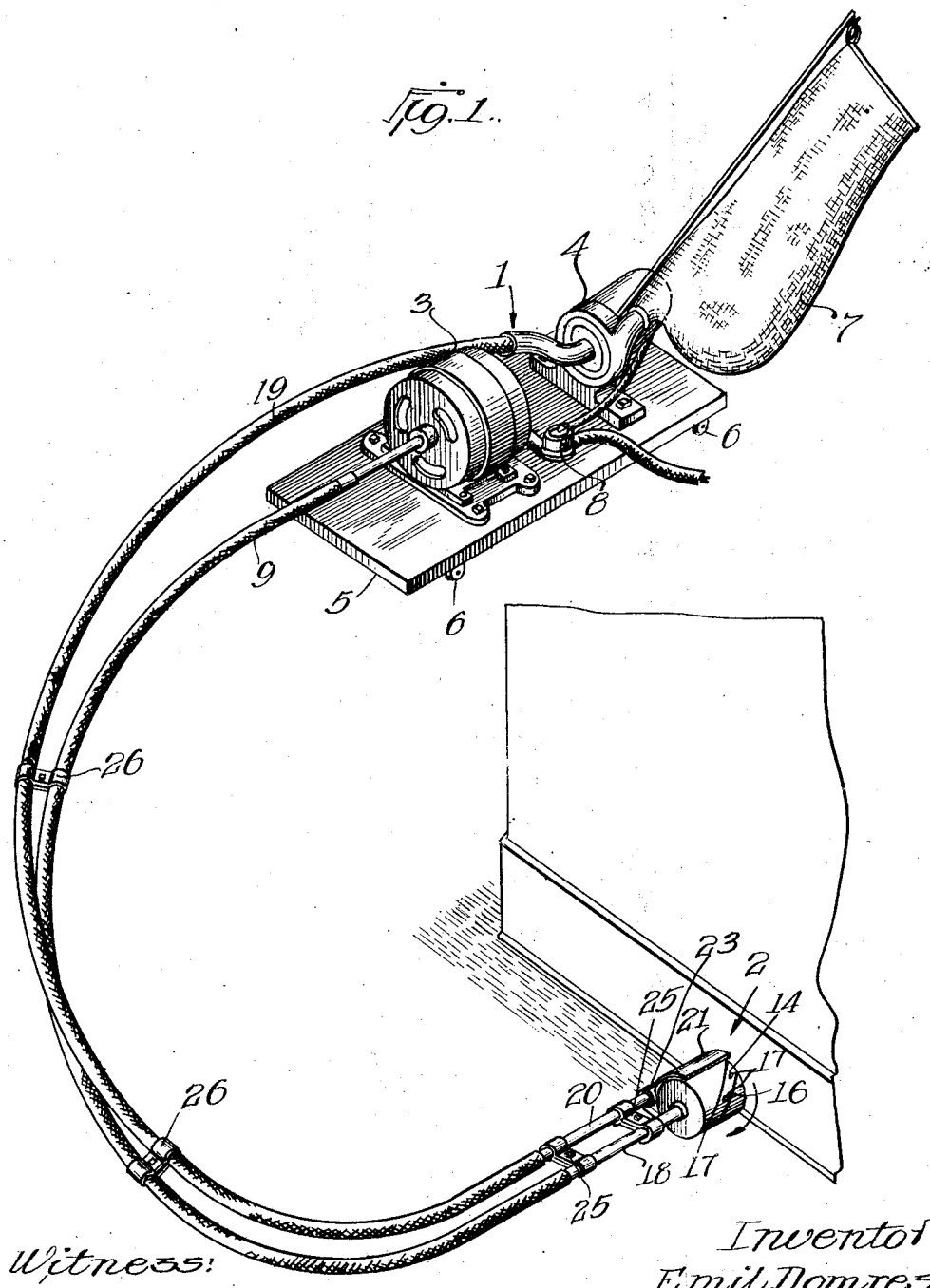
Nov. 10, 1931. E. DOMRES 1,831,554

FLOOR SANDING MACHINE

Filed March 7, 1928 2 Sheets-Sheet 1

Fig. 1.



Witness:
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Fig. 2.

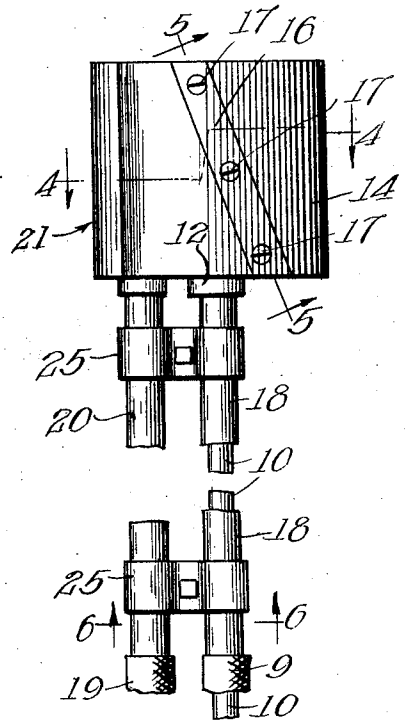


Fig. 3

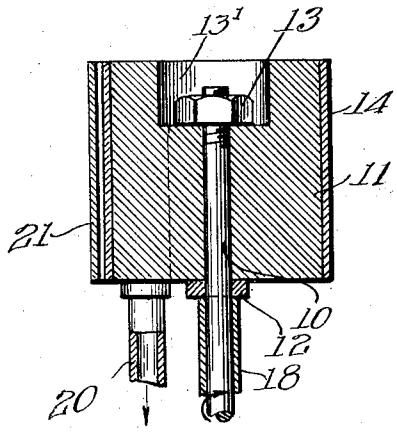


Fig. 4

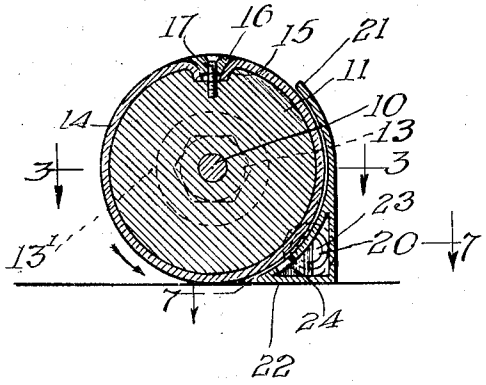


Fig. 5

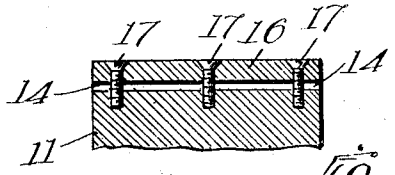


Fig. 6.

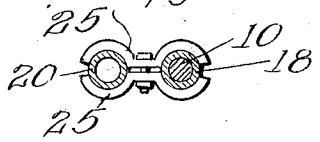
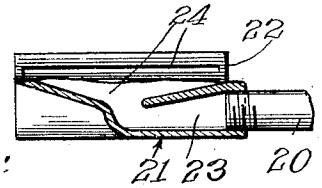


Fig. 7.



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UNITED STATES PATENT OFFICE

EMIL DOMRES, OF CHICAGO, ILLINOIS

FLOOR SANDING MACHINE

Application filed March 7, 1928. Serial No. 259,734.

My invention relates to improvements in floor sanding machines and has special reference to a machine, including a sanding cylinder, which is flexibly connected to its source of power and is adapted to be manually operated, to a certain extent, independently of the power plant.

An important feature of my invention relates to the provision of a suction dust collector for such a sanding cylinder.

A further feature relates to the provision of a sanding cylinder supported at one end only and adapted to clean floors particularly adjacent to the wall, a part of the floor which the large heavy power operated sanders cannot clean on account of the necessity of providing bearings at both ends of the sanding cylinder.

I am aware that some machines have provisions for attaching an auxiliary sanding cylinder outside of one of the bearings of the main cylinder but as these machines are relatively large, cumbersome and not readily capable of being delicately manipulated, this construction does not anticipate my invention of a relatively small sanding cylinder mounted on the free end of a flexible shaft and provided with pneumatic suction means for removing the dust created in the operation of the device, particularly for the reason that such a large heavy machine is not a convenient tool with which to smooth the floor adjacent to a wall or adjacent to the usual quarter-round strip or moulding which is commonly used at the bottom of the base board.

My invention will be more readily understood by reference to the accompanying drawings forming part of this specification and in which—

Fig. 1 is a perspective view of a power operated sanding device embodying my invention in one form;

Fig. 2 is a fragmentary elevation of the sanding cylinder and connections;

Fig. 3 is a fragmentary longitudinal section on the line 3—3 of Fig. 4;

Fig. 4 is a transverse section on the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary substantially longitudinal section on the line 5—5 of Fig. 2;

Fig. 6 is a detail cross-section on the line 6—6 of Fig. 2, particularly showing the means for clamping the suction pipe and the shaft housing together; and

Fig. 7 is a fragmentary, longitudinal section on the line 7—7 of Fig. 4.

In said drawings, 1 indicates generally the power plant and 2 the sanding or operating tool.

The power plant as shown consists of a tool driving electric motor 3 and an electric driven suction fan 4 both mounted on a single base 5 which is mounted on casters 6 for ease in moving the power plant about and following the tool 2.

The suction fan delivers the products into a porous bag 7 carried by the base and which retains the dust while allowing the air to escape. A single electric switch 8 controls the operation of both the motor 3 and the motor which drives the suction fan 4.

A flexible shaft is connected at one end to the shaft of the motor 3 and at the other end to a shaft 10 upon which a metal cylinder 11 is mounted on the free end of the shaft 10 between a collar 12 and a clamping nut 13, the end of the cylinder 11 being provided with a central opening 13′ to receive same. The cylinder 11 is the body of the sander and is adapted to have a sheet or strip of sand paper 14 securely fastened upon its cylindrical surface. In the form shown, the cylinder is provided with an inclined V-shaped groove 15 on its cylindrical surface, in which a wedging metal strip 16 is held by screws 17, the edges 18 of the strip of sand paper being clamped between the sides of the wedging strip 16 and the sides of the V-shaped groove 15. Upon the free end of the flexible shaft 9 is a stationary sleeve 18 through which the shaft 10 extends and by which the shaft 10 is supported as in a bearing.

A flexible air hose or pipe 19 is connected at one end to the suction intake of the fan 4 and at the other end is connected to a metal pipe 20 which is rigid with a metal guard 21 which partly surrounds the sander cylinder 11 but does not touch same, being spaced out-

wardly therefrom as best shown in Fig. 4 to permit the sanding cylinder to rotate freely, which it does in the direction of the arrow on Fig. 4.

The guard 21 is on the side of the sanding cylinder toward which the dust would be thrown and is formed to provide a shoe or rest 22 at its lower edge adapted to slide and rest on the floor to assist in the manual manipulation or control of the device. The pipe 20 is connected to the adjacent end of the guard 21 above the shoe 22 and the body of the guard is formed to provide a transversely extending suction passage 23, to one end of which the suction pipe 20 is connected. The passage 23 extends transversely of the roll 11 from one end to the center of the roll as best shown in Fig. 7, where it connects with a chamber or suction space 24 which extends transversely of the roll. The inner wall of the guard is provided with a transverse suction entrance slot 24′ near the lower point of the guard and in position to catch the dust immediately after its production. This form of suction chamber in combination with the entrance slot 24′, effectively equalizes the suction across the face of the roll and effectively draws in and removes the dust.

The hard metal roll 11 effectively retains the sand paper in a straight line where it contacts with the floor and produces better results than that which has been produced by the relatively soft rubber rolls which have heretofore been used for this purpose.

For rigidly retaining the suction pipe 20 and the guard 21 in position and to assist in providing a handle by which the sanding cylinder can be controlled in operation, the stationary sleeve 18 and the pipe 20 are tightly clamped together, as shown with two pairs of double clamps 25. The two flexible elements, that is, the flexible shaft 19 and the suction hose 9, are clamped together at numerous points by similar clamps 26.

In using the device, the operator grasps the rigid suction pipe 20 and sleeve 18, using them as a handle to control the operation of the cylinder. As illustrated in Fig. 1, the free end of the cylinder can be pressed against the free edge of the floor moulding and the device moved back and forth along the floor, the pressure of the roller on the floor being controlled by tipping the device upon the shoe 22. By this means the cutting action of the sand paper on the floor can be accurately controlled. As the grinding or sanding roll rotates so that its lower surface moves toward the guard 21, it tends to throw the dust against the guard and the dust collector continuously takes it away.

It is to be noted that neither the guard 21 nor any other part extends beyond the free ends of the sanding cylinder and consequently the floor can be sanded clear to the wall or to the moulding as the case may be.

It should be understood that the drawings disclose merely a typical arrangement of mechanisms and parts and as many modifications and changes will readily suggest themselves to one skilled in the art, I do not limit or confine my invention to the specific arrangement or combinations of devices and construction of parts herein shown and described.

I claim:

1. In a manually manipulated device of the kind described, a grinding cylinder, a power shaft extending out from one end of the cylinder, a hollow guard shoe at one side of the cylinder, the guard having an entrance adjacent to its lower edge, suction means connected to the end of the shoe adjacent to said shaft, a rigid housing enclosing the shaft adjacent to the grinding cylinder, the housing and the suction means connected rigidly together to form a control handle, the guard provided with a flat smooth bottom adapted to slide along the floor being operated upon to assist in the control of the amount of material removed by the grinding cylinder.

2. In a manually manipulated device of the kind described, a grinding cylinder, a power shaft extending out from one end of the cylinder, a hollow guard shoe at one side of the cylinder, the guard having an entrance adjacent to its lower edge, suction means connected to the end of the shoe adjacent to said shaft, a rigid housing enclosing the shaft adjacent to the grinding cylinder, the housing and the suction means connected rigidly together to form a control handle, the guard provided with a bottom surface adapted to slide along the floor being operated upon to assist in the control of the amount of material removed by the grinding cylinder.

In witness that I claim the foregoing as my invention, I affix my signature this 1st day of March, 1928.

EMIL DOMRES.