Nov. 28, 1933. B. D. PINKNEY 1,936,991

SANDING MACHINE

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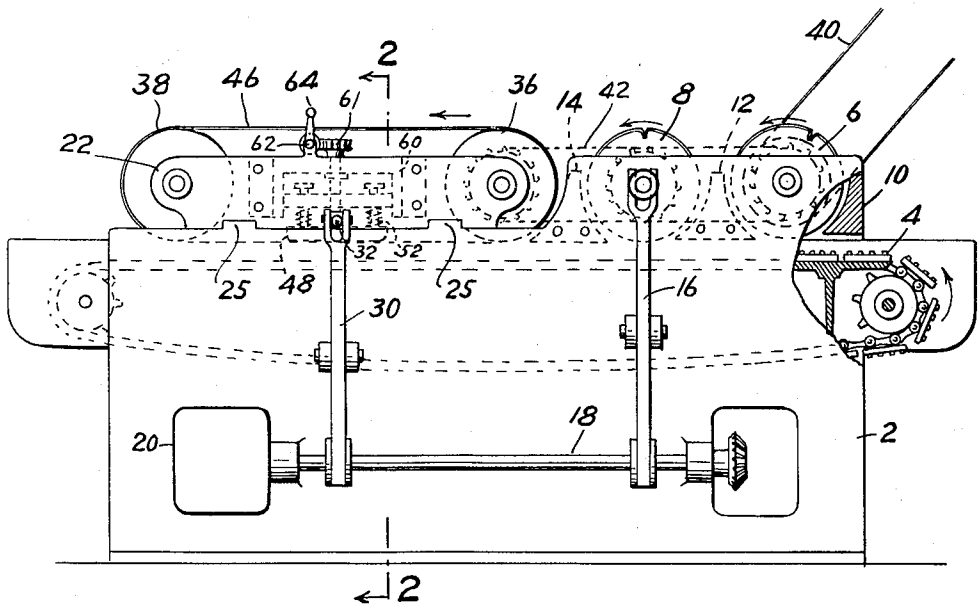


FIG. 1.

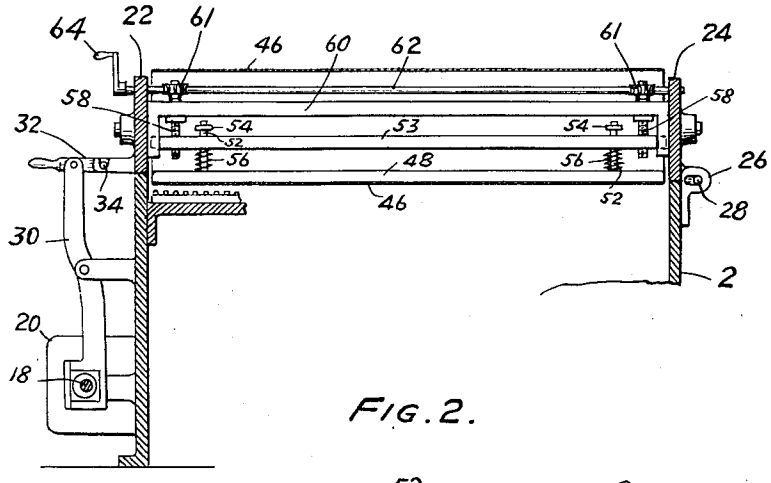


FIG. 2.

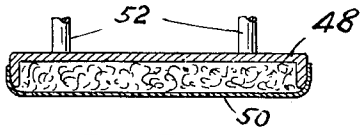


FIG. 3.

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SANDING MACHINE

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5 Claims. (Cl. 51—3)

This invention relates to a sanding machine and has particular reference to that type of machine having a series of rotary sanding drums.

In attempts to use rotary sanding drums for the purpose of finishing the surface of wood, it has been found that the sandpaper is likely to produce striations or scratches in the surface of the wood extending in the direction of movement of the wood through the machine. In order to avoid such longitudinal scratches, it has been customary to oscillate one or more of the final sanding drums in an axial direction. This serves to a very considerable extent to eliminate the scratches referred to, but fine wavy marks, known as snake marks, generally result and are objectionable if a very smooth surface is desired.

Besides these snake marks, drums of the type heretofore used have axially extending openings at their peripheries in which the ends of the sheets of sandpaper covering the drums are clamped. As the resulting interrupted portion of the sanding surface strikes the wood being sanded, a transverse revolution mark may result, so that the final surface produced on the wood consists of a series of intersecting scratches. It is accordingly customary, in the production of fine work, to use a separate belt sander of a hand operated type having a very fine grade of sandpaper thereon to smooth out the resulting scratches with the production of a highly smooth surface.

It is the object of the present invention to incorporate in a sander including a plurality of sanding drums a final sanding device of a belt type to remove the marks which may result from the sanding drums. Detailed objects of the invention relate to the provision of an improved finishing sanding device so arranged that change or replacement of the sanding belt is easily accomplished, and arranged so that adjustments may readily be made for the production of varying types of work.

In the drawing:

Fig. 1 is a side elevation partly in section of a machine embodying the present invention;

Fig. 2 is a section on line 2—2 of Fig. 1; and

Fig. 3 is a detail of the shoe which holds the sanding belt upon the work.

The machine is illustrated herein somewhat diagrammatically, inasmuch as, in general, it incorporates the features of well known machines, such as, for example, the type shown in the patent to Perry, No. 657,357, dated September 4, 1900. Reference to this patent will show details relating to the driving connections and adjustments which are omitted from the present disclosure for the sake of clearness.

The improved machine consists of a base 2 in which is mounted a suitable feeding device which, in the present instance, comprises a belt 4 of the type shown in the Perry patent. Rotatably mounted in suitable bearings carried by a side frame, or by adjustable members mounted on the side frames, are sanding drums 6 and 8, between which are located suitable guiding shoes 10, 12 and 14, which serve to properly present the surface of the wood being sanded to the sanding drums. The first drum is adapted to carry coarse sandpaper and serves for the rough removal of the surface of the work. This drum is not oscillated axially.

The second drum 8 which, in the present instance, is the final sanding drum, is oscillated axially by suitable connection to the upper end of a lever 16, the lower end of which carries an eccentric strap surrounding an eccentric on a shaft 18, driven from a suitable source of power through reduction gearing in a gear box 20. While only two sanding drums are herein shown, it is usual to provide three drums the last two of which are oscillated and which produce finer work so that the finished surface of the wood emerges from the machine in a very smooth condition with, however, possibly some scratches of the type referred to above.

Mounted on the rear of the machine are side frame members 22 and 24 rigidly connected together by cross bars and bolts. These side members are provided with slideways engaging over suitable bearing tracks 25 or the like carried by the side frames of the machine, so that a transverse oscillatory movement may be imparted to the frame members and the parts carried thereby. The right-hand frame member 24 as shown in Fig. 2 is provided with slotted ears 26 through the slots in which extend pins 28 carried by frame 2, the slots permitting the sidewise movement of frame member 24. Oscillatory movement transversely of the direction of feed of the work is imparted to the frame members through the medium of a lever 30 provided at its lower end with an eccentric strap embracing an eccentric on shaft 18. At the upper end of lever 30 is pivoted a link 32 carrying a pin 34 which may be received within slots in ears extending outwardly from frame member 22. Manual tilting of lever 32 serves to disengage pin 34 from the slot when it is desired that no oscillatory movement be imparted to the frame members and when it is desired to replace a sanding belt.

Mounted in frame members 22 and 24 are sanding belt carrying rollers 36 and 38. Motion is imparted to drum 6 by means of a belt 40 trained over a pulley carried by the shaft of this drum. The shaft of this drum and the shafts of drum 8 and roller 36 carry sprocket wheels over which is trained a silent chain or other suitable belt 42 serving to impart simultaneous rotation to all shafts in the directions indicated by the arrows.

Over rollers 36 and 38 is trained a sanding belt 46 of fine grade adapted to produce a highly smooth surface on the work. A shoe 48 extending transversely of the machine and carrying preferably a flexible sheet metal plate 50 backed by felt or similar material, carries upstanding bolts 52, two at each end thereof, which are slidably mounted through apertures in a carrying plate 53. These bolts are provided at their upper ends with nuts 54, while springs 56 are located around each of the bolts between shoe 48 and plate 53. It will thus be seen that adjustment of nuts 54 will serve to vary the tension of springs 56 and accordingly the pressure of the shoe upon the lower lap of the belt 46. Adjusting screws 58 are journalled in cross member 60 and threaded into plate 53. The upper ends of these screws carry worm wheels 61 meshing with worms carried by a shaft 62 journalled in frame members 22 and 24 and carrying a suitable crank 64. It will be obvious that manual rotation of the crank 64 will serve to vertically adjust plate 53 whereby shoe 48 may be adjusted vertically to suit the work being sanded. Upward movement of plate 53 will serve to lift shoe 48 from the work by engagement with nuts 54 so as to facilitate the replacement of the belt 46.

It will be noted that frame member 22 is within the outline of belt 46 as shown in Fig. 1, that is, that the side members of frame 2 extend upwardly beyond the lower lap of this belt. When it is desired to replace the belt 46, pin 34 is disengaged from the slot in which it is received and the entire structure, comprising frame members 22 and 24, rollers 36 and 38, and the shoe and its carrying parts, may be tilted upwardly about pins 28 as pivots. The old belt 46 may then be removed from rollers 36 and 38 and a new belt substituted.

From the above it will be seen that there is provided in a machine provided with the usual sanding drums a belt sander which may be of a type adapted to remove all scratches or marks from the surface of work acted upon by the sanding drum. It will also be seen that an arrangement is provided whereby, while proper operation is attained, the replacement of the sanding belts is greatly facilitated.

What I claim and desire to protect by Letters Patent is:

1. A sanding machine including a main frame, a sanding drum, a belt sander, and means for feeding work from the sanding drum to the belt sander, said belt sander including a supporting frame, and means carried by the supporting frame for mounting a belt, said supporting frame being releasable from the main frame to provide clearance for the replacement of the belt.

2. A sanding machine including a main frame, a sanding drum, a belt sander, and means for feeding work from the sanding drum to the belt sander, said belt sander including a supporting frame, means carried by the supporting frame for mounting a belt, said supporting frame being releasable from the main frame to provide clearance for the replacement of the belt and means for oscillating the supporting frame.

3. A sanding machine including a frame, a sanding drum, a belt sander, means for feeding work from the sanding drum to the belt sander, and means for oscillating the belt sander transversely to the direction of feed.

4. A sanding machine including a frame, a sanding drum, a belt sander, means for feeding work from the sanding drum to the belt sander, and means for oscillating the belt sander transversely to the direction of feed, said means including an oscillating lever and a link joining the lever and belt sander and including a pin and slot connection releasable by manual displacement of the link.

5. In a machine of the character described including a main frame, a belt sander, means for feeding work to the belt sander, said belt sander including a supporting frame, and means carried by the supporting frame for mounting a belt, said supporting frame being pivotable relatively to the main frame to permit replacement of the belt, the belt being movable over a portion of the supporting frame.

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