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J. L. PERRY.

DRUM FOR SANDPAPERING MACHINES.

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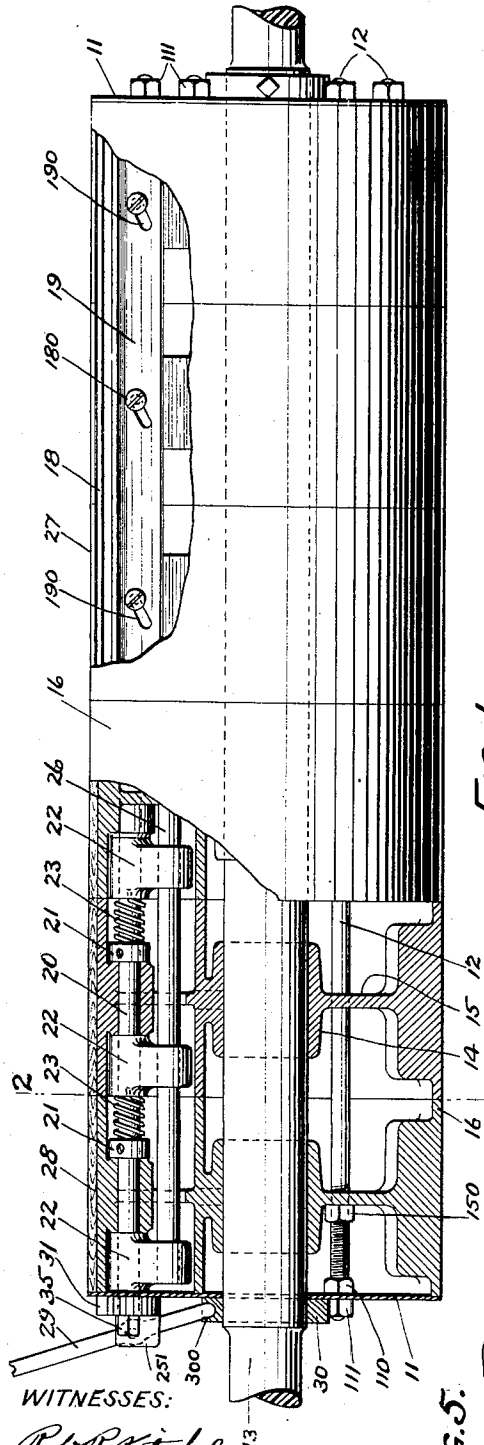


FIG. 1.

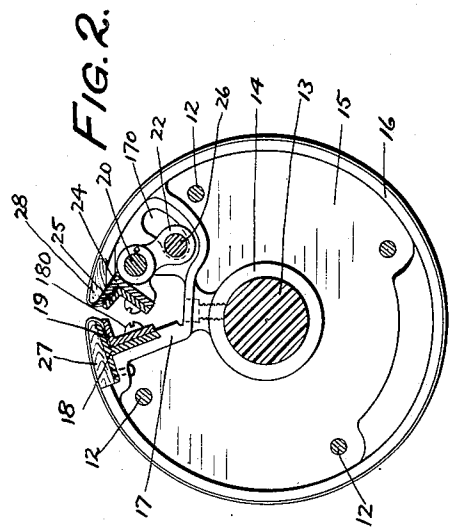


FIG. 2.

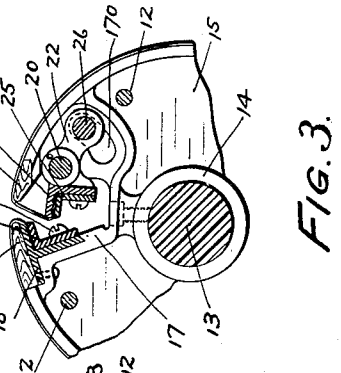


FIG. 3.

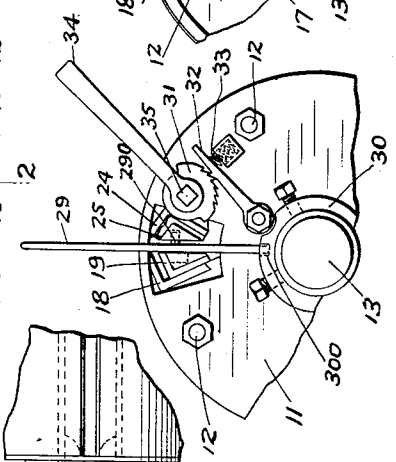


FIG. 4.

FIG. 5.

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DRUM FOR SANDPAPERING-MACHINES.

No. 891,857. Specification of Letters Patent. Patented June 30, 1908.

Application filed March 12, 1907, Serial No. 361,901. Renewed October 21, 1907. Serial No. 398,508.

To all whom it may concern:

Be it known that I, JAMES L. PERRY, a citizen of the United States, residing at Smithville, county of Burlington, and State of New Jersey, have invented a new and useful Improvement in Drums for Sandpapering-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object to provide new and improved means for clamping and stretching the sand paper upon the drum and maintaining it stretched to the required degree of tension when in use.

In the drawings: Figure 1 is a side elevation, partly in section, of the drum; Fig. 2 is a section on the line 2—2 of Fig. 1, showing the sand paper clamped and before stretching; Fig. 3 is a section, similar to Fig. 2, showing the sand paper after stretching, part of the drum being cut away; Fig. 4 is an end view of the drum, partially cut away; Fig. 5 is a detailed plan view of the outer ends of the clamping jaws.

The drum or cylinder is composed of a number of sections abutting end to end, and fastened together by means of end disks 11 and bolts 12 extending from end to end of the drum. 13 is the shaft on which the sections are supported. Each section is composed of a hub 14, a web 15, and an outer shell 16 of cylindrical shape. The bolts 12 extend through the webs of the several sections, and outside the web of each end section the bolts are screw threaded and provided with outside nuts 150 tightening against the webs of the end sections and inside and outside nuts 110 and 111 tightening against the end disks.

The shell, for part of its circumference, is cut away, and within the shell, and adjacent to the cut-away portion thereof, is formed, preferably integral with the shell, a frame 17 for supporting the fixed clamping device and the stretcher carrying the movable clamping device.

Secured to each frame 17, adjacent to one side of the cut-away part of the shell, is a T-shaped angle-bar 18. One of the flanges of the T rests on, and is secured to, a shoulder on the frame just within the edge of the shell. The end of main flange of the T rests in a dove-tail recess in one of the radial walls of the frame 17. The remaining flange of the T constitutes one jaw of the stationary clamping device.

19 is an L-shaped angle-bar, one flange of which rests against the main arm of the angle-bar 18, and is movably secured thereon by means of pins 180 on the bar 18 engaging inclined slots 190 in the bar 19. The other flange of the bar 19 extends within and parallel to the jaw flange of the bar 18 and constitutes the other and movable jaw of the stationary clamping device.

To move the jaw of angle-bar 19 toward the jaw of angle-bar 18, the angle-bar 19 is moved longitudinally, the inclination of the slots compelling a simultaneous movement of the movable jaw toward the fixed jaw.

It will be understood that the angle-bars 18 and 19 extend throughout the length of the drum and are common to all the sections. Also extending throughout the length of the drum, adjacent to the other side of the cut-away part of the shell, is a shaft 20, the frame 17 of each section being formed to provide a bearing for the shaft. Secured to the shaft 20 are collars 21, one for each section, and pivoted loosely on the shaft are the levers 22, one for each section, each lever 22 being connected with its collar 21 by means of a coil-spring 23, which encircles the shaft and is secured at its opposite ends to the said collar and lever.

The levers 22 are pivoted between their ends and have secured to the ends thereof most closely adjacent to the cut-away part of the drum an L-shaped angle-bar 24, one flange of which forms the fixed jaw of the movable clamping device. To the other flange of the bar 24 is movably secured one flange of an angle-bar 25 by means of a pin and slot connection similar to that by which bar 19 is secured to the bar 18. The other flange of the bar 24 forms the movable jaw of the movable clamping device. The other ends of the levers 22 carry a rod or bar 26 which extends through curved slots 170 formed in the frame 17.

Secured at one side of the cut-away part of the shell, to the frame 17, is a wooden block 28, and secured to the top flanges of the T-bar 18 is another wooden block 27. These blocks constitute extensions of the shell or periphery of the drum and their ends are

fairly close together, the space between them being sufficient to permit of the insertion and removal of the sand paper.

In practice, the jaws of the clamping devices are opened, and the sand paper is inserted between the jaws of the movable clamping device. The bar 25 is then moved longitudinally, causing the movable jaw thereof to move toward the fixed jaw of the bar 24, which clamps the sand paper firmly between the jaws. The sand paper is then brought over the block 28 and thence over the block 27 and the other end thereof inserted between the jaws of the stationary clamping device. The bar 19 is then moved longitudinally, causing the movable jaw thereof to move toward the fixed jaw of the bar 18, which clamps the sand paper firmly between these jaws. The shaft 20 is then turned so as to throw the springs 23 into tension, which turns the levers on their axes from the position shown in Fig. 2 to the position shown in Fig. 3, moving the movable clamping device inwardly in a substantially radial direction and drawing down that end of the sand paper until the sand paper is stretched tightly on the drum. After the paper is thus secured at both ends and stretched on the drum, any subsequent shrinkage of the paper will increase the tension of the spring, while any expansion of the paper will be taken up by the spring. It will thus be seen that under all circumstances the paper will be stretched on the drum with the desired degree of tightness and any subsequent tendency to overstretching or looseness is automatically avoided. Further, during the rotation of the drum, the ends of the levers 22 carrying the rod 26, being furthest from the drum axis, will be most strongly acted upon by centrifugal force, which will supplement the action of the springs 23 and tend to maintain the movable clamping device in position to keep the paper stretched tightly on the drum.

The following means are provided to conveniently move the angle bars 19 and 25 longitudinally. These bars are provided at their outer ends, with lugs 191 and 251 respectively, having vertically extending recesses 192 and 252 respectively open at their upper ends. 29 is a lever having between its ends a pin 290 and adapted to be inserted into a recess 300 in a collar 30 secured to the drum-shaft 13 beyond the disk 11. When it is desired to operate the bar 19, the lever 29 is placed in position to bring the pin 290 thereon in line with the recess 192 and the lever then pushed downwardly to move the pin 290 into the recess 192 and introduce the lower end of the lever into the recess 300. By then moving the lever outwardly on its lower end as a fulcrum, the bar 190 is moved longitudinally. When it is desired to operate the bar 25, the lever 29 is withdrawn, turned around, and again inserted into the recess 300, the pin 290 thereon moving into the recess 252, and the lever then operated, as before, to move the bar 25 longitudinally.

To hold the shaft 20 in the position to which it is turned, a ratchet wheel or segment 31 is secured to the end thereof projecting beyond the disk 11; and a pawl lever 32, actuated by a spring 33, engages the ratchet wheel and holds it and the shaft 20 into the position to which it is turned. The shaft 20 is turned by means of a wrench 34 fitting on the square head 35 of the shaft.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. A sanding drum having a longitudinal opening, a pair of clamping devices within the drum and contiguous to said opening, for clamping the ends of the sand paper, a pivoted lever by which one of said clamping devices is carried, a shaft, and a spring actuated by the shaft and actuating said pivoted lever to swing the last-named clamping device inwardly toward the drum axis, thereby stretching the paper on the drum.

2. A sanding drum having a longitudinal opening, a movable clamping device within the drum and contiguous to said opening, for clamping one end of the sand paper, a shaft, a lever pivoted thereon and carrying the clamping device, and a spring connected with both the shaft and the lever and adapted, when thrown into tension by the shaft, to actuate the lever and thus move the clamping device to stretch the paper on the drum.

3. A sanding drum having a longitudinal opening, a movable clamping device within the drum and contiguous to said opening, for clamping one end of the sand paper, a shaft, a lever pivoted thereon and carrying the clamping device, a collar secured to the shaft, and a spring coiled about the shaft and secured at its opposite ends respectively to the collar and lever.

4. A sanding drum having a longitudinal opening, a shaft, a lever pivoted thereon between its ends, a movable clamping device, within the drum, and contiguous to said opening, and secured to one arm of the lever, a rod carried by the other arm of the lever, a frame secured to the drum having a slot into which said rod extends, and means to swing the lever on its axis to move the clamping device into operative position.

5. A sanding drum having a longitudinal opening, a shaft, a lever pivoted thereon between its ends, a movable clamping device, within the drum, and contiguous to said opening, and secured to one arm of the lever, a rod carried by the other arm of the lever, a frame secured to the drum having a slot into which said rod extends, a shaft, and a spring

connected with both the shaft and the lever and adapted when thrown into tension by the shaft to actuate the lever.

6. A sanding drum having a longitudinal opening, a lever pivoted between its ends within the drum, a movable clamping device carried by one arm of said lever, and means to swing said lever on its fulcrum to move the clamping device toward the drum axis and the other arm of the lever away from the drum axis until the end thereof is nearer the periphery of the drum than the clamping device.

7. A sanding drum having a longitudinal opening, a lever pivoted between its ends within the drum, a movable clamping device carried by one arm of said lever, said arm normally occupying such position that the end thereof carrying the clamping device is further from the drum axis than the other end of the arm, a spring connected with said lever, and means to throw the spring into tension thereby swinging the lever on its fulcrum into such position that the respective distances of the two arms of the lever from the drum axis are reversed.

8. In a sanding drum, the combination with the shaft and a drum thereon, of a pair of bars carrying clamping jaws, one of said bars being movable longitudinally on the other and connected thereto by a pin and slot connection, a recessed lug on the end of one of said bars, a recessed member on the shaft, and a lever adapted to engage both recesses.

9. In a sanding drum, the combination with the shaft and a drum thereon, of a pair of bars carrying clamping jaws, one of said bars being movable longitudinally on the other and connected thereto by a pin and slot connection, a recessed lug on the end of one of said bars, a recessed member on the shaft, a lever adapted to be inserted in the last named recess, and a pin on the lever adapted simultaneously to engage the recess in the lug.

In testimony of which invention, I have hereunto set my hand, at Philadelphia, on this 8th day of March, 1907.

JAMES L. PERRY.

Witnesses:
M. M. HAMILTON,
A. M. URIAN.