March 22, 1927. 1,621,931

M. E. JOHNSON

DESK SANDING MACHINE

Filed Oct. 20, 1925 2 Sheets-Sheet 1

Fig. 1.

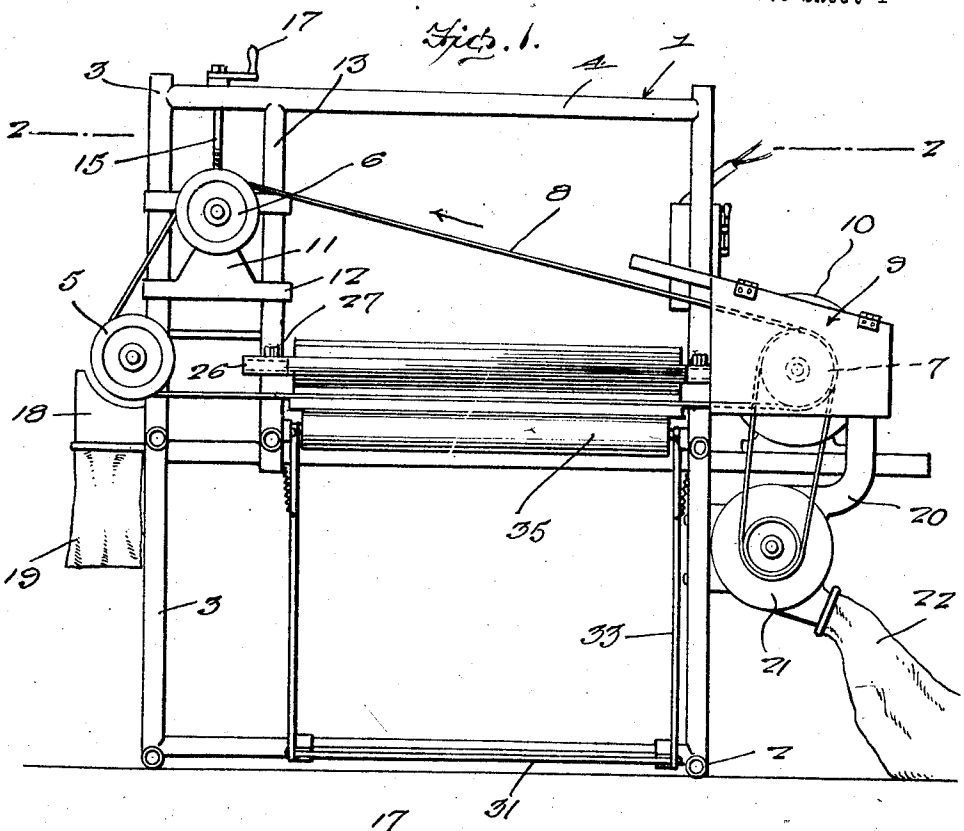


Fig. 4.

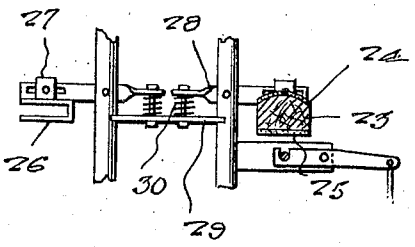
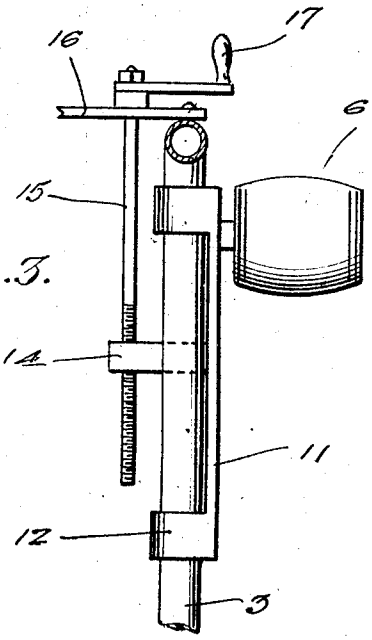


Fig. 3.



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Fig. 2.

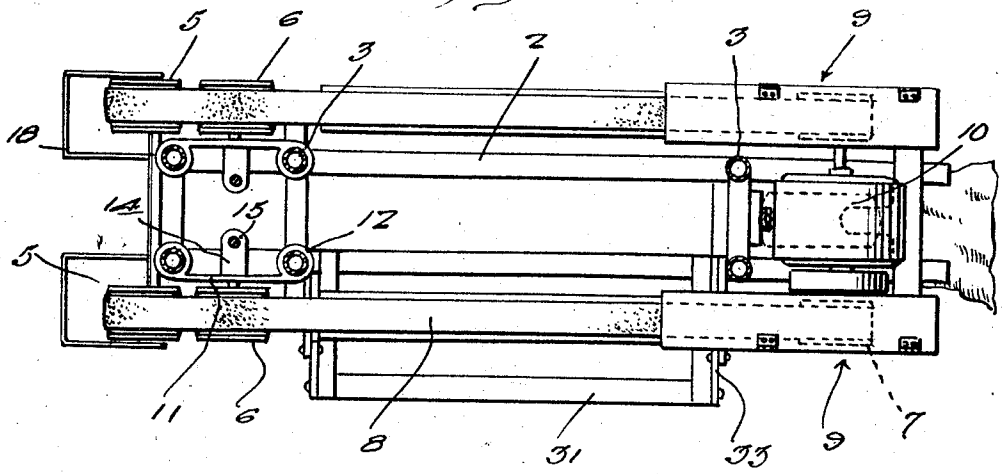


Fig. 5.

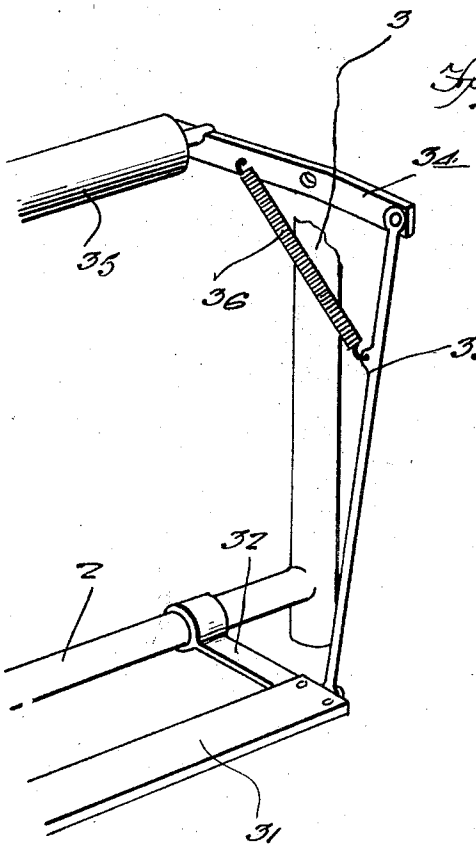
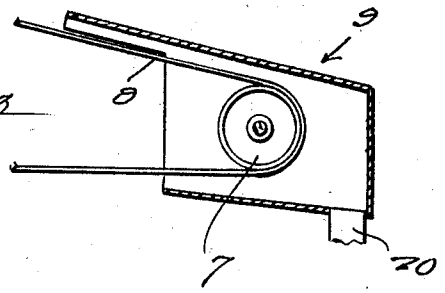


Fig. 6.



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UNITED STATES PATENT OFFICE.

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DESK-SANDING MACHINE.

Application filed October 20, 1925. Serial No. 63,719.

This invention relates broadly to an improved machine for refinishing school desks and other wooden products, and it has more particular reference to a sand surfacing belt machine.

Briefly described, the improved machine comprises a support in the form of an open work frame with two distinct series of pulleys mounted thereon, there being a sanding belt trained over each series, whereby to permit two operators to work simultaneously upon opposite sides of the machine, and a third operator to work at one end of the machine, sanding rounded and curved edges and the like.

Appropriate belt operating and tensioning means is provided and a dust collecting device is associated therewith. Cooperating with each belt is a manually operated roller for pressing the work against an especially constructed and mounted yieldable abutment which serves to sustain the sanding belt in a manner to obtain the full service thereof.

An important feature of the invention is the belt tensioning means which permits the belt to be tightened when the belt stretches from use.

An equally important feature is the construction and mounting of the abutment, this being in the form of a padded member rotatably mounted to permit either top or bottom to come into play, and having spring means associated therewith to permit a desired degree of yielding.

A no less important feature of the work is the pressing rolls, together with the mounting means therefor and the foot operated means to be manipulated by the operator.

Other structural features and advantages of the invention will become apparent from the following description.

In the accompanying drawings forming a part of this application, and in which like numerals are employed to designate like parts throughout the same:—

Figure 1 is a side elevation of a sanding machine constructed in accordance with the present invention, showing the approximate manner of using the same.

Fig. 2 is a horizontal section taken approximately upon the plane of the line 2—2 looking downwardly.

Fig. 3 is a detail view of the belt tensioning means.

Fig. 4 is a detail view of the construction of the abutment and mounting means therefor.

Fig. 5 is a perspective view upon an enlarged scale, of the manually manipulated work pressing rolls, and

Figure 6 is a detail sectional view of one of the pulley housings and dust collecting means.

Referring to the drawings in detail, the reference character 1 designates generally the supporting frame. This is preferably constructed from hollow pipes connected together in a manner to provide a base 2 and upstanding standards 3. The standards are connected together at their upper ends by longitudinal members 4. At this time, I would direct attention to the fact that the frame work is constructed to provide a supporting means whereby two persons may work on opposite sides of the machine and one person at end of machine, holding work against belt at the same time. Under this arrangement, there are really two sanding devices in the one machine. For the purpose of convenience of description, singular terminology will predominate, it being understood that like reference characters designate like parts throughout all views.

With this end in view and referring to Fig. 1, it will be seen that the reference character 5 designates a relatively stationary pulley, 6 designates an adjustably mounted pulley, and 7 a stationary motor pulley. Over this trio of pulleys, the belt 8 is trained. The belt is smooth on its inner surface and provided with appropriate sanding means on its outer surface. The motor pulleys are of a construction embodying rubber or other appropriate surfaces to prevent undue slipping of the belt.

It will be noted that the pulley 7 is confined in a suitable dust housing 9 adjacent which the operating motor 10 is suitably supported. The pulley 6 is mounted on a vertically adjustable carrier, which as shown in Fig. 3, comprises a plate 11 having guides 12 adjustable on one of the end standards 3 and a supplemental standard 13. The plate is provided with a lug 14 and an operating bolt 15 has its threaded end passing through the lug and then through a cross piece 16 mounted on the frame. (See Fig. 3.)

Connected to the upper end of the bolt is a crank handle 17 and it is obvious that by rotating the same, the carrier can be adjusted

up or down to allow pulley 6 to serve as a belt tensioning means. The pulley 5 has a suitable hopper 18 located therebeneath and if desired, a bag or the like 19 may be connected therewith for collecting dust. In this connection it may be conveniently said that the housing 9, as shown in Fig. 6, is formed with a depending passage 20 which connects with the housing of a fan blower 21. This housing is formed with a neck with which a bag 22 is connected for collecting the dust. The fan is driven from the motor as shown in Figs. 1 and 2.

Attention is now directed more particularly to Fig. 4, wherein the abutment for the work is shown. This abutment is in the form of an elongated strip of wood 23, having a rounded top and a flat bottom. The rounded top 24 and the bottom 25, are covered with appropriate material of a compressible nature to permit a uniform pressing on the belt. The ends of the strip 23 are reduced to form trunnions and these trunnions are connected with U-shaped clips 26 which are in turn connected with brackets 27 pivotally and adjustably mounted on the slotted end of the rocker arms 28. The inner ends of the arms extend between the standards of the frame work and are connected with cross bars 29 through the medium of bolts. The bolts are surrounded by expansion springs 30. In this way the rocker arms are pressed upwardly at their inner ends and a downward spring pressure is exerted upon the abutment forming block. The block may be inverted to dispose the flat or curved side against the inner smooth side of the belt, as desired.

The abutment of course, serves to maintain the belt perfectly rigid to permit the work to be pressed firmly against the sanding surface. For permitting this pressure to be obtained, I employ a structure such as is better shown in Fig. 5. This comprises a pedal board 31 connecting to outstanding arms 32 pivotally mounted on one of the base bars of the frame. Upstanding links 33 are connected with the ends of the pedal and also with the outer ends of another pair of lifter arms 34. These arms are pivoted upon members fastened to and at right angles to adjacent vertical standards, and are formed at their inner ends with bearings in which journals on a pressing roll 35 are journaled. Rollers 35 is covered with rubber to prevent the work from slipping.

A coiled spring 36 is connected with the intermediate portion of each link and a corresponding portion of the adjacent rocker arm. The pressure roll is located directly beneath the abutment, and it is obvious that the work is placed between the roll and abutment as shown in Fig. 1.

In practice, the tension of the belt is regulated by the adjustment means described, and the belt is set into operation by the motor. The belt passes between the abutment and presser roll. The work is placed between the sanding surface of the belt and the roll. The operator sits alongside of the work to be treated and presses his foot upon the pedal 31 and thru the medium of the mechanism shown in Fig. 5, presses the work firmly up against the abrasive surface of the belt and moves the work back and forth. This obviously, serves to provide the work with a smooth surface. Dust which is thrown off of the work is collected to a certain extent in the housing 9 and passes down through the passage 20 and is collected in the bag 22. The inclined portion of the belts between the pulley 5 and 6 are used for sanding rounded corners, edges, and the like. The dust here is deposited in the small hoppers 18 and then collected in the bags attached thereto.

It is believed that a consideration of the above paragraph in connection with the detailed description will enable persons skilled in the art to which the invention relates, to obtain a clear understanding of the same. Therefore, a more lengthy description is thought unnecessary.

Minor changes coming within the field of invention claimed may be resorted to if desired.

Having thus described my invention, what I claim as new is:—

In a structure of the class described, a supporting frame, a plurality of pulleys mounted on said frame, a belt trained over said pulleys, said belt being provided with an abrasive surface, rocker arms pivotally mounted on said frame, an abutment rotatably supported between said arms, said abutment being flat on one side and rounded on its opposite side and being adapted for cooperation with the inner side of one stretch of the belt for maintaining said one stretch rigid, a work-pressing roll located beneath said one stretch of the belt, additional arms pivotally mounted on said support beneath the aforesaid rocker arms, said roller being carried by said additional arms, a foot pedal, and connections between said additional arms and said pedal.

In testimony whereof I affix my signature.

MARTIN E. JOHNSON.