

(No Model.)

2 Sheets—Sheet 1.

J. MACK.
FLOOR SANDPAPERING MACHINE.

No. 537,985

Patented Apr. 23, 1895.

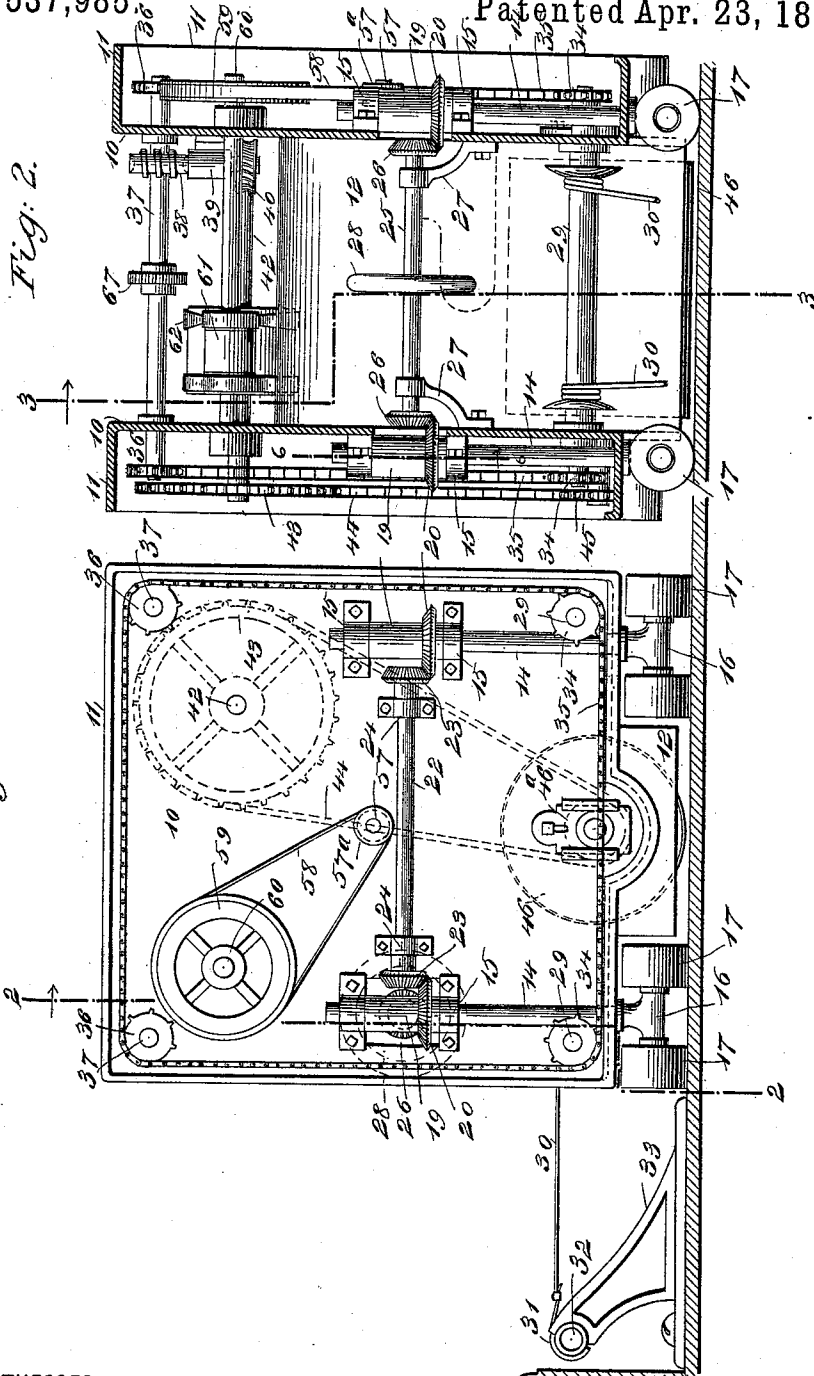


Fig. 1.

Fig. 2.

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John A. Rennie.
W. P. Hutchinson

INVENTOR

J. Mack
BY *Munn & Co.*
ATTORNEYS.

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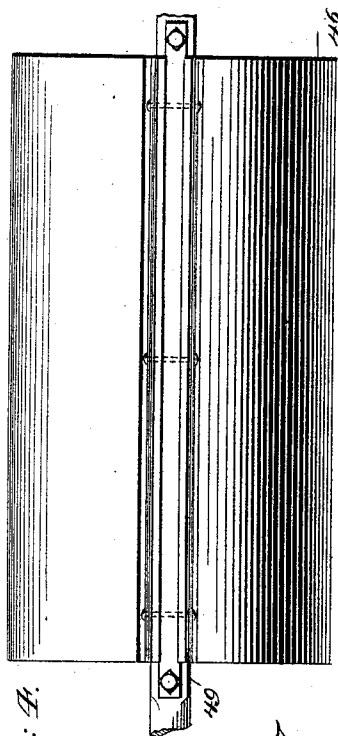


Fig. 4.

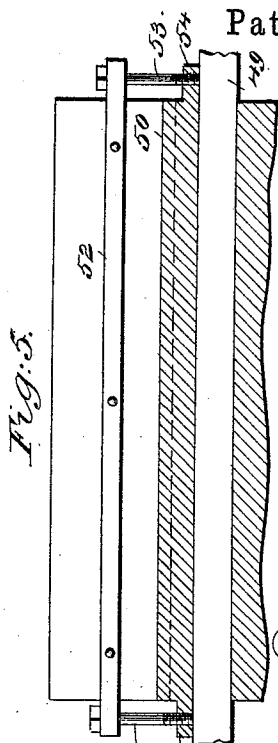


Fig. 5.

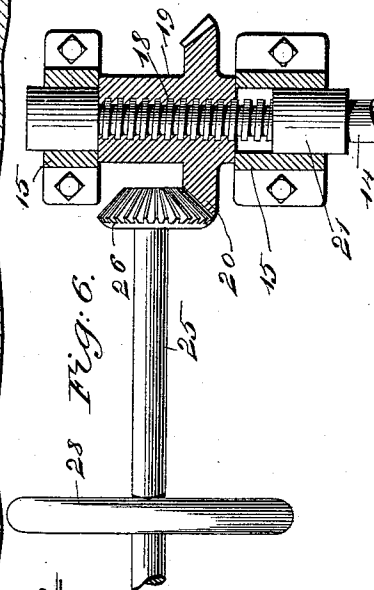
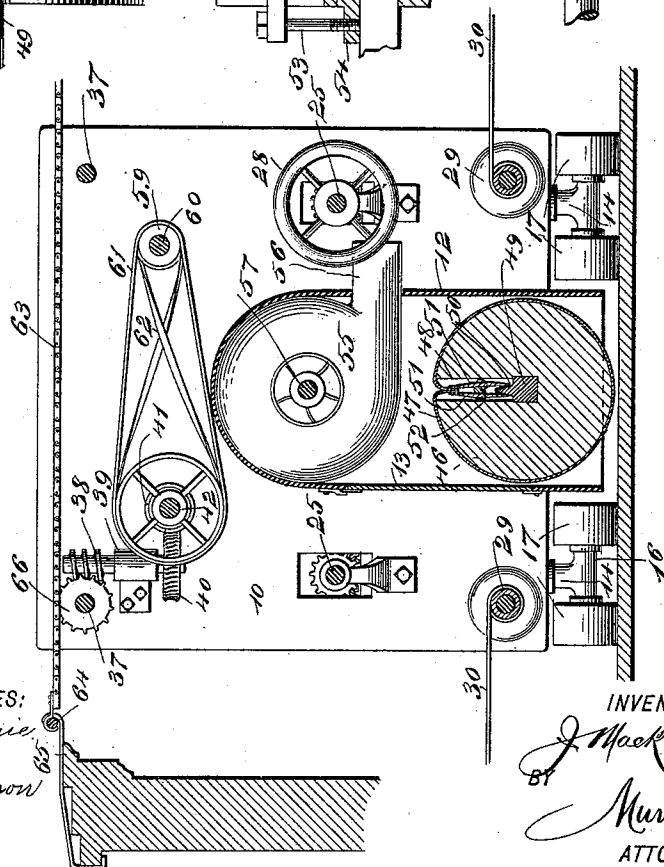


Fig. 6.

Fig. 3.



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JOHN MACK, OF NEWPORT, KENTUCKY.

FLOOR-SANDPAPERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 537,985, dated April 23, 1895.

Application filed July 7, 1894. Serial No. 516,806. (No model.)

To all whom it may concern:

Be it known that I, JOHN MACK, of Newport, in the county of Campbell and State of Kentucky, have invented a new and Improved Floor-Sandpapering Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of machines which are used for smoothing and polishing floors; and the object of my invention is to produce a machine of this class which may be either run by hand or by power, which has a convenient means for raising and turning its rollers so that it may be readily moved to one side, which has a revoluble sand-paper drum adapted to come into contact with the floor, which has a convenient means for fastening the sand-paper to the drum, which is provided with a fan to carry away the dust, and which in general is adapted to operate very rapidly and nicely to smooth a floor.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine embodying my invention. Fig. 2 is a vertical section on the line 2—2 of Fig. 1. Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2. Fig. 4 is an enlarged detail plan view of the sand-paper drum. Fig. 5 is a broken longitudinal section of the same; and Fig. 6 is a detail sectional view on the line 6—6 of Fig. 2 of the mechanism for raising and turning the supporting rollers of the machine.

The machine is provided with a suitable frame which consists essentially of the opposite side plates 10, having outwardly-turned flanges 11 which serve as guards for the mechanism to be hereinafter described, and the side frames or plates are connected by the cross shafts, which will also be described below, and by the housing 12, see Fig. 3, in which the sand-paper drum is held, which housing is provided with a suitable door 13 to enable the drum to be reached. The machine

is supported on vertical shafts 14 which are arranged near the four corners of the machine and turn in bearings 15, each shaft terminating at its lower end in a foot 16 on which are journaled rollers 17, and these rollers may be turned so as to face forward or sideways, thus enabling the machine to be moved conveniently either back and forth or laterally.

Each shaft 14 is provided at its upper end with a screw 18, which moves in a nut 19 formed in the hub of a beveled gear wheel 20, the hub being held between the bearings 15, as shown in Fig. 6. The upward movement of the shaft 14 is limited by a shoulder 21 thereon which strikes the bottom of the hub 19. Consequently when the gear wheel 20 is turned in one direction it moves the shaft 14 upward until the shoulder 21 strikes the hub 19, when the further movement of the gear wheel turns the foot 16 quarter round and, by reversing the movement of the gear wheel, the reverse effect is had and the foot and its rollers moved downward. When the shafts 14 are turned down the sand-paper drum is raised from the floor as in Fig. 3 thus permitting the machine to be easily pushed to one side. The front and rear shafts are connected by a horizontal shaft 22 which is provided with beveled gear wheels 23 meshing with the gear wheels 20 and is supported in suitable bearings 24.

The shafts 14 on opposite sides of the machine are connected by cross shafts 25 which have beveled gear wheels 26 meshing with the gear wheels 20, and these shafts are supported in brackets 27 and one of them is provided with a hand wheel 28 which, on being turned, turns its shaft and the several gear wheels 20 which are connected as specified, so that all the shafts 14 are simultaneously moved and turn so as to bring the rollers 17 in the desired position.

The machine is provided with transverse drums 29, near its front and rear ends, to which are secured cables 30 adapted to extend in opposite directions, as shown in Fig. 3, and the cables are each provided with a hook 31, see Fig. 1, which is adapted to engage a cross shaft 32 on a bracket 33 which is secured to the floor, and a bracket may be

placed opposite each end of the machine and the two cables 30 therewith connected, so that by turning the drums first in one direction and then in the other the cables are alternately wound and unwound and the machine moved backward and forward. The drums 29 have at their ends and outside the plates 10 in which the drums are journaled, sprocket wheels 34, over which extend chains 35, and these chains 35 also extend over similar sprocket wheels 36 on transverse shafts 37, which are arranged at the upper corners of the machine.

One of the shafts 37 is geared to a vertical screw shaft 38 which is journaled in a suitable bearing 39 and carries a worm wheel 40 which meshes with a worm 41 on the driving shaft and by means of the connections described the drums 29 are driven. The shaft 42 is provided with a large sprocket wheel 43 at one end, see Figs. 1 and 2, which, by means of a chain 44, connects with a sprocket wheel 45 on the shaft of the sand-paper drum 46, and thus revolves the drum. The drum is mounted in vertically movable bearings 46^a, see Fig. 1, and the face of the drum is covered with sand-paper 47 so that as the drum revolves on the floor it will sand-paper the same. The drum is arranged in the housing 12, as shown in Fig. 3, so as to project beneath the housing, and the sand-paper may be fastened in any convenient way but is preferably fastened in the manner illustrated.

To provide for the fastening, the drum is provided with a longitudinal radial slot or groove 48 extending its full length and opening outward from the squared shaft 49 of the drum, and the ends of the sand-paper are held between clamping jaws 51, the inner edges of which are adapted to engage opposite sides of a wedge 50 on the shaft 49, and these jaws are carried by a bar 52 which extends longitudinally through the slot 48 and the bar connects, by bolts 53, with projecting ends 54 of the drum, as shown clearly in Fig. 5, and thus by tightening the bolts the bar is forced inward, the jaws crowded against the wedge and the outer edges of the jaws forced together upon the sand-paper, as shown in Fig. 3.

Above the sand-paper drum is an exhaust fan 55, the nozzle 56 of which projects beyond the housing, and to this nozzle the pipe may be attached to carry away the dust raised by the sand-paper drum. The shaft 57 of the fan projects through one of the plates 10 and is provided with a pulley 57^a which is driven by a belt 58 connecting with a pulley 59 on a countershaft 60, which is journaled transversely in the machine, as best shown in Fig. 3, and the countershaft 60 connects with the driving shaft 42 by means of the ordinary arrangement of tight and loose pulleys and straight belts and cross belts 61 and 62, by means of which the exhaust fan may be driven in the right direction without regard to the direction in which the machine is moved. The

arrangement of belts and tight and loose pulleys connecting the two shafts is not shown or described with great detail, because the arrangement is a very common one for this purpose.

If it is not desired to fasten the brackets to the floor, the brackets 33 and cables 30 may be dispensed with and the feeding or moving of the machine effected by a chain 63 which connects with rods 64 held by brackets 65 on opposite wooden casings or other convenient parts of a room, and this chain engages a wheel 66 on one of the shafts 37 so that when the machine is started the shaft 37 and wheel 66 revolve, and the wheel acting on the chain 63 causes the machine to be fed or moved backward or forward.

I have not shown means for driving the shaft 42 but it will be understood that it may be turned by hand, by a motor on the machine or in any convenient way, without affecting the principle of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a sand papering machine, of supporting rollers and a gear mechanism for raising and lowering and turning said rollers, substantially as described.

2. A floor sand-papering machine, comprising a supporting frame mounted on rollers, a revoluble sand-paper drum carried by the frame and adapted to contact with the floor, an exhaust fan to carry away the dust from the drum, and a gear mechanism for raising and turning the rollers, substantially as described.

3. A floor sand-papering machine, comprising a portable frame, a sand-paper drum journaled in the frame and adapted to contact with the floor, an exhaust fan to carry away the dust from the sand-paper drum, revoluble drums arranged at opposite ends of the machine and provided with cables adapted to be made fast to adjacent supports, and an operative driving connection between the revoluble drums and the sand-paper drum and exhaust fan, substantially as described.

4. The combination of the frame, the sand-papering mechanism carried by the frame, and having a drive shaft the drums journaled on the frame, and also driven from said drive shaft and cable secured to the drums, whereby the machine may be traversed back and forth substantially as described.

5. In a machine of the kind described, the combination, with the frame, of the vertical shafts mounted on rollers at their lower ends and provided with screws at their upper ends, beveled gear wheels held between bearings and provided with threaded hubs to fit the screw shafts, and cross shafts connecting the several beveled gear wheels, substantially as described.

6. The combination, with the supporting shafts having rollers at their lower ends, the

screws on the shafts and the gear wheels having threaded hubs to fit the screws of the shafts, of bearings arranged above and below the hubs of the gear wheels, and shoulders on the shafts to move against the lower ends of the hubs, substantially as described.

7. The combination, with the portable frame, the sand-paper drum and exhaust fan therein and the revoluble drums having cables attached, of the driving shaft, sprocket wheels on the ends of the cable drums, transverse shafts at the upper corners of the machine provided also with sprocket wheels, chains extending over the several sprocket wheels, and an operative driving connection

between the driving shaft, the chains and the sand-paper drum and exhaust fan, substantially as described.

8. In a machine of the kind described, the combination, with a longitudinally grooved or slotted sand-paper drum, of the wedge held at the back edge of the slot, the bar held in the slot, the jaws carried by the bar and adapted, at their inner edges, to engage the wedge, and means for moving the bar and its jaws in and out, substantially as described.

JOHN MACK.

Witnesses:

ADOLPH MICHEAL KLEIN,
JAMES EDWIN METCALFE.