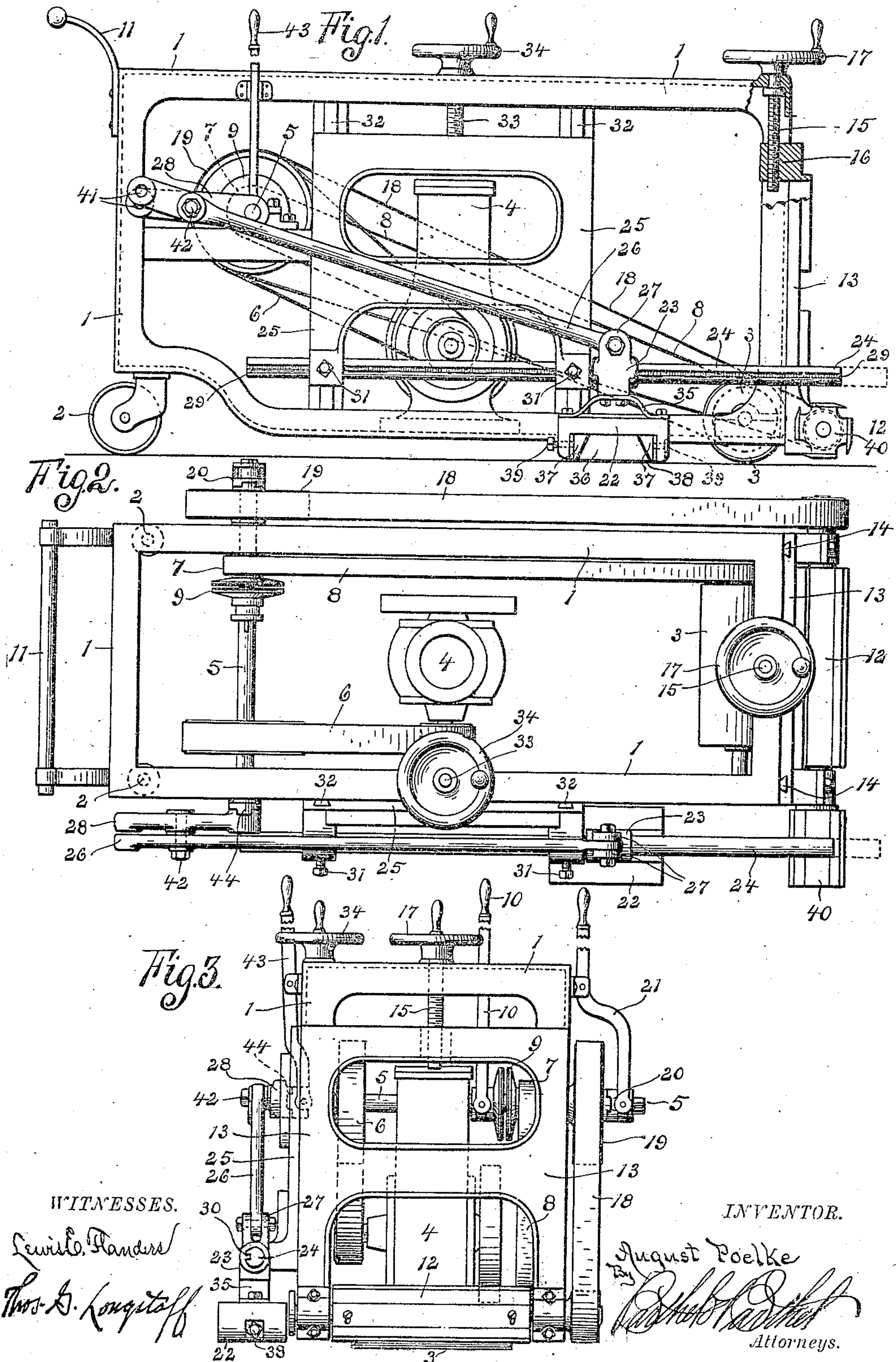


No. 848,322.

PATENTED MAR. 26, 1907.

A. POELKE.
FLOOR SURFACING MACHINE.
APPLICATION FILED MAR. 13, 1905.



WITNESSES.
Lewis B. Sanders
Thos. S. Longstaff

INVENTOR.

August Poelke

Attorneys.

UNITED STATES PATENT OFFICE.

AUGUST POELKE, OF DETROIT, MICHIGAN.

FLOOR-SURFACING MACHINE.

No. 848,322.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed March 13, 1905. Serial No. 249,807.

To all whom it may concern:

Be it known that I, AUGUST POELKE, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Floor-Surfacing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in floor-surfacing machines; and its object is to provide a self-propelled machine having a rotary cutter or planer head for smoothing the face of the floor and a reciprocating sander or polishing device, both actuated by a suitable engine mounted upon the machine.

It is also an object of the invention to so construct the sanding or polishing device 20 that it will work up close to the walls and into the corners of the room and to provide an auxiliary or detachable cutter which may be attached for planing the edges of the floor next to the wall and in the corners.

25 A further object of the invention is to so construct the machine that the several surfacing devices may be adjusted toward or from the floor relative to the machine-frame or may be raised out of engagement with the floor when not in use and to also provide 30 means whereby the operator may control the operation of said devices, all as hereinafter more fully described, reference being had to the accompanying drawings, in which—

35 Figure 1 is a side elevation of a device embodying the invention; Fig. 2, a plan view of the same, and Fig. 3 a front end elevation with the auxiliary cutter removed.

40 Like letters refer to like parts in all of the figures.

1 is a suitable rectangular frame supported at its rear end upon caster-wheels 2, the frame being raised or curved upward to accommodate the same, and at its forward end 45 upon a suitable traction-roll 3, journaled in rigid bearings on the lower bar of the frame, said roll being provided with a facing of rubber or other suitable material to prevent the roll from slipping on the floor.

50 Power to drive the traction-roll is obtained from a suitable motor 4, preferably a small explosive-engine, which is supported at the center of the frame upon the lower side bars thereof, motion being transmitted therefrom to a counter-shaft 5, mounted in bearings on the frame near the rear end there-

of by a belt 6, engaging a small pulley on the engine-shaft and a large pulley on the counter-shaft. A small pulley 7 on the counter-shaft is engaged by a belt 8, which transmits 60 motion from said shaft to a suitable pulley fixed on the axle of the traction-roll. The counter-shaft is thus constantly driven directly by the engine, and to vary the speed at which the roll shall be driven and to stop the 65 same a suitable friction-clutch 9 of any well-known construction is provided on the counter-shaft, the pulley 7 being loose on the shaft and carrying one member of the clutch, the other member being splined on the shaft 70 to turn therewith, all as ordinarily arranged. A suitable lever 10 is provided to move the movable member into and out of contact with the pulley member, so that the operator by manipulating said lever may cause the 75 machine to be propelled over the floor at the desired speed, and extending upwardly from the rear end of the frame is a suitable handle 11, by means of which the machine is at the same time guided over the floor. 80

Adjustably supported at the forward end of the machine-frame is a cylindrical rotary cutter or planer head 12 of any suitable construction, the one shown being provided with four straight knives, and said cutter is jour- 85 naled in suitable bearings on the vertically-movable frame 13, which is attached to and vertically guided upon the machine-frame by dovetail tongues and grooves 14 near each side of the frame. Said carrying-frame 13 is 90 adjusted vertically to raise and lower the cutter by a screw 15, turning in a bearing in the machine-frame and engaging a screw-threaded lug 16 on the carrying-frame, a hand-wheel 17 being provided on its upper 95 end to turn the same. Motion is transmitted from the counter-shaft 5 to turn the cutter by a belt 18, engaging a small pulley on the projecting end of the cutter-shaft and a large pulley 19 on the projecting end of the coun- 100 ter-shaft, said last-named pulley being loose on its shaft and a suitable clutch 20 being provided to connect the pulley to and disconnect the same from the shaft, so that by means of a suitable lever 21 to operate said clutch 105 the operator may stop the cutter at any time.

A reciprocating sanding or polishing device adapted to operate in conjunction with the cutter or planer 12 is provided and consists of a sander-head 22, attached to the 110 lower side of a suitable bearing-block 23, engaging and slidable longitudinally upon a

guiding and supporting rod 24, fixed in bearings upon a vertically-adjustable frame 25, said block being reciprocated upon said rod by a connecting-rod 26, pivotally attached at one end between ears 27 on the upper side of the block and at its opposite end to a crank-arm 28 on the end of the counter-shaft 5. The block 23 is prevented from turning upon the rod 24 by providing the rod with a longitudinal groove 29 and the block with a tongue or feather 30 to engage said groove, and the rod is prevented from turning and is adapted to be adjusted longitudinally in its bearings by set-screws 31, extending through screw-threaded openings in the bearings and engaging said groove. The bearing or guide block 23 engages and travels upon the free end of said rod, which projects forwardly from its bearings and beyond the forward end of the frame, so that the sander-head 22 at each stroke is projected beyond the cutter and will work close up into the corners of the room, &c., and the head is adjusted vertically by raising or lowering the vertically-adjustable frame 25, which is guided in such movement by tongues and grooves 32 and actuated by a screw 33, provided with a hand-wheel 34 in the same manner as frame 13.

The sander-head 22 is secured to the guide-block 23 by means of a downwardly-curved flat spring 35, bolted intermediate its ends to the lower side of the block and at its ends to the upper side of the head, so that should there be any great unevenness in the floor or any obstruction thereon the spring would yield slightly to permit the head to pass over without injury to the floor or head. The head is chambered at its lower side to receive a facing-block 36 and adjustable angle-blocks 37, one at each end of the facing-block. The ends of the facing-block are cut on a slant or incline from the lower face of the block upward and inward toward each other, and the adjustable angle-blocks are formed at one end to fit these inclined ends, so that when a strip of sandpaper 32 is stretched over the face of the facing-block with its ends placed between the slanting ends thereof and the adjustable blocks and the adjusting-blocks set up hard against the ends of the facing-block by the set-screws 39 the paper will be firmly held and at the same time stretched over the face of the said block, paper with its sanded side toward the angle or adjusting blocks, preventing the facing-block from falling out.

40 is a supplemental cutter-head which may be detachably secured in any suitable manner to the right-hand end of the shaft of the cutter 12 and is of a length equal to the width of the sander-head, so that it will cut close up to the base-board and plane the margin around the floor which cannot be touched by the cutter 12, owing to its bearings and the machine-frame and parts. When this supplemental cutter is used, as shown in Figs. 1

and 2, the stroke of the sander-head must be shortened, so that it will play between the bearing-frame 25 and said cutter, or the use of said sander must be discontinued. To provide a long stroke, openings 41 to receive the crank-pin 42 are provided in the ends of the crank-arm 28 and connecting-rod 26, and the short stroke is secured by providing similar openings in the crank and rod nearer the axis of the counter-shaft 5. The operator may at any time stop the operation of the sander by manipulating the lever 43, which is connected to a suitable clutch 44 for securing the crank-arm 28 to the counter-shaft 5, said arm being loose on said shaft, and to permit the auxiliary cutter to work up close to the wall at its forward side the guide-rod 24 may be moved longitudinally in its bearings out of the way by loosening the set-screws 31, as shown in dotted lines in Figs. 1 and 2.

In operation the sander-head is adjusted to engage the floor with slight pressure, and by giving it a reciprocating motion the result of its operation is similar to that of hand-polishing, except that, having an extended surface and being guided horizontally, it evens and smooths the floor much better than it could be done by hand.

By making the cutter and sander adjustable upon the frame toward and from the floor a separate adjustment for each is secured which is very fine and accurate, and by providing the several clutches for controlling the speed of the machine and for throwing the parts out of gear the operator has complete control of the operation of the machine and after becoming expert in its operation may do very quick and accurate work.

Having thus fully described my invention, what I claim is—

1. In a traveling floor-surfacing machine, the combination with the frame, of a motor supported upon said frame, a counter-shaft mounted in bearings on the frame, means for transmitting motion directly from the motor to said shaft, a traction-roll mounted in bearings on the frame near the forward end thereof, a vertically-adjustable frame attached to the forward end of the machine-frame and provided with bearings, a horizontally-extending cylindrical cutter mounted in said bearings, means for adjusting the adjustable frame to raise or lower the cutter, a horizontally-extending guide mounted on the frame, a sanding or polishing head supported on said guide, and means for transmitting motion from the counter-shaft to the roll, cutter and shaft.

2. In a traveling floor-surfacing machine, the combination with the frame, of a motor supported upon said frame, a counter-shaft mounted in bearings on the frame, means for transmitting motion directly from the motor to said shaft, a traction-roll mounted in bearings on the frame near the forward end thereof—

of, a pulley on said roll, caster-wheels to support the rear end of the frame, a pulley loose on the counter-shaft, a friction-clutch one member of which is attached to said loose pulley and the other to the shaft, a lever for moving the parts of the clutch into contact to transmit motion from the shaft to the pulley, a vertically-adjustable frame attached to the forward end of the machine-frame and provided with bearings, a horizontally-extending cylindrical cutter mounted in said bearings, means for adjusting the adjustable frame to raise or lower the cutter, a pulley attached to the cutter, a pulley on the end of the counter-shaft, a belt engaging said pulleys, a horizontally-extending guide supported on the frame at one side thereof and projecting forwardly past the front end of said frame, a guide-block movable longitudinally of said guide, a sanding or polishing head secured to said block, and means for reciprocating the block on the guide from the counter-shaft.

3. A traveling floor-surfacing machine, comprising a frame, of a horizontally-extending cylindrical cutter-head mounted upon a shaft journaled in bearings on said frame, means for rotating said cutter, and an auxiliary cutter-head detachably secured to one end of said shaft outside of its bearings and extending outward therefrom.

4. A traveling floor-surfacing machine, comprising a frame, of a rotary cutter mounted in bearings on the frame and projecting laterally from one side of said frame, a reciprocating sander-head supported by the frame at one side thereof and at the rear of the cutter, and means for actuating said cutter and sander head.

5. In a floor-surfacing machine, the combination with the machine-frame, of a horizontally-extending rotary cutter mounted in bearings at the forward end of said frame, a horizontally-extending guide adjustably secured in bearings in the frame and adapted to be projected beyond the forward side of said cutter, a guide-block movable on said guide, a sander-head secured to said block and adapted to be reciprocated therewith upon the projecting end of said guide, and means mounted on said frame for actuating the cutter and sander head.

6. In a floor-surfacing machine, the combination with the machine-frame, of a horizontally-extending shaft mounted in bearings at the forward end of the frame, a cylindrical

cutter-head on said shaft between the bearings, an auxiliary cutter-head detachably secured to one end of said shaft outside its bearing and to project laterally outward from the machine-frame, a horizontal guide extending longitudinally of the frame at the side thereof from which the auxiliary cutter projects and adjustably secured in bearings a sander-head guided by said guide and adapted to be projected forwardly of the machine-frame, a counter-shaft, a crank-arm on said counter-shaft a connecting-rod attached to said arm and sander-head, means for varying the length of stroke of the connecting-rod, and means for actuating the counter-shaft and the cutter-head shaft.

7. In a floor-surfacing machine, the combination with the machine-frame, of a motor supported upon the frame, a counter-shaft mounted in bearings on the frame, a belt for transmitting a constant speed from the motor to the shaft, a traction-roll mounted in fixed bearings on the frame, a pulley secured to said roll, a pulley loosely mounted on the counter-shaft, a belt engaging said pulleys, a friction-clutch on the counter-shaft to transmit motion to the loose pulley, a vertically-adjustable frame on the forward end of the machine-frame, an adjusting-screw to raise and lower said adjustable frame, a cylindrical cutter-head mounted in bearings on the adjustable frame, a belt engaging a pulley fixed on the cutter-head and a loose pulley on the counter-shaft, a clutch to secure said loose pulley to the shaft, a vertically-adjustable frame attached to the side of the machine-frame, a screw to adjust said frame vertically, a longitudinally and horizontally extending guide-rod adjustably secured in bearings on said last-named adjustable frame and provided with a longitudinal groove, a guide-block slidable on the projecting forward end of said rod and having a rib engaging said groove, a crank-arm on the counter-shaft having openings near its end, a connecting-rod pivotally attached at one end to the guide-block and having openings near its opposite end, a crank-pin to engage the openings in the ends of the arm and rod, and a sander-head secured to the guide-block.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST POELKE.

Witnesses:

OTTO F. BARTHEL,
LEWIS E. FLANDERS.