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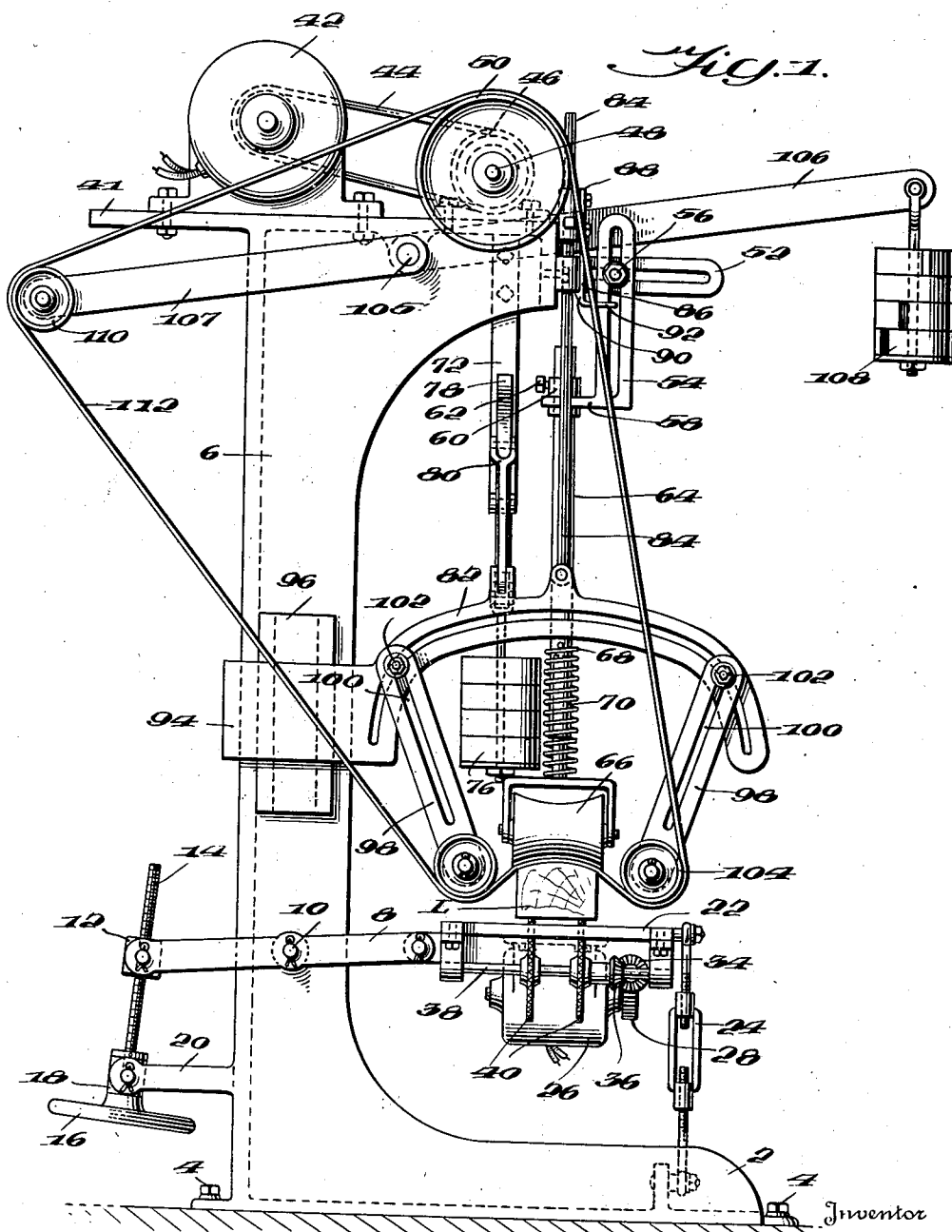
F. H. MORRIS

2,320,638

SANDING BELT MACHINE

Filed Feb. 14, 1941

4 Sheets-Sheet 1



Inventor

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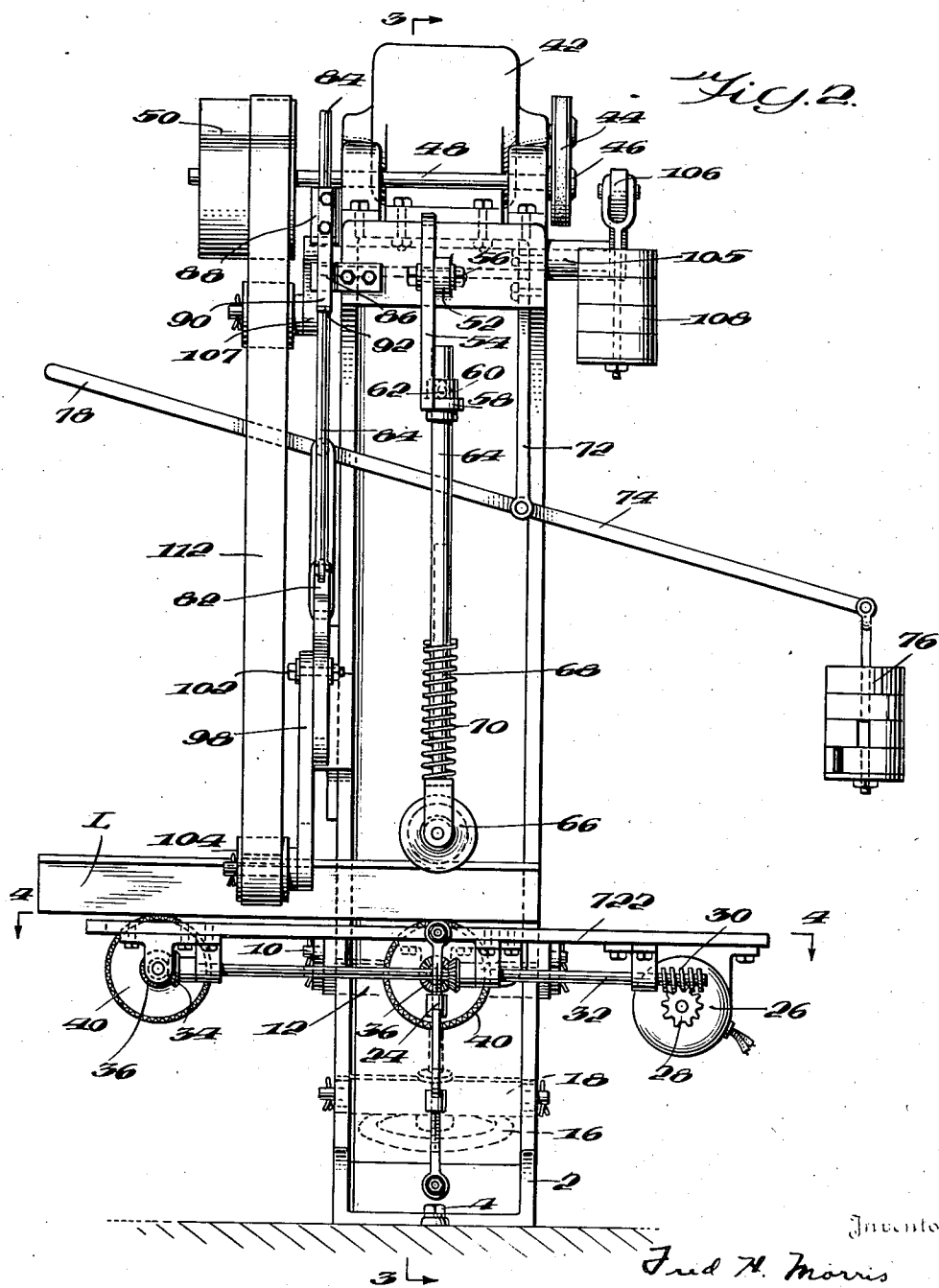
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4 Sheets-Sheet 2



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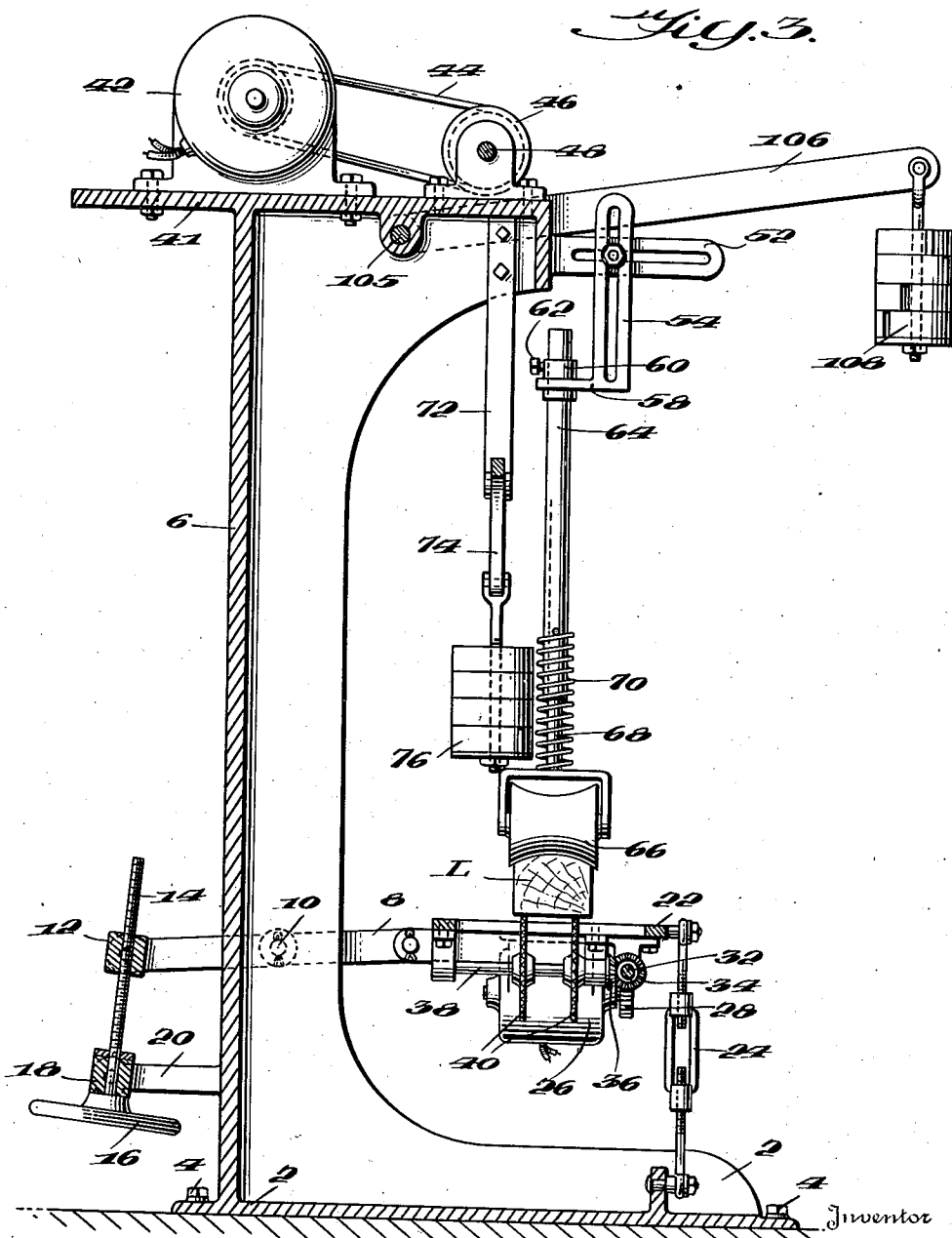
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4 Sheets-Sheet 3



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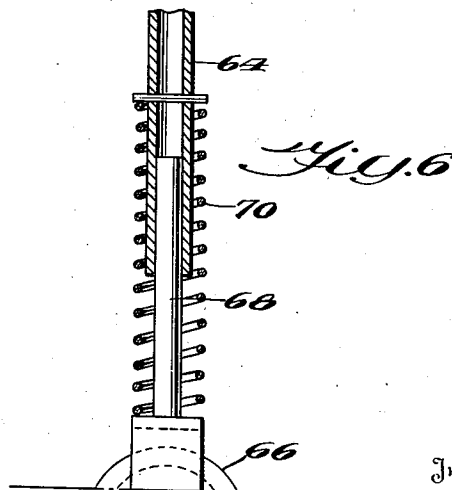
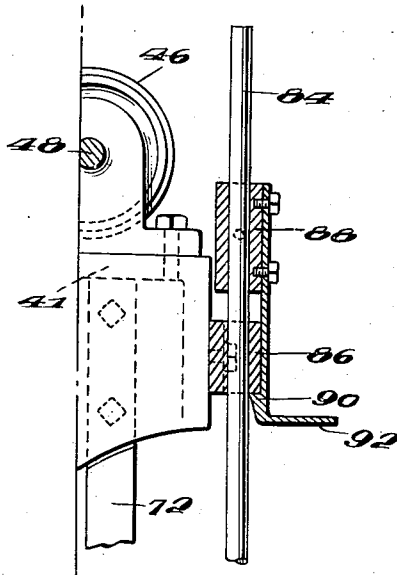
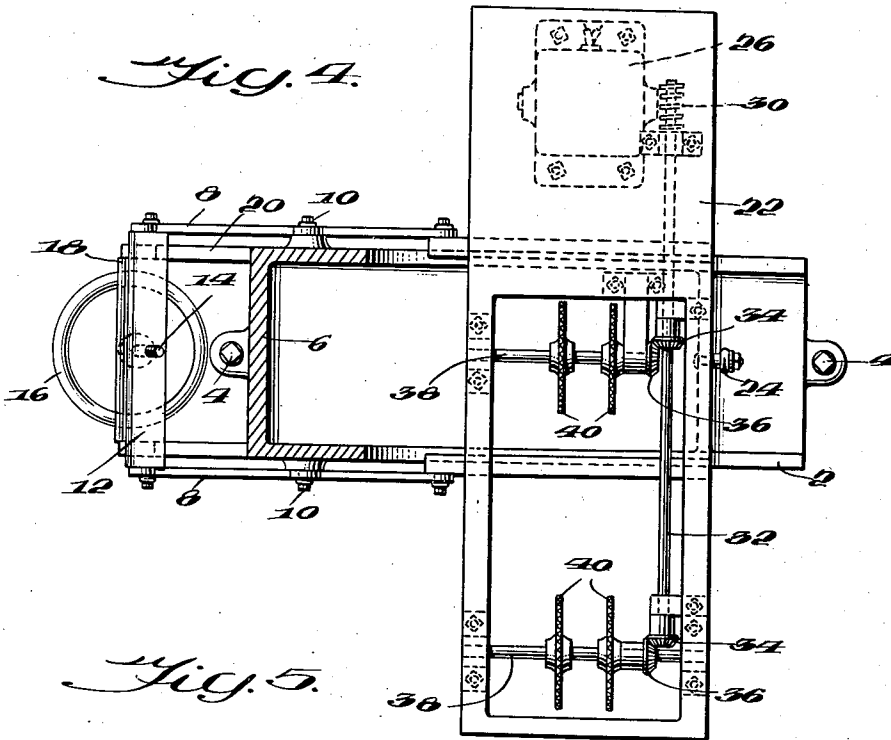
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SANDING BELT MACHINE

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

2,320,638

SANDING BELT MACHINE

Fred H. Morris, High Point, N. C.

Application February 14, 1941, Serial No. 378,980

2 Claims. (Cl. 51-139)

This invention relates to a sanding belt machine which is designed particularly for sanding and/or polishing curved surfaces.

An object of my invention is to provide a simple machine by which curved surfaces on lumber or other material may be readily sanded and/or polished.

My further object is to provide a machine which may be adjusted to properly sand curved surfaces of lumber which may be readily fed past a sanding belt which will automatically sand the curved surface as it has been adjusted.

A further object is to provide a machine having an adjustable platform for supporting work to be sanded, which platform may be raised or lowered and placed at any desired angle.

A still further object is to provide a platform for supporting material to be worked upon, which platform is provided with automatic feeding means for advancing the material as it is being worked upon.

A still further object is to provide a sanding belt mechanism which may be set for operation and will remain in that set position until released to remove sanded material and to allow the insertion of more material to be sanded.

In the accompanying drawings:

Fig. 1 is a front elevation showing a piece of material positioned to be worked upon;

Fig. 2 is a view in side elevation;

Fig. 3 is a vertical cross-section on the line 3-3 of Fig. 2, looking in the direction of the arrows;

Fig. 4 is a horizontal cross-section on the line 4-4 of Fig. 2;

Fig. 5 is an enlarged fragmentary detail of the catch mechanism for holding the sanding belt in its adjusted position; and

Fig. 6 is an enlarged fragmentary detail showing the spring-pressed pressure roller for holding the material to be worked upon in engagement with the feed mechanism of the work supporting table.

The main frame 2 may, if desired, be bolted to the floor by convenient bolts 4, or it may merely remain there by virtue of its weight. This main frame is provided with a substantially large portion resting on the floor, and a vertical portion 6 extending upwardly to support spaced apart from the base a motor and drive pulley, a tension pulley, a pressure roller, and an adjustable yoke, all of which will be more fully described hereinafter.

Pivoted on the vertical support 6 at a point relatively close to the base of the frame 2, links

8 are pivoted thereto by convenient studs 10. At one end of the links 8, a cross-bar 12 is positioned between the two links 8 and pivoted thereto by any convenient means. This cross-bar 12 is provided with suitable screw-thread means into which a screw-threaded shaft 14 is positioned. On one end of the screw-threaded shaft 14 I provide a hand-wheel 16 which is conveniently held from being raised or lowered by a cross-bar 18 pivotally held to the ends of studs 20 outstanding from the main frame 2. By this construction, the links 8 may be pivoted on their pivot point 10 by turning the hand-wheel 16 either clockwise or counter-clockwise to raise and lower the end of the link 8 remote from the hand-wheel and screw-threaded shaft 14. The end of the links 8 remote from the hand-wheel and associated mechanism are pivotally connected to one side of a work support 22, which work support on the side thereof remote from the links 8 is connected with the base of the main frame 2 by a convenient turn-buckle 24, which could be made in the form of a hand-wheel provided with right and left-handed threads, or similar to the one described above, if the same should be found more convenient in use. By the use of this mechanism, the work table 22 may be raised and lowered in a horizontal plane by adjusting the hand-wheel 16, and the turn-buckle 24 simultaneously, or the work-table 22 may be positioned in any desired slanting direction by adjusting the hand-wheel 16 and turn-buckle 24 independently of one another, until the desired slant of the work table 22 is obtained.

The work table 22 supports, on the under side thereof at one end, a suitable motor 26, on the shaft of which a pinion gear 28 is provided to be held in mesh with a worm-gear 30 secured to one end of the shaft 32. The shaft 32 extends lengthwise beneath the work table 22, and is provided at proper intervals with the bevel-gears 34 to mesh with the complementary bevel-gears 36 mounted on cross-shafts 38. These cross-shafts 38 carry suitable wheels 40 which are provided with knurled or serrated peripheries to readily engage the under surface of lumber or other material L to be worked upon, and to advance it along the work table.

On the upper end of the vertical support 6, I provide a suitable platform 41 on which I have positioned a motor 42. The motor 42 is provided with the customary conventional pulley to drive the belt 44. Belt 44 is held also by a suitable pulley 46 secured to one end of the

shaft 48, which shaft is provided at its other end with a drive-pulley 50.

The vertical portion 6 of the main frame has extended outwardly therefrom a horizontally extending slotted arm 52 which is adapted to be pivotally connected with the slotted arm 54 by a suitable nut and bolt assembly 56. The slotted arm 54 has an L-shaped portion 58 extending outwardly therefrom at one end, and which is provided with a suitable collar 60 and set-screw 62 for supporting the tube 64.

At the end of the tube 64 remote from the arm 54, the pressure roller 66 is attached by means of the internally telescoping rod 68 which is suitably and slidably affixed within the tube 64. The spring 70 is interposed between a pressure roller 66 and the tube 64 to press the roller 66 away from the tube 64.

By the above-described assembly, the pressure roller 66 may be suitably positioned to apply a desired amount of pressure downwardly on the lumber or other material L being worked upon by merely adjusting the nut and bolt assembly 56 to hold the arms 52 and 54 in desired position so that a proper amount of pressure may be applied to the pressure roller 66 to urge it downwardly against the material L, placed on the work table 22 and the wheels 40 to be worked upon.

Bolted to the upper end of the vertically extending portion 6 I provide a hanger 72 to the end of which remote from the vertical portion of the frame I pivotally affix an elongated rod 74. At one end of the rod 74, I affix a counterweight 76, while the other end of the rod 74 provides a handle 78. At a point approximately half-way between the handle 78 and the hanger 72, I pivotally attach a link 80 which extends downwardly from the rod 74, and which is pivotally attached to the yoke 82. The yoke 82 and its assembled mechanism weighs less than the counterweight 76.

The yoke 82 is also pivotally attached to a rod 84 which extends upwardly and is slidably positioned within a collar 86 which is secured to an upper portion of the vertically extending part 6 of the main frame 2. On this rod 84, a collar 88 (see Fig. 5) is secured to conveniently position a catch or lock 90, which lock is adapted to engage the collar 86 to hold the rod 84 and the yoke 82 in an adjusted downward position at the time that the handle 78 is pulled downwardly into the position in which it is shown in the drawings. The catch 90 is provided with a suitable handle 92 for the purpose of releasing the catch when it is desired to allow the counterweight 76 to raise the yoke 82.

The yoke 82 which is pivotally connected to the rod 84, is also slidably mounted on the vertically extending portion 6 of the main frame 2 by a suitable slide block 94 which is adapted to slide in the tracks 96.

The yoke 82 is provided with an arcuate slot into which the arms 98, which are provided with slots 100, are adapted to be pivotally engaged by the bolts 102. On the end remote from the bolts 102, the arms 98 are provided with suitable pulleys 104 around which an endless sanding belt 112 may be positioned.

Suitable affixed to one end of the shaft 105 and pivotally secured to the table 41 is an arm 106, to the end of which is suspended a counterweight 108. To the other end of the shaft 105 I affix an arm 107, to the outer end of which latter, is secured a pulley 110.

Around the main drive pulley 50, the pulleys 104 and the pulley 110, a suitable endless belt of sanding material 112 is positioned. Thus the counterweight 108 applies tension to the pulley 110 to always hold the sanding belt 112 taut.

Operation

The work table 22 may first be adjusted to a suitable position by turning the hand-wheel 16, either clock-wise or counterclockwise, and also by adjusting the turnbuckle 24. After this has been accomplished, the lumber or other material to be worked on is placed in position on the table 22, having the under side of the lumber or other material positioned to be engaged by the wheels 40. The pressure-roller 66 is raised sufficiently by the operator to permit the lumber to pass thereunder, and then allowed to be spring-pressed downwardly to hold the lumber so that it may be worked upon.

At the time that the lumber is thus positioned, the operator pulls the handle 78 downwardly, thereby pulling the yoke 82 and its associated arms 98 downwardly so that the endless sanding belt 112 comes into engagement with the lumber to be sanded. By pulling the handle 78 downwardly, the latch or lock 90 is also pulled downwardly, and comes into engagement with the collar 86 to hold the yoke 82 and its assembled mechanism downward in the position shown in Fig. 1. At the time that the mechanism is placed in this adjusted position, the motor 42 will be operating and through the belt 44 will be revolving the draft pulley 50 and consequently the endless belt of sanding material 112. After the material has been properly sanded by having been fed under the endless sanding belt 112 by the operation of the motor 26 and its turning the shaft 32 and wheels 40, the handle 92 may be pressed upwardly to release the latch or lock 90 and allow the yoke 82 to be pulled upwardly by the counterweight 76, thus removing the endless sanding belt 112 from the lumber having been worked upon. This will create a slack in the sanding belt which will be taken up by the counterweight 108 secured to the arm 106. This weight on the end of the arm 106 will turn the shaft 105 which will transmit the motion to the arm 107 and raise the pulley 110.

Work on other lumber or other material may continue merely by supplying new material to be introduced onto the work-table and the wheels 40 by an operator who introduces the work under the pressure roller 66 and then pulls downwardly on the handle 78 until the time that the latch or lock 90 becomes engaged over the collar 86. Here again after the sanding operation has been completed, the operator will release the latch 90 by pushing upwardly on the handle 92, allowing the counterweight 76 to pull the yoke 82 and its assembled mechanism upwardly and out of engagement with material to be sanded. The slack created in the endless belt of sanding material 112 will be automatically taken up by the counterweight 108 raising the pulley 110.

I claim:

1. In a sanding machine of the character described, the combination of a main frame, a work support thereon for the work, means for feeding the work placed thereon, a pressure roller, an endless sanding belt moving in contact with the work, four pulleys around which said belt extends, two of which pulleys are located on opposite sides of the work, the third pulley for driving the belt, and the fourth pulley for applying tension

thereto, arms pivotally mounted on a part of the main frame and one arm carrying the tension pulley and the other arm carrying a weight whereby to apply the required tension at all times to the sanding belt, a yoke to which the guide pulleys are attached, a rod pivotally connected with the yoke, and slidably connected with a collar on the main frame, a lock carried by the rod in position to engage the collar on the main frame, whereby to automatically lock the yoke in its operative position, a pivotally supported rod counterweighted at one end and provided with a handle at the other end, a link extending from this counterweighted rod, pivotally connected to the yoke, the lock having means thereon for the purpose of releasing the lock when it is desired to allow the counterweight on the rod to raise the yoke away from the work being sanded.

2. In a machine of the character described, the

5 combination of a main frame, a work support, links pivoted to the main frame and to the work support, a cross-bar connecting the links, means of adjusting the level of the work support including a threaded shaft swiveled to a part of the main frame and threaded through the cross-bar for tilting the work support from one end, adjustable means at the opposite end of the work support connected therewith and with the main 10 frame, thereby providing means of adjustment of the work support from opposite points, whereby the work support may be positioned in any desired slanting direction by means of the two adjustments which are independent of each other, 15 an endless sanding belt, means for pressing the belt against the work, and means for driving said belt.

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