K. F. G. MAIER.

SANDING MACHINE.

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1,305,731.

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Fig. 1

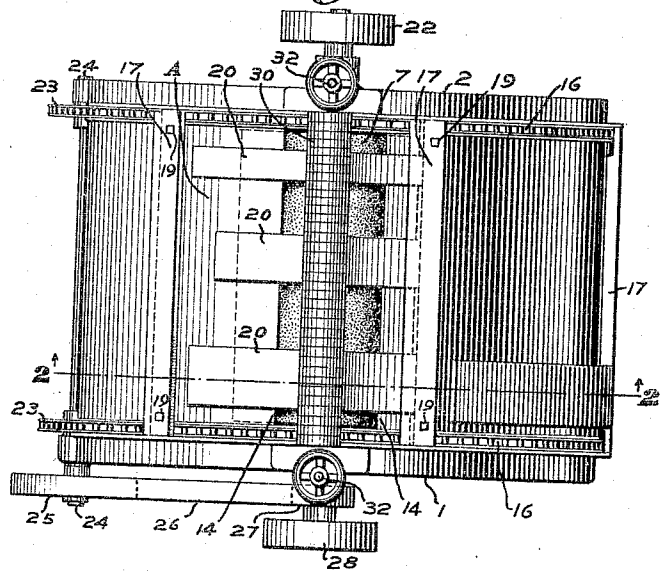


Fig. 3

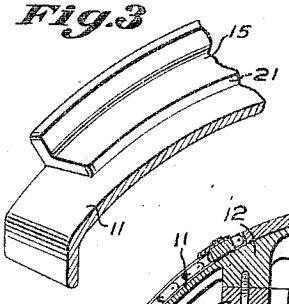


Fig. 2

Fig. 4

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SANDING-MACHINE.

1,305,731. Specification of Letters Patent. Patented June 3, 1919.

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To all whom it may concern:

Be it known that I, KARL F. G. MAIER, a citizen of the United States, residing at South Ashburnham, county of Worcester, and State of Massachusetts, have invented an Improvement in Sanding-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

The invention to be hereinafter described relates to sanding machines, and more particularly to that type of sanding machines for treating the curved surfaces of wooden strips.

An important feature of the present invention consists in a sanding machine having a sanding roll and a curved table for supporting the curved strips, such for instance, as chair backs, as they are fed by suitable feeding means over the curved surface of the table for the action of the sanding roll. Opposed to the sanding roll in the present form of the invention is a pressure roll between which and the sanding roll the curved strip to be treated is fed.

Another feature of the invention consists in feeding means formed of flexible feeding members, and means for moving the feeding members in a path substantially in accordance with the curved surface of the table to feed the curved strips over the table and between the sanding and pressure rolls.

A further object of the invention is to provide a sanding machine which shall be simple in construction, and efficient in operation, and wherein the parts shall be actuated by power to effect the desired surface treatment of curved strips. The above and other features of the invention will hereinafter be more fully described in connection with the accompanying drawing which shows one good, practical form of the invention, the scope of which is definitely set forth by the claims.

In the drawings:

Figure 1 is a plan view of a machine embodying the present invention;

Fig. 2 is a section of the machine shown in Fig. 1 on the line 2—2, Fig. 1;

Fig. 3 is a detail on an enlarged scale, showing the relation of the guides for the flexible feeding members and the curved supporting table; and

Fig. 4 is a detail on an enlarged scale showing one of the flexible feeding members and one manner of securing the crossbars to such flexible members.

The machine frame may be of any desired character and as illustrated in the present instance of the invention, comprises the side frames 1 and 2 connected by cross ties 3 and 4 at the bottom portion thereof, and by other cross members 5, the construction being such that the frame will be sufficiently stable to support the operating parts.

Horizontally mounted between the side frames 1 and 2 of the machine is a sanding roll which may be adjustably supported in its bearings. In the present instance of the invention the sanding roll consists of the cylinder 6 having an abrading surface 7 and secured to a transverse shaft 8 which may be supported in bearings mounted on the side frames of the machine and adjustable by means of the adjusting screws 9 and 10, the construction being such that by proper manipulation of the adjusting screws 9 and 10, the sanding roll may be moved or adjusted on the supporting frame.

The present machine is primarily intended for the surface treatment of curved strips which are to be fed to the sanding roll. To this end there is supported on the cross ties 5 in the present instance of the invention, a supporting table having a curved surface which may be substantially in conformity with the curved surface of the strips to be treated. In the present instance of the invention, the table as a whole may be designated as in Fig. 1 by A, and is formed of two separate portions, one at each side of the vertical plane passing through the axis of the sanding roll. The two portions of the table may be substantially alike or modified as conditions require. In the present instance of the invention, each of the curved portions of the table consists of a curved supporting surface 11 having extending inwardly therefrom the projections 12 whereby the two curved portions of the table at each side of the sanding roll may be secured in operative relation to the sanding roll by suitable means such, for instance, as the securing bolts 13. The ends of the two portions of the table at each side of the sanding roll extend toward the vertical plane passing through the axis of the sanding roll but stop short thereof, thus leaving a suffi-

cient space between the proximate ends 14 for a portion of the sanding roll to extend between.

At the edge portions of the table, that is, at each side of the machine, there is provided a guideway 15 for flexible feeding members 16, one at each side of the machine, the general form of the guiding walls 15 and the face movement of the flexible members 16 being in substantial accordance with the curvature of the table. Extending between the flexible feeding members 16, which may be formed as sprocket chains, are the transverse bars or feeding members 17. These bars or members 17 may be secured at each end to one of the flexible feeding members or chains 16 by any suitable means, and as herein shown, the flexible feeding members or chains 16 have formed at intervals, the plates 18, Fig. 4, which underlie the transverse bars 17 and may be secured thereto by the bolts 19. The particular form of securing means between the flexible feeding members and the transverse bars 17 is not an essential feature of the present invention, and may be varied within wide limits.

The transverse bars 17 are disposed a distance apart along the flexible feeding members 16 to accommodate the curved strips 20 which are to be treated by the machine, and in order that the cross bars 17 may not ride directly upon or injure the curved surface of the supporting table, the guideways 15 for the flexible feeding members are raised a short distance above the surface of the feeding table as indicated at 21, the construction being such that as the flexible feeding members are moved to feed the strips 20 to the treatment of the sanding roll, the cross bars 17 will ride closely adjacent to but preferably out of contact with the curved surface of the table.

The sanding roll may be appropriately driven from any suitable source of power, and in the present instance of the invention, the shaft 8 on which the sanding roll is mounted, is provided with a belt pulley 22, Fig. 1, by which driving power may be transmitted to the sanding roll, and its speed of rotation adjusted to suit the conditions of use.

The flexible feeding members 16 for feeding the curved strips in the curved path as hereinbefore described, may be appropriately driven from any suitable source of power, and as herein indicated, the flexible feeding members or sprocket chains 16 are engaged with sprocket wheels 23 suitably mounted on a cross shaft 24 supported in bearings mounted on the machine frame. Secured to the shaft 24 is a pulley 25 which, by means of a belt 26, may be driven from a pulley 27 which derives its motion by suitable connections, as for instance, the pulley 28, with a suitable source of power.

From the construction thus far described, it will be apparent that the sanding roll as well as the flexible feeding members and cross bars, are power-driven and that the longitudinal elements of the curved surface of the table are substantially parallel to the axis of the sanding roll.

Rising from the side frames of the machine are the pressure roll bearings 29, Fig. 2, in which is mounted the pressure roll 30 normally under the influence of springs 31 tending to move the pressure roll toward the sanding roll and acting under the yielding pressure of the springs, to yieldingly force the strips 20 toward the sanding roll as they pass between the sanding roll and pressure roll. If desired, suitable adjusting devices such as the hand-operated adjusting screws 32 may be employed for regulating the action of the pressure roll.

In order that the leading ends of the curved strips to be treated may be properly presented to the sanding roll, it is desirable that the leading ends of the strips shall first engage the sanding roll before passing into control of the pressure roll, and to this end the axis of the pressure roll is located to one side of the vertical plane passing longitudinally through the axis of the sanding roll. This is best indicated by Fig. 2 wherein the line 33 represents the vertical plane passing longitudinally through the axis of the sanding roll and the line 34 represents the vertical plane passing longitudinally through the axis of the pressure roll.

It may be desirable in some cases to provide the cross bar 17 of the feeding means with devices to prevent the trailing ends of the curved strips from rising with reference to said cross bars; and to this end the present invention provides a hold-down or clip which may be secured to each of the cross bars 17. In the present instance, the hold-down or clip is indicated as a strip 35 secured to the top of each of the cross bars 17 and having an overhanging portion 36 beneath which the trailing ends of the curved strips may be inserted.

In operation of the machine, the attendant places the curved strips 20 on the table 11 at the feeding-in side of the machine, which as indicated by Fig. 2, is at the right. The curved strips to be treated thus rest upon the curved surface of the table and as the flexible feeding members carry the cross bars 17 along the curved path corresponding to the curvature of the table, they will engage the trailing ends of the curved strips and force the curved strips in the direction of feed between the sanding and pressure rolls, the curved strips being removed from the machine at the delivery or left-hand side viewing Fig. 2, either by the attendant or permitted to automatically fall from the machine.

What is claimed is:—

1. In a machine of the class described, the combination of a curved table, a sanding roll extending through a portion of the curved table to act upon the work as it is moved about said curved table, means for rotating the sanding roll, a pressure roll opposed to the exposed portion of the sanding roll for pressing the work toward the sanding roll, flexible feeding members movable in paths substantially corresponding to the curved surface of the curved table, and means extending between the feeding members for engaging curved strips placed upon the curved table and feeding them over the curved table and between the sanding pressure rolls.

2. In a machine for sanding curved strips, the combination of a horizontally supported sanding roll, a curved table the elements of whose surface are substantially parallel to the axis of the sanding roll, a pressure roll opposed to the sanding roll with its axis to one side of a vertical plane passing longitudinally through the axis of the sanding roll, and feeding means having clip portions adapted to overlie one end of strips placed upon the curved table and movable in a path substantially corresponding to the curved surface of the table.

3. In a machine of the character described, the combination of a curved table, a sanding roll to act on curved pieces as they are moved over the table, a yielding idle presser member having a smooth surface opposed to the sanding roll for engaging and pressing the pieces toward the sanding roll, and means for engaging the trailing ends of the pieces and feeding the latter over the table between the sanding roll and the presser member.

4. In a machine of the character described, the combination of a curved table, a sanding roll to act on the pieces as they are moved over the table, smooth presser means for idly engaging the pieces and pressing the same toward the sanding roll, and flexible feeding means having elements at intervals for engaging the trailing ends of the pieces and feeding the same between the sanding roll and the presser means.

5. In a machine of the character described, the combination of a curved support, a sanding roll to act on one side of curved pieces as they are moved over said support, idle presser means for pressing the pieces toward the sanding roll, and flexible belts or chains having members connecting the same at intervals for engagement with the trailing ends of the pieces to positively feed the same over said support between the sanding roll and presser means.

In testimony whereof I have signed my name to this specification.

KARL F. G. MAIER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."