

April 25, 1933.

H. W. LUNDQUIST

1,905,296

FLOOR SANDER

Filed July 26, 1929

2 Sheets-Sheet 1

Fig. 1

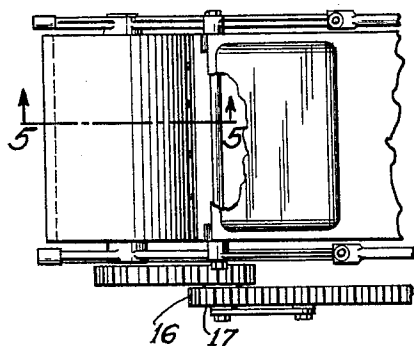


Fig. 3

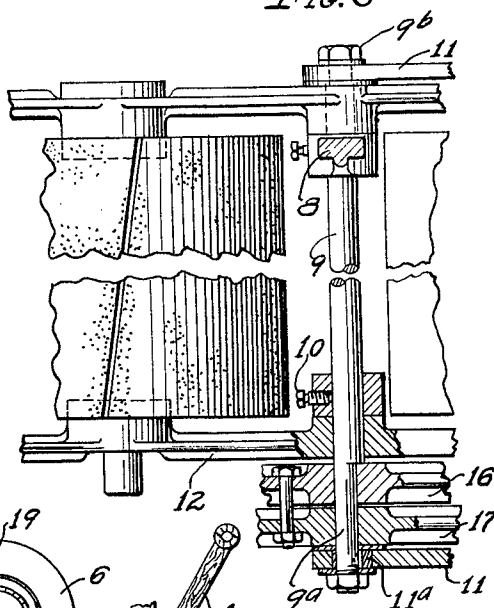


Fig. 2

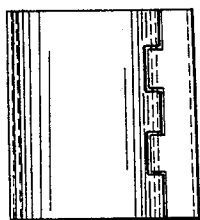
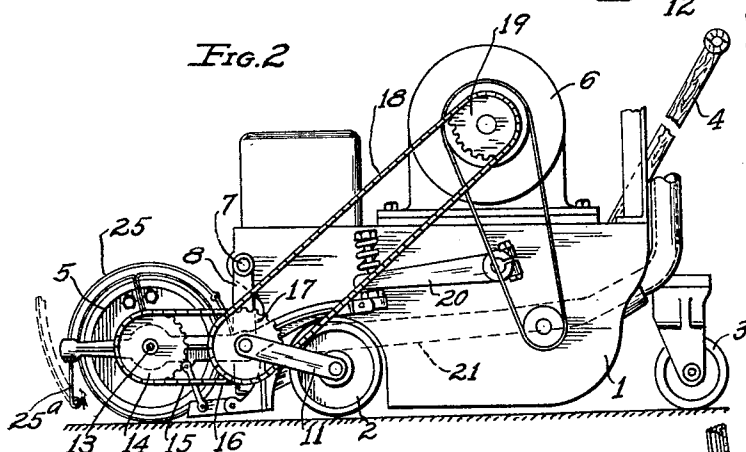


Fig. 4

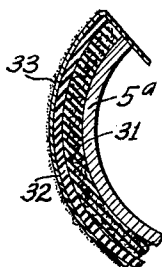


Fig. 7

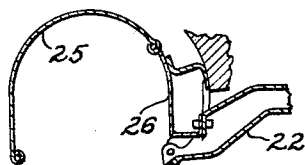


Fig. 5

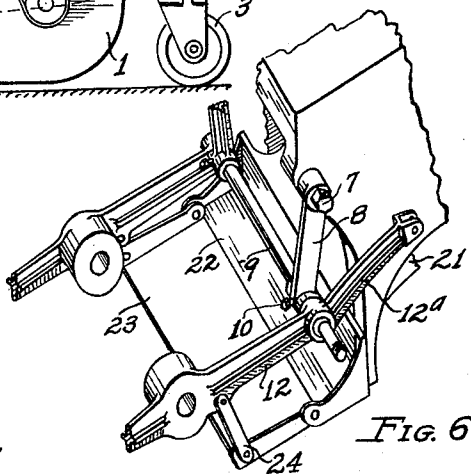


Fig. 6

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2 Sheets-Sheet 2

Fig. 9

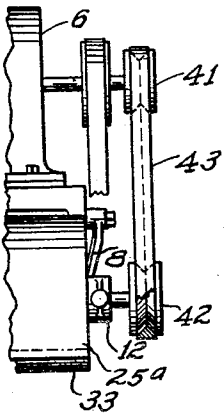
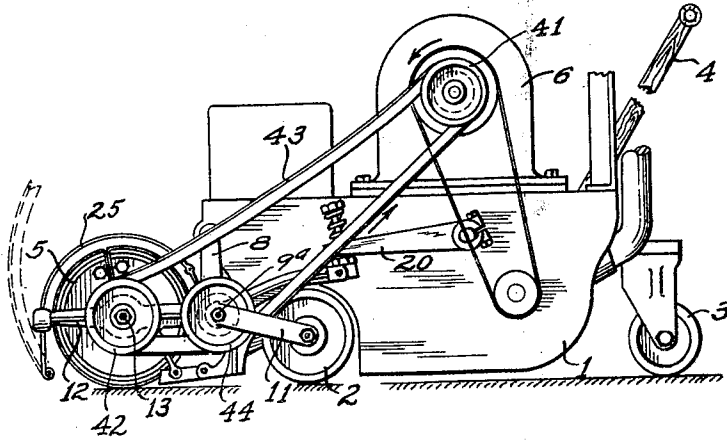


Fig. 8



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FLOOR SANDER

Application filed July 26, 1929. Serial No. 381,196.

My invention relates to sanding machines and more particularly to portable machines for sanding floors of buildings.

The objects of my present invention are: first, to provide a floor sander in which the chatter, usually present in other sanders and causing the sanding drum to jump up and down while using the same, is reduced to a minimum thereby causing smooth operation of the machine over the floor, reducing the time of making a smooth flat finished surface on the floor and substantially eliminating furrows, waves, or grooves in the finished floor; second, to provide a machine of this class in which the driving mechanism is so arranged that the belts or chains will not be slackened as the sanding drum is raised or lowered from the floor and also a machine of this class in which all of the chains or belts can be readily tightened if and when desired; third, to provide an attachment for sanding machines of this class whereby the above mentioned features may be applied to sanding machines now in use and whereby the above named disadvantages may be eliminated therein; fourth, to provide a novel dust pan arrangement in connection with a sander of this class whereby the greater portion of the dust may be directed into the pan and whereby the pan may be raised and lowered with the sanding drum; fifth, to provide a novel hood arrangement for a sander of this class whereby the hood may be readily raised so that the sanding drum may be readily accessible at all times, particularly for changing the sanding paper or other abrasive material on the drum; sixth, to provide a novelly constructed sanding drum; and, seventh, to provide a machine of this class and attachments therefor which are simple and economical of construction, durable, efficient and which will not readily deteriorate or get out of order.

With these and other objects in view, as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had

to the accompanying drawings and to the characters of reference thereon which form a part of this application in which:

Figure 1 is a fragmentary top view of my sanding machine in its preferred form of construction, certain parts being broken away to facilitate the illustration; Fig. 2 is a fragmentary side elevational view thereof; Fig. 3 is a fragmentary top view thereof on an enlarged scale and partly in section; Fig. 4 is a top view of the dust hood of my machine and the supporting means therefor; Fig. 5 is a fragmentary sectional view of my machine taken through 5—5 of Fig. 1 showing particularly the stationary dust pipe, the dust hood, and also the supporting portion thereof in relation to the frame; Fig. 6 is a fragmentary perspective view showing fragmentarily the supporting arms and shiftable dust pan and their supporting means and relation to the main frame and the inlet end of the dust conductor; Fig. 7 is a fragmentary transverse sectional view of the drum incorporating my invention; Fig. 8 is a fragmentary side elevational view of a slightly modified form of construction, showing a V-belt drive; and Fig. 9 is a fragmentary front elevational view of the modified construction.

Like characters of reference refer to similar parts and portions throughout the views of the drawings.

The machine is carried on a main frame 1 which is supported near its forward portions and at its opposite sides by wheels 2 mounted on non-rotatable axles secured to the frame 1 and at its rear end by a caster 3, and is directed from place to place by an inclined backwardly extending handle 4 of suitable length. On this frame 1 is supported the sanding drum 5 which is positioned forwardly of the frame and is driven by any suitable means, such as an electric motor 6 mounted on and at the upper side of the frame 1 and adjustable forwardly and backwardly thereon.

Heretofore in sanders of the class shown, the sanding drum was supported on arms which were pivotally mounted on bolts 7 between the axis of revolution of the motor

and the axis of the drum, thus causing the belts or chains connecting the drive on the motor with the drive on the drum to be lengthened and shortened when raising and lowering the drum, causing slack and slaps in the belts and chains thus causing rhythmic upward jumping of the sanding drum and thus causing the furrows, grooves, or waves in the floor. In my construction, I have changed the construction of the drum supporting arms and lowered their pivotal axes, and have supported from the bolts 7 arms 8 which are in the form of brackets depending from said bolts. Through the lower ends of the arms or brackets 8 extend a unitary shaft 9 which is adapted to reinforce the lower ends of the arms 8 relative to each other, the shaft being non-rotatably mounted at the lower ends of the arms 8 and retained against rotation by screws 10. The lower ends of the arms 8 are also prevented from being shifted readily forwardly or backwardly by straps 11 which extend with one end around the shaft 9 and with their rear ends over the axles of the supporting wheels 2, as shown in Figs. 2 and 3.

On the shaft 9, immediately outwardly from the outer sides of the lower ends of the arms or brackets 8, are pivotally mounted the drum supporting arms 12, one at each side of the frame, said arms being pivotally supported intermediate their ends. On these arms 12 and intermediate their pivotal mounting and the forward side of such arms, is rotatably mounted the sanding drum 5, the same being mounted on a spindle 13 which extends through one of the drum supporting arms and is provided at its outer end with a sprocket 14. This sprocket 14 is driven by a chain 15 extending around a sprocket 16 mounted, together with another sprocket 17, on the shaft 9. It will be noted that the end of the shaft 9 on which the sprockets 16 and 17 are mounted is reduced in diameter with its axis eccentric to the main axis of the shaft 9. Thus when the set screw 10 is unloosened and the shaft 9 rotated slightly, the tension on the chain 15 may be readily increased to take up for wear in the chain and sprocket. On the end of the shaft 9 opposite the reduced portion may be provided a head 9^b to facilitate the turning of the shaft, as shown best in Fig. 3.

It will be here noted that the strap 11 on the side of the machine at which the sprockets are located may be provided at the end connected with the shaft 9 with an eccentric bushing 11^a keyed to the shaft 9 so that the axis of rotation of the shaft in said strap is concentric with the axis of rotation of the shaft in the arms or brackets 8.

The sprockets 16 and 17 are preferably secured together as a unit, as shown in Fig. 3, and the sprocket 16 is driven by the sprocket 17. The sprocket 17 is driven by

a chain extending around the sprocket 19 secured to the shaft of the motor 6. Thus it will be seen that the axes of rotation of the sprockets 16 and 17 are relatively fixed axes and any play or slap in the same will not be conducted in the form of chatter to the sanding drum 5. The distance between the axes of the sprockets 14 and 16, when the sanding drum is rotated, is always fixed, thus preventing such alternate tightening and lengthening and consequent slapping in the chain as was customary in former types of machines of this class, thus further reducing chatter of the sanding drum. The drum is raised and lowered by the portions of the arms 12 extending backwardly from the pivotal axis, namely, the portions designated 12^a in the drawings. The rearwardly extended ends of these portions are flexibly connected to arms 20 in any suitable manner for raising and lowering the sanding drum from and to the floor. On the machine is provided a dust pipe 21 which terminates at its forward end in a diverging mouth piece or dust pan 22 which is positioned near the floor behind the sanding drum 5. Due to the fixed relation of the dust pipe 21 and dust pan 22 to the frame and the more or less great distance from the drum 5, I have provided another dust pan 23 to fill the space between the dust pan 22 and the drum 5. This dust pan 23 is of light construction and is pivotally mounted near its rear edge at the forward portion of the dust pan 22 and is pivotally connected near its forward edge, by a pair of links 24, at its opposite sides to the drum supporting arms 12 immediately backwardly from the portions thereof on which the drum is rotatably mounted. Thus, when the drum is raised and lowered, the dust pan 23 is raised and lowered therewith, permitting the dust pan 23 to be placed very close to the floor and very close to the sanding drum.

With my construction it is possible to increase the speed of the sanding drum fifty percent more than former machines of this class. The increase in speed causes a great deal of the dust to pass around with the drum and upwardly. I have therefore provided a light hood 25 over and around the upper and front side of the drum, with the forward portion extending downwardly as an apron in front of the drum substantially to the floor, as designated by 25^a in Fig. 2. This hood 25 is pivoted at its rear end on a dust directing and supporting member 26 which preferably extends from the dust pan to the hood 25. This hood may be readily raised out of the way of the drum so that the drum may be readily accessible at all times for changing the sand paper or other sanding material.

In my machine I have provided a special drum, the body or outer portion of which

may a split cylindrical metal member 5a. Immediately over the outer surface of this cylindrical metal member 5a I have secured a pad of sponge rubber 11. To the outer
 5 side of the pad of sponge rubber 31 is secured a pad of readily yieldable sheet rubber 32. Over the outer side of the pad of readily yieldable sheet rubber is removably
 10 positioned and secured a sheet of sand paper or other sanding material 33. Although a sponge rubber has been used heretofore in machines of this class between the rigid drum and the sand paper, the combination of readily yieldable sheet rubber and sponge
 15 rubber has not been used to my knowledge. In sanding floors, it often happens that the nails in the floor or other obstructions on the floor are forced through the sand paper into the sponge rubber tearing both the sand
 20 paper and the sponge rubber. But with the application of a readily yieldable sheet rubber on the outside of the sponge rubber, the latter is protected from such obstructions.

In the structure shown in Figs. 8 and 9
 25 of the drawings, in place of the sprockets 19 and 14, mounted respectively on the shaft of the motor 6 and on the spindle 13, I have provided sheaves 41 and 42 which are provided with peripheral V-shaped grooves, as
 30 shown best in Fig. 9. Around these sheaves extends a flexible belt 43 of V-shaped cross section. On the reduced eccentric portion 9a of the shaft 9 is an idler sheave 44 also having peripheral V-shaped grooves. The
 35 belt 43 extends around the lower side of the idler sheave 44, and when the motor shaft is rotated in the direction indicated by the arrow, the pull upon the sheave 42 is the same as that exerted by the chains in the construction described above. By reason of the use
 40 of the V-shaped belt, any raising or lowering of the sander drum, which may cause loosening or tightening of the belt, will not affect the smooth running of the operating
 45 mechanism, and the pull upon the sheave 42 will always be about the center of revolution of the sheave 44.

Though I have shown and described a particular construction, combination and arrangement of parts and portions, and a certain modification thereof, I do not wish to be limited to this particular construction, combination and arrangement, nor to the
 50 modification, but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

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

1. In an attachment of the class described for sanding machines, the combination with a portable frame having supporting wheels, a sanding drum, and a motor on the frame
 65 for driving said drum, of a pair of arms

positioned at the opposite sides of the forward end of the frame and secured at their upper ends thereto, a pair of drum supporting arms pivotally mounted intermediate their ends at the lower ends at the outer
 70 sides of said first arms, said drum being rotatably mounted on said drum supporting arms forwardly of said frame, means at the rear ends of said drum supporting arms for supporting said drum from and resiliently
 75 on the floor, means operatively connecting said motor to said drum, and straps rigidly connecting the lower end of the first arm to the pivotal axes of the supporting wheels of the frame.

2. In an attachment of the class described for sanding machines, the combination with a portable frame, a sanding drum, and a motor on the frame for driving said drum, of a pair of arms positioned at the opposite
 85 sides of the forward end of the frame and secured at their upper ends thereto, a pair of drum supporting arms pivotally mounted intermediate their ends at the lower ends at the outer sides of said first arms, said
 90 drum being rotatably mounted on said drum supporting arms forwardly of said frame, a second pair of arms connecting the pivotal mounting of said drum supporting arms to said frame, a wheel member mounted on the pivotal mounting of said drum supporting
 95 arms, drive means operatively connecting said motor and said drum, said drive means passing over and in engagement with said wheel member.

3. In an attachment of the class described for sanding machines, the combination with a portable frame, a sanding drum, and a motor, having a pulley mounted thereon, mounted on said frame and adapted to drive
 105 said drum, of a pair of arms positioned at the opposite sides of the forward end of the frame and secured at their upper ends thereto, a pair of drum supporting arms pivotally mounted on said first arms, said drum being
 110 rotatably mounted on said drum supporting arms forwardly of said frame, a third pair of arms connecting the pivotal mounting of said drum supporting arms to said frame, a pulley mounted coaxial with said drum, a second pulley mounted coaxial with the pivotal portions of said drum supporting arms, and a belt extending around all of said pulleys for driving said drum.

In testimony whereof, I have hereunto set
 120 my hand at Los Angeles, California, this 10th day of July 1929.

HENDRICK W. LUNDQUIST.

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