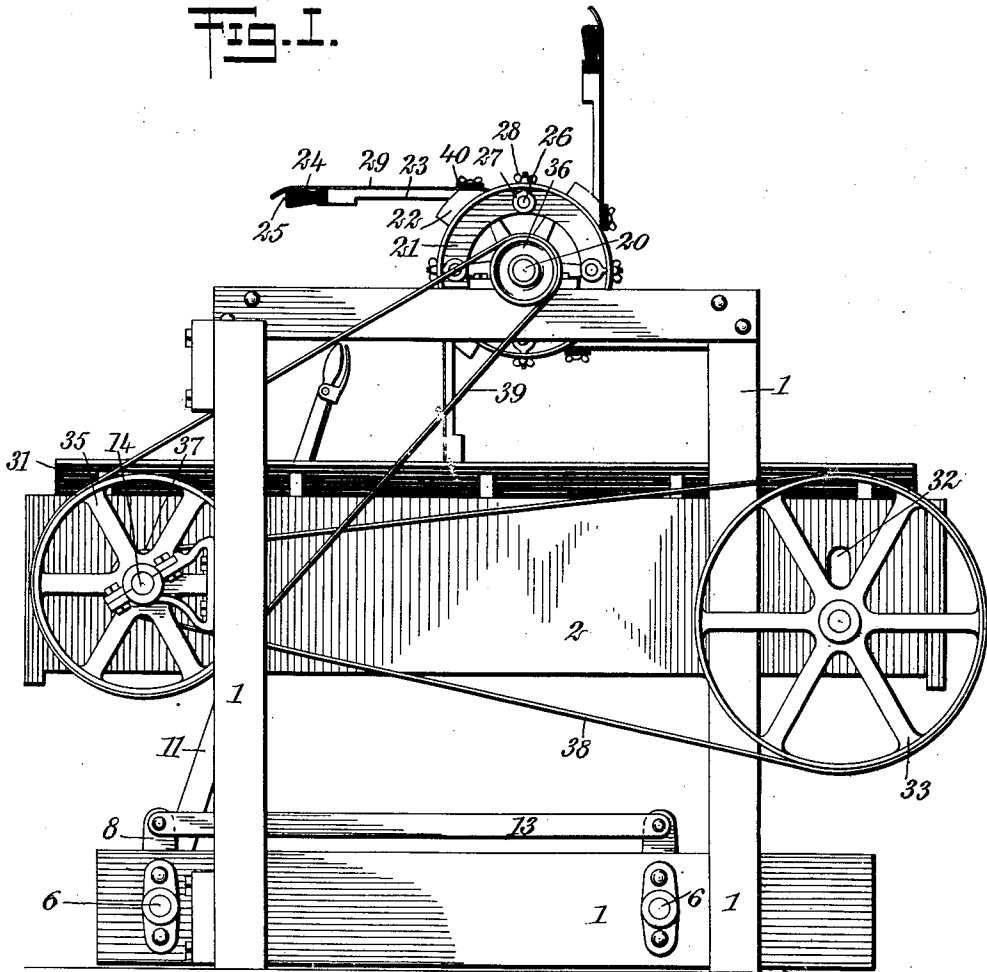
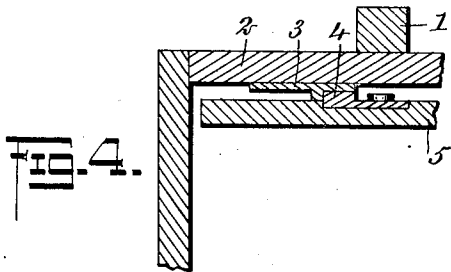
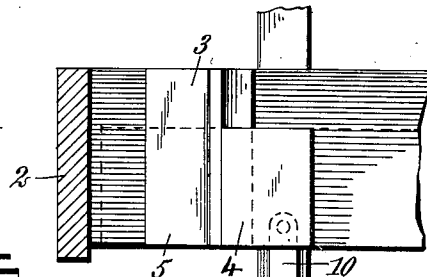


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 ABRADING MACHINE.
 APPLICATION FILED APR. 22, 1908.

919,054.

Patented Apr. 20, 1909.
 3 SHEETS—SHEET 1.



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FIG. 2.

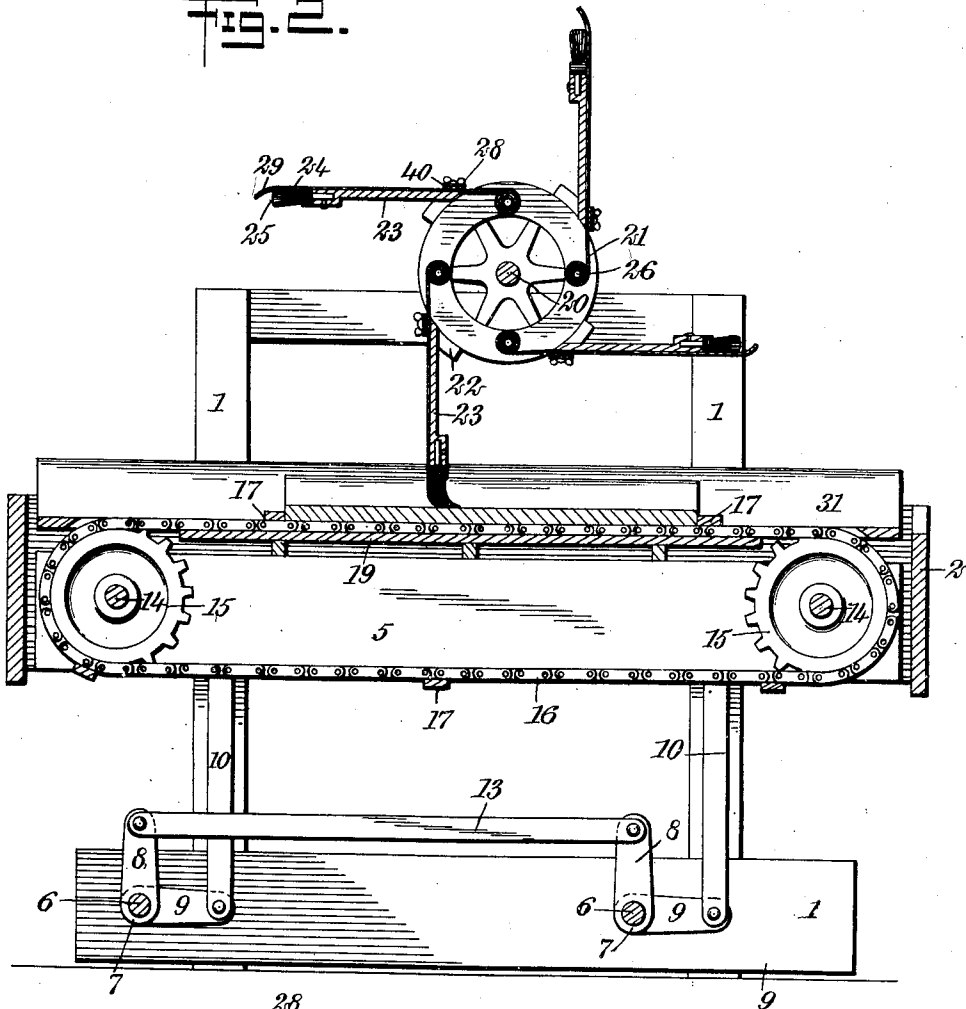
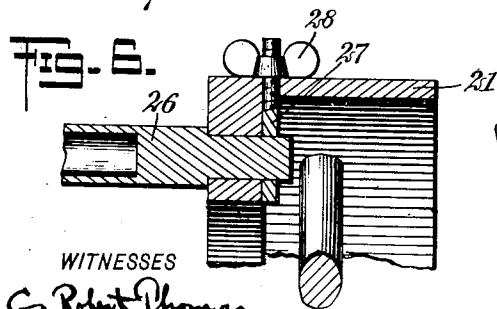


FIG. 6.



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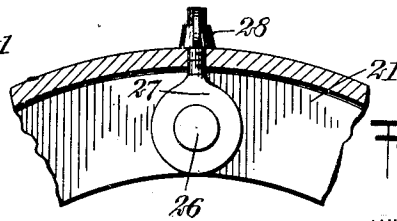


FIG. 7.

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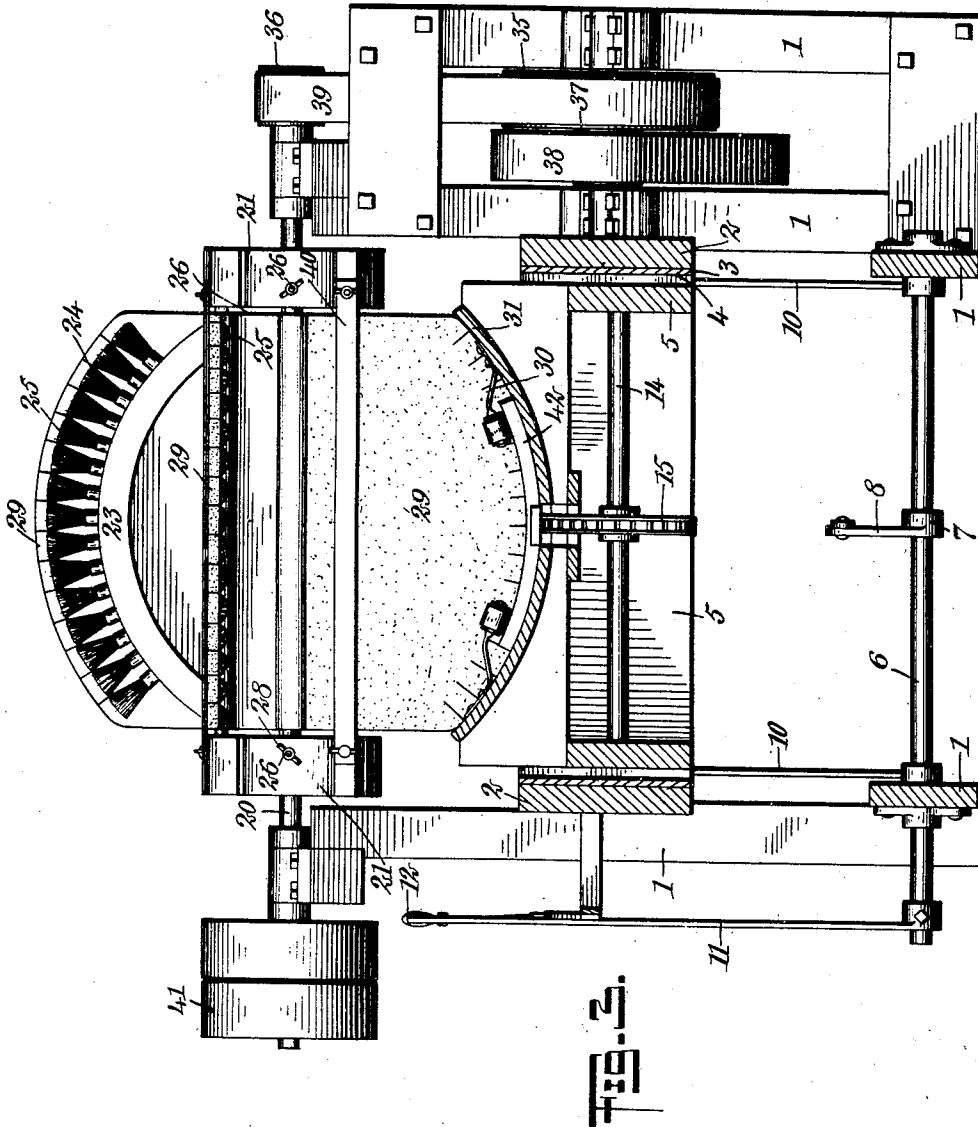


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOHN MILNE, JR., OF CLEVELAND, TENNESSEE.

ABRADING-MACHINE.

No. 919,054.

Specification of Letters Patent.

Patented April 20, 1909.

Application filed April 22, 1908. Serial No. 428,507.

To all whom it may concern:

Be it known that I, JOHN MILNE, Jr., a subject of the King of Great Britain, and a resident of Cleveland, in the county of Bradley and State of Tennessee, have invented a new and Improved Abrading-Machine, of which the following is a full, clear, and exact description.

My invention relates to abrading machines, and its object is to provide a machine which will sandpaper and smooth wood and other like materials.

Another object of the invention is to provide means in such a machine for increasing or decreasing the pressure of the abrasive members, thereby regulating their action on the material which is being worked.

Another object of the invention is to provide means by which new abrasive surfaces may be brought into operative position.

Another object of the invention is to provide means by which the configuration of the surface of the table and of the abrasive members may be regulated, so that the machine may be used to smooth materials of different shapes.

Still another object of the invention is to provide means to raise and lower the table as may be required when objects of different sizes are to be operated upon.

Other objects of the invention will appear in the following more complete description.

In this specification I will describe the preferred form of my invention but I do not limit myself thereto, as I consider myself entitled to all forms and embodiments of the invention which may be held to fall within the scope of the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, in which—

Figure 1 is a side elevation of the invention; Fig. 2 is a sectional side elevation thereof; Fig. 3 is a transverse sectional view of the machine showing the working parts; Fig. 4 is a plan view showing the arrangement by which the table may slide up and down on the frame; Fig. 5 is a side elevation of the same; Fig. 6 is an enlarged view showing the means by which I secure the abrasive material rollers; and Fig. 7 is a side elevation of the same.

By referring to the drawings it will be seen that I provide a suitable frame 1 which sup-

ports the various members of the machine. A longitudinal box 2 is fastened to the frame 1, and at each side of the box near the ends thereof, are secured guide-ways 3, in which fit guides 4 which are fastened to the table 5, the table 5 being adapted to move in the guide-ways to various elevations relatively to the longitudinal box 2. At each end of the base of the frame 1 are journaled transverse shafts 6, each of which has mounted thereon a bell crank lever 7. The upright arms 8 of these bell crank levers 7 are connected with each other longitudinally of the machine, by a link 13, and the horizontal arms 9 of the bell crank levers 7 are connected by links 10 with the table 5. One of the transverse shafts 6 extends beyond the frame and firmly attached thereto is a lever 11 provided with a handle 12 and suitable locking mechanism, the lever being provided so that it will rock the shaft 6 and one of the bell crank levers 7, and by means of the arm 8 thereof and the link 13 it will operate the opposite bell crank lever, which will rock the opposite shaft 6 and both of the links 10 will be moved upwardly or downwardly together, and as the table 5 is secured to said links, the table will be adjusted to the proper height with reference to the machine and the work which is to be done. Transversely of the table 5 and journaled in its sides are two shafts 14, the shafts being journaled near the opposite ends of the table 5, and each of the shafts has a sprocket wheel 15 secured thereto at approximately equal distances from the sides of the table 5. A sprocket chain 16 is mounted on the sprocket wheels, the sprocket chain 16 having stops 17 secured to it transversely at suitable distances from each other, these stops being provided to guide the material disposed on the forms 31 through the machine. At the top of the table there is a table face 19 which acts as a support for the sprocket chain 16, the forms 31 and the material which is to be operated on. Above the table face 19 and transversely of the machine is journaled a shaft 20 which has collars 21 at either end within the frame. To these collars 21 are firmly secured transverse members 22 to which are secured brush holders 23, the brush holders being provided in different shapes and sizes so that the brushes 24 secured thereto will have their outer faces 25 of various configuration to conform with the material which is to be smoothed. The brushes 24 are made of

bristles and are provided with wooden shanks which fit holes in the brush holders 23 and are held in place by any suitable means. I prefer to use a plurality of brush holders with brushes attached, and as shown in Fig. 1, I propose to secure the brush holders to the collars 21, tangentially. For each brush holder I provide an abrasive material holder 26, the abrasive material holders being mounted on the collars 21 between the brush holders 23. As shown in Fig. 6, I propose to journal the abrasive material holders 26 in the collars 21 by means of clamps 27 which surround the terminals of the abrasive material holders 26 and have their free terminals threaded which pass through the periphery of the collars 21 and which have thumb-screws 28, which by screwing down will draw the clamps 27 and hold the abrasive material holders 26 in proper position. The abrasive material holders 26 have slots in which the abrasive material, such as sandpaper, may be inserted to permit of it being rolled on the holders 26. The abrasive material extends from the abrasive material holders 26 out past the brushes 24 and it is cut so that it will conform with the configuration of the brushes, and I prefer to cut the ends of the sandpaper in order that it may fit the material which is being operated on, more evenly. The abrasive material as at 29, has its smooth surface next to the brushes so that when the shaft 20 revolves in the proper direction, the rough surface of the abrasive material will be brought downwardly on the material which may be carried by the sprocket chain 16 and by the even pressure of the brushes 24 be drawn across the material which is to be operated on. Suitable material holders 30 are secured to a form 31 on the base of the table, the material holders 30 being disposed at either side to hold the material to be operated on in place, without affecting the operation of the machine. One of the shafts 14 extends through a slot 32 in the side of the box 2 and on this projecting end of the shaft 14 is mounted a pulley 33. On the shaft 14 at the other end of the box 2 are mounted pulleys 35 and 37. The shaft 20 is extended beyond the frame and on this shaft is mounted a pulley 36. The pulleys 37 and 33 are connected by a belt 38 and the pulleys 35 and 36 are connected by a belt 39. Abrasive material guides 40 are provided, they being mounted on the collars 21 and their function being to hold the abrasive material in place on the brushes 24. These guides 40 have leather surfaces which bear on the abrasive material. In the operation of my invention, the shaft 20 by means of a pulley 41, is driven by any suitable power and by means of the belts 38 and 39 the pulley 33 is revolved and with it the shafts 14 and the sprocket wheels 15, carrying with them the sprocket chain 16.

It will thus be seen that the sprocket chain 16 by means of the stops 17 will carry through the machine, forms 31 and the material which is to be worked. As the shaft 20 revolves, it carries with it the brush holders 23, the brushes 24, and the abrasive material 29, the abrasive material 29 being held, by means of the abrasive material guides 40, close to the brush holders 23, and with its smooth surface next thereto. The abrasive material 29 extends out beyond the brushes 24 and has its free end cut longitudinally in order that it may conform to the configuration of the material which is to be worked, and by means of the brushes the abrasive material may be guided in all the curves and angles of the material which is being operated on. With the revolution of the shaft 20 these brush holders, brushes and the abrasive material, which are arranged tangentially to the collars 21 of the shaft 20, are swept across the material which is to be worked and thus the articles are smoothed as is desired. When the abrasive material which lies next to the brushes becomes worn the thumb-screws 28 are turned, freeing the clamps 27 which permits the abrasive material holders 26 to be revolved, when it is possible to draw the abrasive material 29 from the abrasive material holders 26 and by cutting off the worn ends a new surface will be brought into operative position. In order that the table 5 may be adjusted to the proper level to permit the abrasive material to, by means of the brushes, exert the desired cutting force on the material to be worked, I, as has been described, adjust the height of the table by means of the lever 11 which rocks one of the shafts 6 and by means of the bell crank lever 7 and the link 13, the opposite bell crank lever 7 is operated, and with the movement of the two bell crank levers 7, the links are lifted or lowered, carrying with them the table 5; the material holders 30 holding material 42 in operative position as it passes under the shaft 20 and has the abrasive material 29 brush across the surface.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An abrading machine consisting of a shaft, rigid elongated brush holders secured to the shaft, brushes which are secured to the outer terminals of the said brush holders, abrasive material holders which are secured to the shaft, and abrasive material which is disposed on the abrasive material holders respectively, the abrasive material being adapted to lie against the brush holders respectively for a distance, the terminals of the abrasive materials being disposed on the brushes.

2. An abrading machine consisting of a shaft, rigid elongated brush holders secured to the shaft, brushes which are secured to the

outer terminals of the said brush holders, abrasive material holders which are secured to the shaft, abrasive material which is disposed on the abrasive material holders respectively, the abrasive material being adapted to lie against the brush holders respectively for a distance, the terminals of the abrasive materials being disposed on the brushes, and means to hold the abrasive material against the elongated brush holders respectively.

3. An abrading machine consisting of a shaft, a plurality of rigid elongated brush holders secured to the shaft, brushes secured to the outer terminals of the brush holders, a plurality of abrasive material holders which are secured to the shaft, abrasive material which is disposed on the said abrasive material holders respectively, means to prevent the withdrawal of the abrasive material from the abrasive material holders, means to free the said means, and means to hold the abrasive material against the brush holders respectively.

4. An abrading machine consisting of a shaft, collars secured thereto, flanges on the collars, a plurality of shafts journaled in the flanges, the plurality of shafts being adapted respectively to permit of abrasive material being wound thereon, the shafts being dis-

posed in clamps respectively, the clamps having stems which are threaded and which pass through openings in the collars, and set screws which are adapted to engage the threaded stems respectively to prevent the rotation of the plurality of shafts relatively to the collars.

5. In an abrading machine, a box, sprocket wheels mounted to revolve in the box, a sprocket chain disposed on the sprocket wheels, stops secured to the sprocket chain, a table disposed under a portion of the sprocket chain, an abrasive material disposed over the table, a frame in which the box is slidably disposed, links pivoted to the box, bell crank levers pivoted to the frame, the links being also pivoted to one set of the arms and the bell crank levers, a link connecting the other arms of the bell crank levers, a shaft to which one of the bell crank levers is secured, and a lever secured to the said shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN MILNE, JR.

Witnesses:

SOL. G. WATKINS,
WALTER H. STAMPER.