

D. V. HODD.
BELT SANDPAPERING MACHINE.
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1,010,761.

Patented Dec. 5, 1911.

FIG. 1

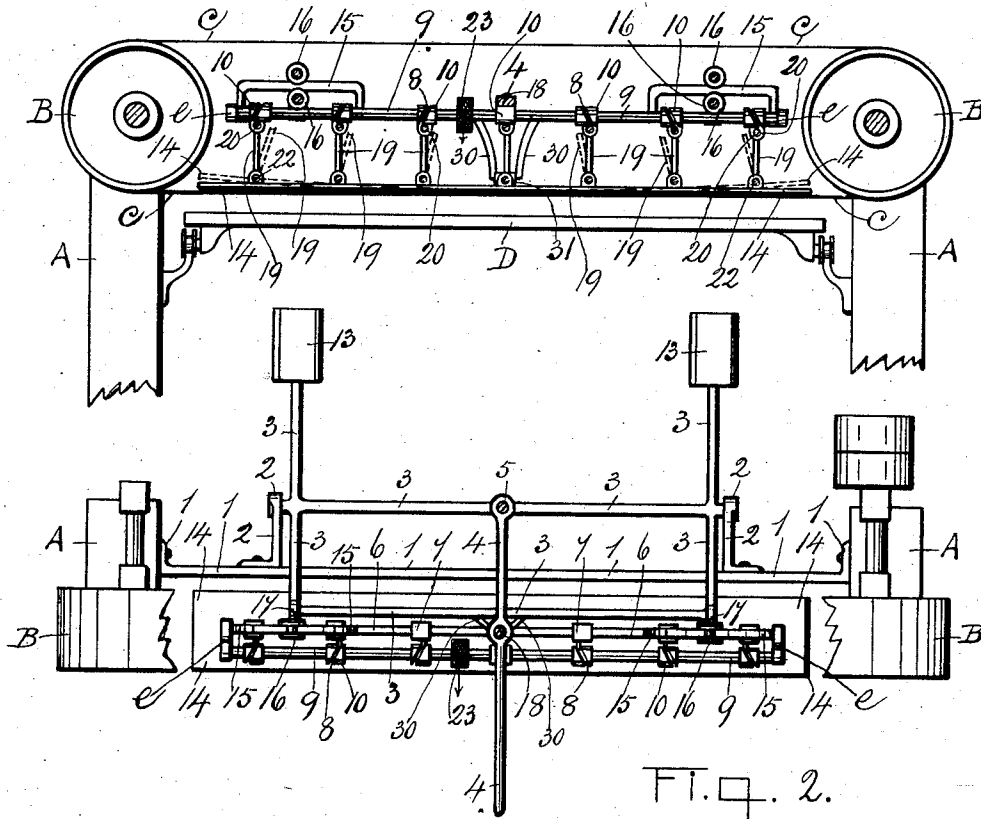


FIG. 2.

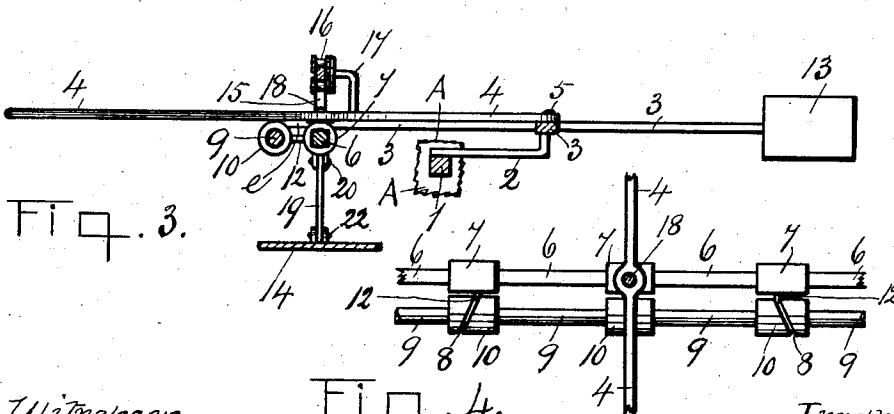


FIG. 3.

FIG. 4.

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BELT-SANDPAPERING MACHINE.

1,010,761.

Specification of Letters Patent.

Patented Dec. 5, 1911.

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To all whom it may concern:

Be it known that I, DONALD V. HODD, a subject of the King of Great Britain, and resident of Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented new and useful Improvements in Belt-Sandpapering Machines, of which the following is a specification.

My invention relates to improvements in belt sandpapering machines in which a pad, of resilient nature is devised and arranged to press upon the inner side of a sand paper belt, and adapted to adjustment to convex or segmental form, and also to horizontal directions.

The objects of my invention are, first, to provide means for passing the belt evenly on the work, second, to provide means for raising the end part of the belt pressing pad, thereby forming a straight pad into a segmental or convex pad; third, to secure control of point of contact of the pad to the work, at any point longitudinally, fourth, to afford facilities for allowing the pad to automatically assume a transverse level position on the belt, and fifth, to provide means for restricting the movement of the pad, longitudinally, while operating. I attain these objects by the mechanism illustrated in the accompanying drawing, in which:—

Figure 1 is a front elevation of the machine showing the spiral grooved collars, and the suspended pad. Fig. 2 is a plan of the same, the belt being removed and a portion of the belt pulleys broken away. Fig. 3 is an enlarged sectional end elevation through the middle part of the machine as viewed from the right-hand end thereof; and Fig. 4 is an enlarged detail plan of the central portion of the front rotatable bar, the rear horizontal parallel shaft with slidable collars having pins to operate in the spiral grooves of the collars of the front rotatable bar.

Similar characters of reference refer to similar parts throughout the several views.

In the drawing the stationary framework of the machine is indicated by A, and may be of any suitable design and shape to answer the purpose intended. B, and B are ordinary belt pulleys suitably mounted on said stationary framework and adapted to rotate thereon, and in the same direction, and C is the sandpapering belt on said pulleys. D, is a slidable and removable table

under the belt and a suitable distance therefrom, and adapted to hold the work to be sand-papered. These are not new.

1 is a longitudinal brace bar of the stationary frame A, and forms a part thereof, and 2 are bearing brackets secured thereto, to support a frame 3, which is adapted to swivel, or oscillate, in said bearings 2.

4 is an operating hand lever pivotally connected to the oscillatory frame 3, at 5, and the opposite end of said lever extends a suitable distance over and beyond the front part of the machine, as convenience requires.

6, is a longitudinal slidable bar, and has a number of slidable collars 7, having pins 12. Immediately in front of the bar 6, is a rotatable shaft 9, parallel with the bar and is journaled to the ends of the bar 6 at "e." The shaft 9 has a series of collars 10, opposite to and in proximity with the slidable collars 7 of the bar 6. The collars 10, have each a spiral groove 8, adapted to fit on the opposite pin 12, in a collar 7.

13 and 13 are similar rear counter-balance weights, on and extending beyond the rear part of the oscillatory frame 3, and balance said frame together with the longitudinal resilient pad 14.

15 are guide bridges on the bar 6, and 16 are guide rollers supported on the oscillatory frame 3, by means of brackets 17. The lever 4, previously referred to, is pivotally connected to the central collar 7, of the bar 6, at 18, and is adapted to shift said bar in opposite directions, together with the shaft 9, with its collars 10.

The pad 14 may be made of light steel plate, or suitable wood, of resilient nature, and is located and adapted to press on the inner side of the sand-paper belt C, as shown in Fig. 1. The pad 14 is connected to the slidable collars 7, by means of a plurality of vertically disposed arms 19. The upper ends of the arms 19, are pivotally connected to the collars 7, at 20, and the lower ends of said arms are pivotally, or otherwise loosely connected to the pad 14 at 22, for instance, by knuckle joints.

23, is a hand-wheel secured on the shaft 9, and adapted to rotate the shaft in opposite directions. When the hand wheel 23 is rotated, in the direction indicated by arrow, the upper ends of the arms 19 are gradually brought nearer to the middle of

the machine by means of the pins 12 of the collar 7 operating in the spiral grooves 8, of the collars 10, consequently shortening the distance between the end of the pad and the bar 6, thereby forming said pad into a convex, or segmental shape, by means of the upper end parts of the arms contracting or inclining toward the middle of the machine.

The lever 4 is pivotally, or loosely connected to the centrally located collar or block 7, of the slidable bar 6, at 18, and when the forward handle end part of said lever is brought in opposite directions, the bar 6 slides in the same direction, consequently the point of contact of the pad is changed as desired when the pad is convex, as shown in broken lines in Fig. 1 of the drawing.

When the lever 4, is pressed downwardly, the oscillatory frame 3, together with the bar 6 and the shaft 9 follow, and consequently the counter-balance weights rise, thereby pressing the pad on the belt C, and thereby the belt is pressed on the work on the table D. The counter-balance weights 13 on the rear of the oscillatory frame 3, more than balance the oscillatory frame 3, together with its connections forward of the bearings 2, therefore the pad is always free from pressure on the belt when the machine is at rest.

The spiral grooves 8 in the end collars 10 are more spiral, that is, of greater pitch than are the spirals in the collars on each side of the central collar, and the spiral grooves in the intermediate collars, graduate in proportionate order of pitch, that is, the pitch of the grooves diminish gradually in the collars as they near the middle of the machine.

It will be noticed that the spiral grooves governing one end portion of the pad from its center are in reverse spiral order, or incline, to the other end portion of the pad.

When sand-paperying is being accomplished, the lever 4 is used very efficiently in changing the point of contact of the pad and in pressing the same on the work in places more necessary than other places. The face of the pad finds its own level on the work on account of the pad being loosely connected to the arms 19.

30 are stops extending from the oscillatory frame 3, and adapted to contact with a block 31, on the pad 14, to prevent possible end movement of the pad while operating the hand lever 4.

What I claim as my invention and desire to secure by Letters Patent, is:—

1. In a belt sand-paperying machine, a stationary frame, a horizontal bar mounted thereon, collars on the bar, a longitudinal resilient pad, a plurality of arms loosely connected to the collars and to the pad, said

collars adapted to slide on the shaft and thereby raise the end portions of the pad to convex the same.

2. In a belt sand-paperying machine, a stationary frame, an oscillatory frame mounted thereon, a longitudinal bar, slidable collars on the bar, said bar adapted to slide on the oscillatory frame, a longitudinal resilient pad, a plurality of arms, loosely connected to slidable means on the bar and to the pad, and said means adapted to allow the end portions of the pad to be raised thereby convexing the same.

3. In a machine of the character described, a stationary frame, an oscillatory frame mounted thereon, a longitudinal bar, slidable collars thereon, a resilient pad, a plurality of arms loosely connected to said collars and pad, thereby providing means on which the collars and the upper ends of the arms connected thereto are brought nearer to or farther away from the middle of the bar, means fulcrumed to the oscillatory frame and to the bar adapted to oscillate the frame thereby lowering the pad, and to slide said bar in opposite directions in order to control the point of contact of the pad.

4. In a machine of the character described, a stationary frame, an oscillatory frame mounted thereon, a longitudinal bar, slidable collars thereon, a resilient pad, a plurality of arms loosely connected to said collars and pad, thereby providing means on which the collars and the upper ends of the arms connected thereto are brought nearer to or farther away from the middle of the bar, means fulcrumed to the oscillatory frame and to the bar adapted to oscillate the frame thereby lowering the pad, and to slide said bar in opposite directions in order to control the point of contact of the pad, and means on the oscillatory frame to counter-balance the pad in order to bring the same from work when not in use.

5. In a machine of the class described, a stationary frame, an oscillatory frame mounted thereon, a longitudinal bar adapted to slide on the oscillatory frame, collars having pins adapted to slide on the bar, a shaft parallel with the bar and journaled thereto and adapted to rotate, means on the shaft to operate on said pins, means on the shaft to rotate the same, thereby sliding the collars nearer to the center of the machine.

6. In a machine of the class described, a stationary frame, an oscillatory frame mounted thereon, a slidable bar mounted on the oscillatory frame, slidable collars on the bar, a pad, arms loosely secured to said collars and to said pad, adapted to bring the collars and the arms connected thereto nearer to and farther away from the middle of the bar thereby more or less convexing the pad, a lever fulcrumed to the oscillatory frame and to the bar adapted to lower the pad, and to

slide said bar in opposite directions to control the point of contact of the pad with the work.

7. In a machine of the class described, a 5 stationary frame, an oscillatory frame mounted thereon, a slidable bar mounted on the oscillatory frame, slidable collars on the bar, a pad, arms loosely connected to the collars and to the pad, adapted to bring the collars and the arms connected thereto nearer 10 to and farther away from the middle of the bar thereby more or less convexing the pad, a lever loosely connected to the oscillatory frame and to the bar and adapted to lower 15 said pad and to slide said bar, and means on the oscillatory frame to counter-balance the same and thereby hold said pad out of operative position.

8. In a machine of the class described, a 20 stationary frame, an oscillatory frame mounted thereon, a longitudinal bar adapted to slide in the oscillatory frame, slidable collars having pins on said bar, a rotatable shaft journaled on the bar in proximity 25 with, and parallel with said bar, means on the shaft to engage said pins, a resilient pad, arms loosely connected to said collars and pad, means on the shaft to rotate the same thereby sliding the collars nearer to the center 30 of the oscillatory frame, thereby raising the end portions of the pad and means ful-

crumed to the oscillatory frame and to the bar, to slide said bar and to lower the same together with the pad.

9. In a machine of the class described, a 35 stationary frame, an oscillatory frame mounted thereon, a longitudinal bar mounted on and adapted to slide on the oscillatory frame, slidable collars on the bar, a resilient pad, vertically disposed arms loosely connected to said collars and to the pad, a lever 40 fulcrumed to the oscillatory frame and to the bar and adapted to slide the bar, stop means on the pad and means on the oscillatory frame to engage said stop means, thereby restricting the longitudinal movement of 45 the pad at the sliding of the bar.

10. In a machine of the class described, a stationary frame, an oscillatory frame 50 mounted thereon, a longitudinal bar, parallel rollers in alinement on the oscillatory frame, slidable collars on the bar, means on the bar to pass between said rollers, and adapted to support and to guide said collars and bar 55 and means fulcrumed to the oscillatory frame and to said bar to slide the same and to oscillate the frame.

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