(No Model.)

E. F. AUTENRIETH.

DRUM FOR SANDPAPERING MACHINES.

No. 456,298. Patented July 21, 1891.

Fig. 2.

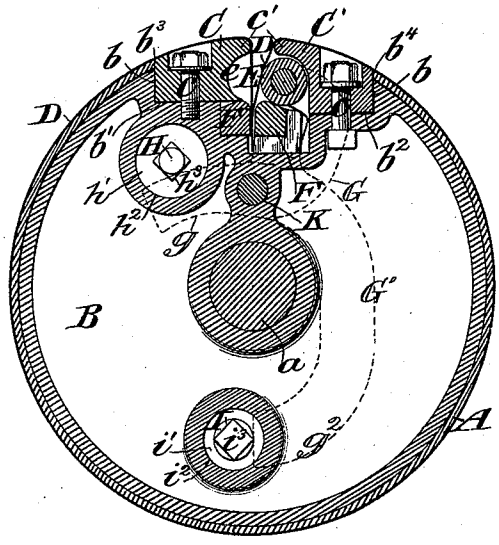


Fig. 3.

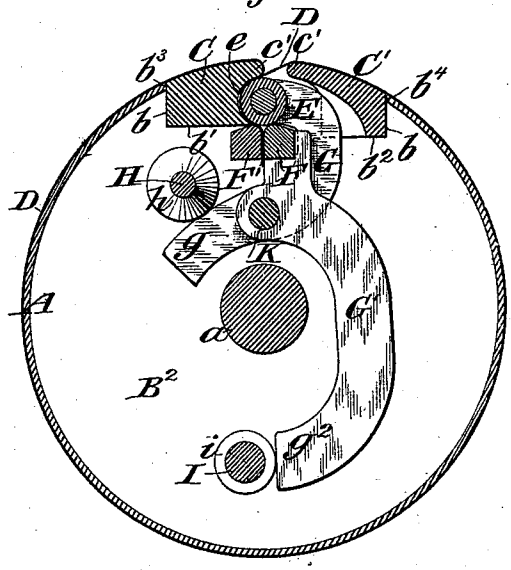
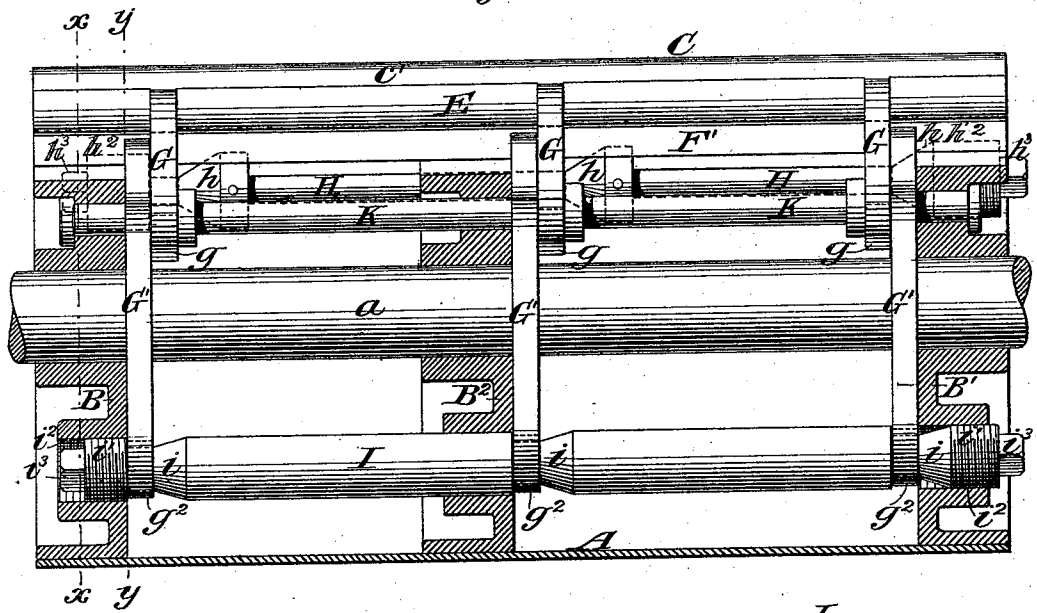


Fig. 1.



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UNITED STATES PATENT OFFICE.

ERNST F. AUTENRIETH, OF NEW YORK, N. Y.

DRUM FOR SANDPAPERING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 456,298, dated July 21, 1891.

Application filed March 16, 1891. Serial No. 385,249. (No model.)

To all whom it may concern:

Be it known that I, ERNST F. AUTENRIETH, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Drums for Sandpapering-Machines, of which the following is a specification.

My invention relates to an improvement in drums for sandpapering-machines, and more particularly to the mechanism for holding the sand-paper on the drum and imparting to it the desired tension.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the drum in longitudinal section, the operative parts therein being shown in side elevation. Fig. 2 is a transverse section through the drum on the line $x\,x$ of Fig. 1, and Fig. 3 is a transverse section through the drum on the line $y\,y$ of Fig. 1.

The shell of the drum is represented by A, and the several circular frames which stiffen and hold it in position and by which it is mounted upon the drum-shaft a are represented by B, B′, and B^2. The two former B and B′ are located at the ends of the drum and the latter B^2 intermediate of the ends. It is obvious that the number of intermediate frames might be more than one, as found expedient.

The several frames B B′ B^2 are provided upon one side with corresponding re-entrant portions b, upon the opposite sides of which seats b' b^2 are provided for the reception of the guide-cheeks C and C′. The cheeks C C′ are preferably formed of wood, and their outer faces form prolongations of the exterior curved surface of the cylinder-shell, the edges of which abut against the opposite sides of the cheek-pieces, as shown at b^3 b^4. The cheek-pieces may be secured to their seats by bolts c, the heads of which are countersunk in the outer faces of the cheeks. The adjacent edges of the cheeks approach near each other at the periphery, and are rounded to form smooth bearings c' for the sand-paper D, the edges of which are intended to extend through the opening between the cheeks and the grasping-jaws. The space between the cheeks C C′ within the periphery is widened to receive the swinging tension-roller E and the movable grasping-jaw F, located below or inside of the tension-roller. The tension-roller E is mounted in the ends of vibrating levers G, the operating-arms g of which are in position to be simultaneously acted upon by cones h on a rotary and longitudinally-movable shaft H. The movable grasping-jaw F is secured to the ends of vibrating levers G′, the operating-arms g^2 of which are in position to be simultaneously acted upon by cones i on a rotary and longitudinally-movable shaft I. The two sets of levers G and G′ are conveniently mounted upon a single rod K, extending through the several frames B B′ B^2.

The lever-operating shafts H and I are respectively provided with screw-threaded portions h' and i', adapted to engage corresponding screw-threaded openings h^3 and i^2 in the frames B and B′, and have their ends h^3 and i^3 fitted—as, for example, by squaring—to receive an operating-wrench. The turning of either shaft will force it longitudinally, and will thereby force the roller or the grasping-jaw toward the edges of the paper or release them therefrom. Opposite the movable jaw F there is located a fixed jaw F′, and opposite the roller E there is located a concave seat e. The paper is adjusted on the drum by passing it around the same and placing its edges between the jaws F F′. The movable jaw F is then forced toward the jaw F′ by turning the shaft I until sufficient pressure is obtained to prevent the edges from escaping from the jaws and at the same time allowing one of the edges to slip slightly upon the other under strain. The shaft H is then turned to force the roller E toward the seat e, and the strain thereon will cause the taking up of any slack and smoothing out any wrinkle which may have formed in the paper in placing it around the drum slightly out of true. When the paper is drawn perfectly smooth, the jaw F is forced snugly home to prevent any slipping of the edges, and the necessary additional tension may then be applied by a further rocking of the roller E.

With a view to balance the drum as far as may be, I make the shaft I heavy and the shaft H light, enlarging the cone portions h thereon to give the roller E the required movement.

What I claim is—

1. The combination, with the drum-shell and its supporting-frames, of a grasping device located within the periphery of the shell and a separate tension device having a movement transverse to the position of the held ends of the abrading material and located between the grasping device and the periphery of the shell, and means for operating the said device, substantially as set forth.

2. The combination, with the drum-shell and its supports, of a movable holder and a rotary and longitudinally-movable shaft provided with a cone for operating the movable holder, substantially as set forth.

3. The combination, with the drum-shell and its supports, of a movable grasping-jaw and a movable tension device, and longitudinally-movable and rotary shafts provided with cones, one for operating the jaw and another for operating the tension devices, substantially as set forth.

4. The combination, with the recessed drum, of the tension-roller secured to swinging levers, the grasping-jaw secured to other swinging levers, and shafts having cone portions adapted to engage the levers and having a screw-thread engagement with the drum, whereby the rotary movement of the shafts will operate the said levers, substantially as set forth.

5. The combination, with the recessed drum, the tension device, and the grasping device, of an operating-shaft for the tension device, located upon one side of the axis of the drum, and an operating-shaft for the grasping device, located upon the opposite side of the axis, the shafts having different weights, substantially as set forth.

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