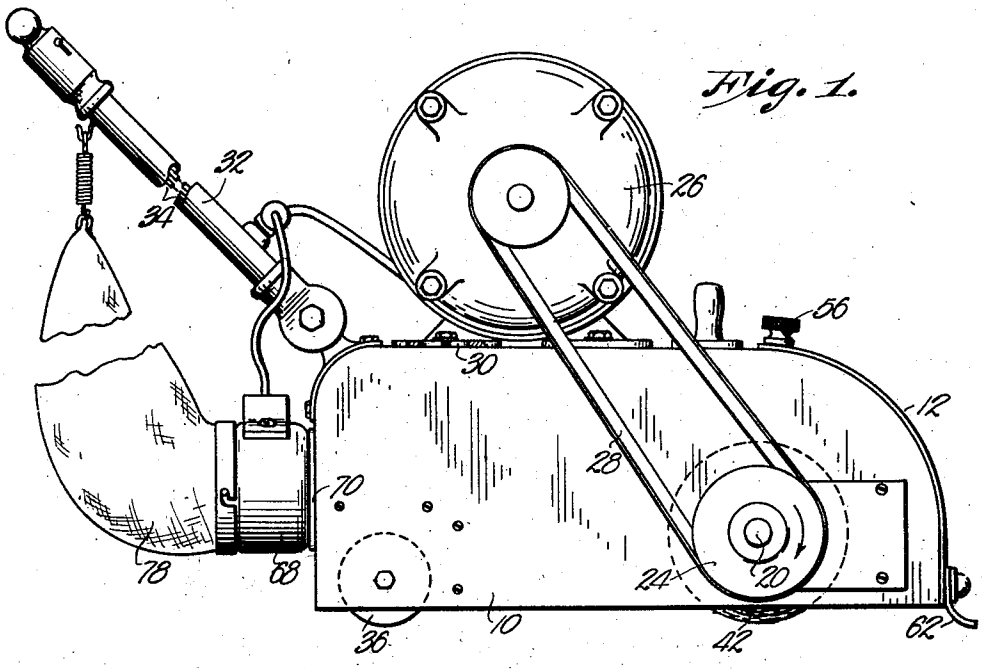


Fig. 2.

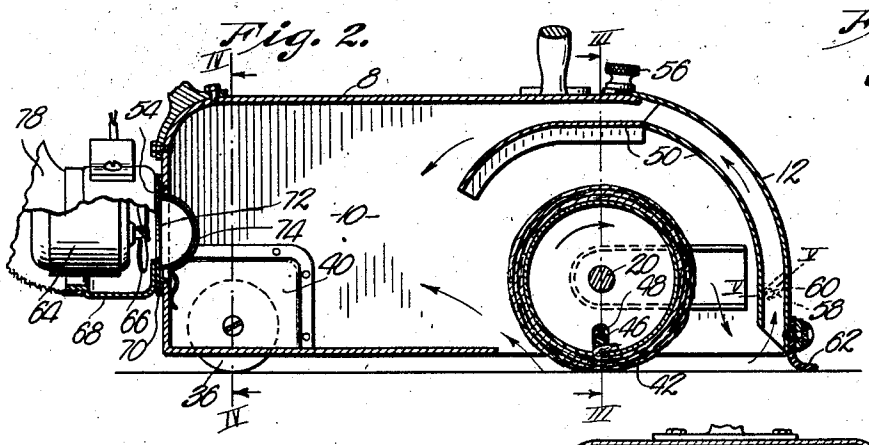


Fig. 5.

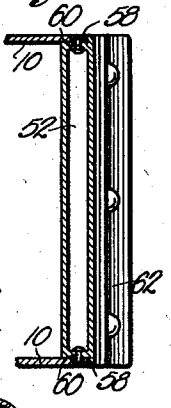


Fig. 3.

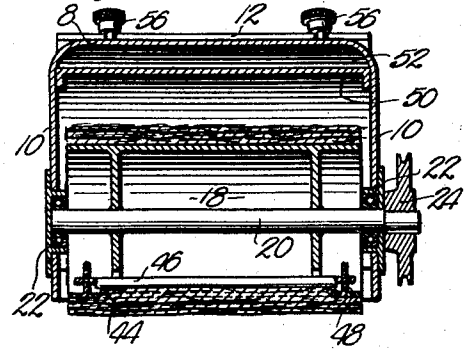
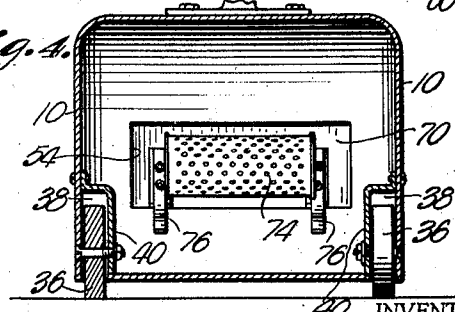


Fig. 4.



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SURFACE TREATING MACHINE

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Application February 26, 1940, Serial No. 320,835

3 Claims. (Cl. 15—4)

This invention relates to surface treating machines of the character employing a power driven, abrasive carrying drum, and the primary object of the invention is the provision of such a machine with means for collecting dust and particles which are removed from the surface.

One of the important aims of this invention is to provide a machine of the above character wherein the abrasive carrying drum is so disposed, with respect to parts of a specially formed body, as to create air currents that are directed toward a receiving receptacle formed within the body and wherein relatively heavy entrained particles will separate from the currents of air and settle by gravity during the operation of the machine.

A yet further object of this invention is to provide a surface treating machine with a rotatable drum and a motor driven fan that cooperate in depositing particles in a specially created receptacle as the same are produced through the operation of the machine; said fan serving to evacuate the receptacle of dust and lighter material and to prevent eddy currents that would otherwise carry the dust out of the receptacle.

Other objects of the invention will appear during the course of the following specification, referring to the accompanying drawing wherein:

Figure 1 is a side elevation of a surface treating machine made to embody the features of this invention.

Fig. 2 is a vertical, longitudinal, central section through said machine.

Fig. 3 is a vertical, cross-sectional view through the same taken on line III—III of Fig. 2.

Fig. 4 is a vertical, sectional view through the machine taken on line IV—IV of Fig. 2, and

Fig. 5 is a fragmentary, detailed sectional view taken on line V—V of Fig. 1.

The surface treating machine embodying this invention preferably comprises a body having a top 8, sides 10, ends 12 and a bottom 14, all of which are combined to create a box-like body provided with an opening 16 through the bottom 14 thereof adjacent to the forward end of the body. A cylindrical drum 18 is mounted upon shaft 20 which in turn is journalled in bearings 22 carried by the opposite sides 10 of the body. These sides carry shaft 20 so that it may be rotated through the medium of pulley 24, mounted thereon exteriorly of the body.

A motor 26 carried on top of the body is in operable connection with drum 18 through the medium of pulley 24 and belt 28. This belt may be adjusted as to tension through the use of slotted brackets 30 of conventional character.

A handle 32 secured to the body extends to a point within easy reach of the operator and wires 34 carry current to motor 26. The rear portion of the body is supported by rollers 36 mounted within small separate chambers 38 divided from the rest of the body by partitions 40. There is one of these rollers 36 adjacent each side at the rear of the machine and the forward part of the machine is carried by the drum 18, which rests directly upon the surface being treated. Thus, a sufficient amount of weight is present to cause the abrasive material on drum 18 to function. The desired amount of downward pressure on drum 18 is secured when the operator swings handle 32 and the body of the machine around the aligned axes of rollers 36.

The abrasive material on drum 18 is in the form of a ribbon of steel wool 42. This ribbon is substantially the same width as drum 18 and is wound around the outer annular face of the drum 18 in successive layers, the winding being in a clock-wise direction so that as drum 18 is rotated in the direction of the arrow (Fig. 2), the free end will be held against the remaining portion of the steel wool. One end of the ribbon of steel wool is held in place by a specially formed clamp which comprises a longitudinal slot 44 and a bar 46. Slot 44 is formed through the wall of drum 18 and bar 46 is within the hollow drum adjacent to said slot. Machine screws or the like 48, extend through small openings in the side of drum 18 and into screw-threaded engagement with each end of bar 46, thus when the ribbon of steel wool is between bar 46 and the inner face of drum 18, these machine screws may be tightened and thus clamp the end of the ribbon of steel wool 42 in place.

A partition 50 is formed within the housing substantially parallel to and in spaced relation with a portion of the top 8 and end 12. This partition 50 entends from side to side and creates a passageway 52 through which air currents are forced in the direction of the arrows shown in Fig. 2, for the purpose of keeping the surface being treated free from foreign particles. The rotation of drum 18 is sufficient to set up the currents just mentioned and a portion of the body rearwardly of drum 18 and above bottom 14 serves as a receptacle to catch the particles which are carried thereinto by the said currents of air.

In the commercial use of a machine made exactly as illustrated, all particles which it is desirable to collect are retained within the body

rearwardly of drum 18 and may be removed therefrom through an opening 54 provided in the rear end 12. The forward end 12 is removably associated with the rest of the body and carries that portion of partition 50 which is in parallel spaced relation thereto.

Thumb-screws 56 are employed to hold this removable end 12 in place and inclined slots 58 formed in opposed sides 10 receive pins 60 carried by end 12. A rubber strip 62 mounted upon forward end 12 engages the surface being treated and bridges the distance between the forward portion of the machine and the surface being treated so that air currents travelling through passageway 52 will be directed upwardly from the said surface between drum 18 and strip 62 to carry free particles from that portion of the surface being treated. The removal of this forward end 12 will permit adjusting the screws and adjusting the drum and supplying the same with additional abrasive when desired.

Suction means is provided to augment the action of drum 18 in depositing particles in the body. This means also insures that dust will not escape from the interior of the machine and that the tendency of the loosened particles will always be to travel toward rear wall 12. An electric motor 64 drives fan 66 which is removably secured behind opening 54. Housing 68 contains both the motor 64 and fan 66 and plate 70, provided with a hole 72 therethrough, fits over opening 54, as seen in Fig. 2.

A shield 74 of foraminous material is mounted on plate 70 over hole 72 and is arched to extend into the body of the machine. Spring clips 76, carried by plate 70, engage the inner face of end wall 12 to removably secure the suction means in place.

Bag 78 has one end hung upon handle 32 and the other end in communication with housing 68 so that dust and fine particles are collected therein during the operation of the machine. Shield 74 precludes the passage of particles of steel wool into bag 78 and the motor 64 should be run at a rate of speed below that which would cause fan 66 to establish too great a draft. This fan is employed merely as means for collecting dust and for withdrawing air from within the housing that would otherwise set up eddy currents and escape through the opening around drum 18.

It is conceivable that this invention might be embodied in machines having different characteristics than that shown in the accompanying drawing and it is desired to be limited only by the scope of the appended claims.

I claim:

1. A surface treating machine of the kind described comprising a hollow box-like body having a top, a pair of sides, an apertured rear end wall, an upwardly and rearwardly curved front end wall, and a bottom wall provided with an opening adjacent to the front end wall whereby a material-receiving cavity is formed in one end of the box-like body; a surface treating drum rotatably mounted in the body with a portion thereof extending below the bottom wall into contact with the surface being treated; a motor on said body having operable connection with the drum for rotating the same; an upwardly and rearwardly curved partition in the body in spaced relation with the said front end wall and a portion of the top to form a passageway extending partially around said drum and in communication with the cavity, said drum serving to set up currents of air through the passageway and into the cavity from each side of its line of contact with the surface being treated; a suction fan in the aperture of the rear end wall for withdrawing air and dust from the cavity; and a motor operably connected to the suction fan for driving the same, said last mentioned motor being a low speed type, said motor on the body being a relatively high speed motor.

2. A surface treating machine of the kind described comprising a hollow box-like body having a top, a pair of sides, an apertured rear end wall, an upwardly and rearwardly curved front end wall, and a bottom wall provided with an opening adjacent to the front end wall whereby a material-receiving cavity is formed in one end of the box-like body; a surface treating drum rotatably mounted in the body with a portion thereof extending below the bottom wall into contact with the surface being treated; a motor on said body having operable connection with the drum for rotating the same; an upwardly and rearwardly curved partition in the body in spaced relation with the said front end wall and a portion of the top to form a passageway extending partially around said drum and in communication with the cavity, said drum serving to set up currents of air through the passageway and into the cavity from each side of its line of contact with the surface being treated; a suction fan in the aperture of the rear end wall for withdrawing air from the cavity; a relatively low speed motor operably connected to the fan; and an inwardly arched shield extending into the cavity to prevent passage of large particles of material into the fan, said motor, fan and shield being movable as a unit to and from the operative position.

3. A surface treating machine of the kind described comprising a hollow box-like body having a top, a pair of sides, an apertured rear end wall, an upwardly and rearwardly curved front end wall, and a bottom wall provided with an opening adjacent to the front end wall whereby a material-receiving cavity is formed in one end of the box-like body; a surface treating drum rotatably mounted in the body with a portion thereof extending below the bottom wall into contact with the surface being treated; a motor on said body having operable connection with the drum for rotating the same; an upwardly and rearwardly curved partition in the body in spaced relation with the said front end wall and a portion of the top to form a passageway extending partially around said drum and in communication with the cavity, said drum serving to set up currents of air through the passageway and into the cavity from each side of its line of contact with the surface being treated; a suction fan in the aperture of the rear end wall for withdrawing air from the cavity; and a shield to prevent passage of large particles of material into the fan, said suction fan and shield being carried by a plate having spring clips thereon for engaging the rear end wall, said shield being secured to the plate whereby the fan, plate and shield may be removed from the operative position on the body as a unit.

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