P. A. SOLEM.

DRUM FOR SANDER MACHINES.

APPLICATION FILED APR. 16, 1917.

1,302,724.

Patented May 6, 1919.

2 SHEETS—SHEET 1.

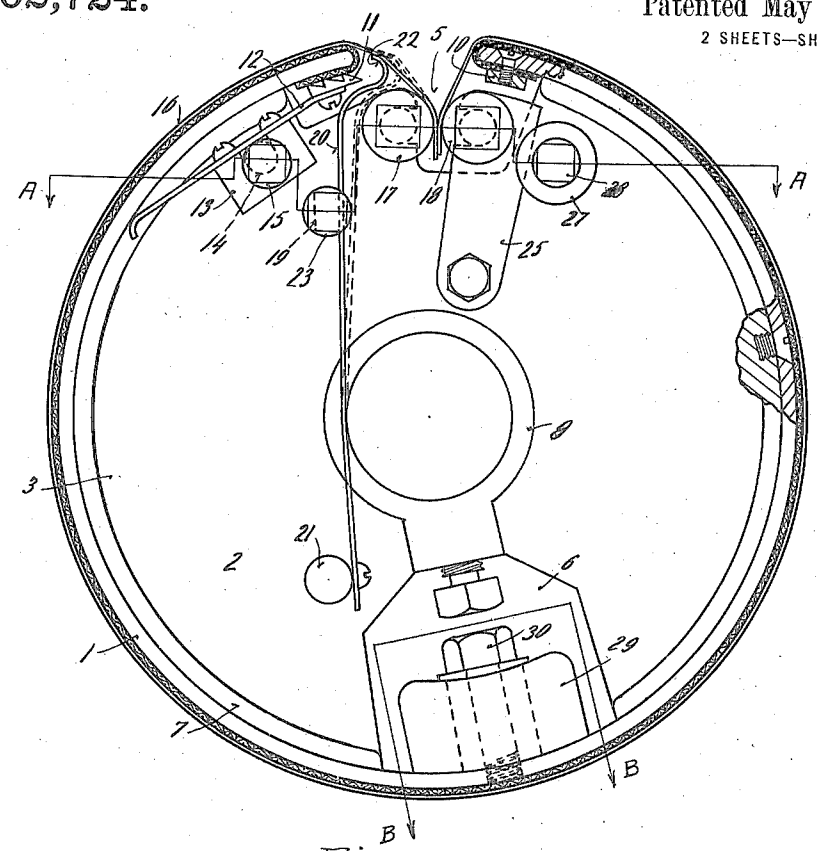


Fig. 1.

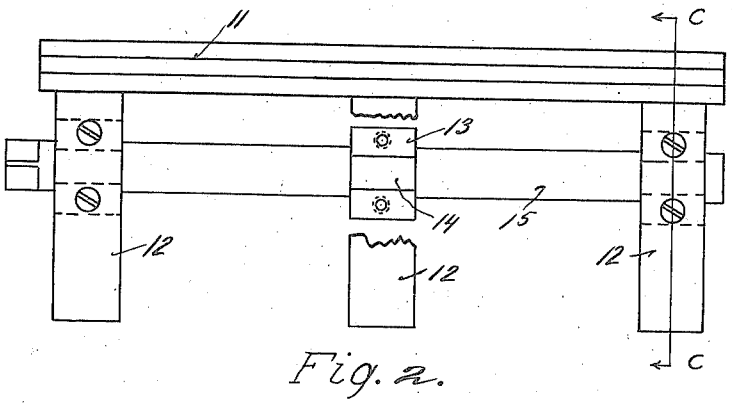


Fig. 2.

Witnesses

Inventor

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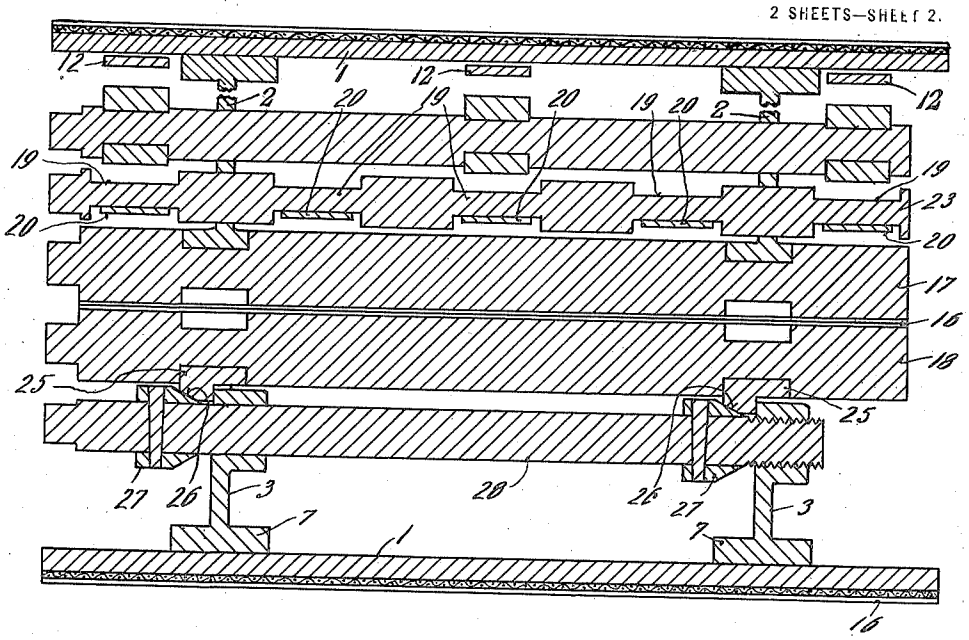


Fig. 3.

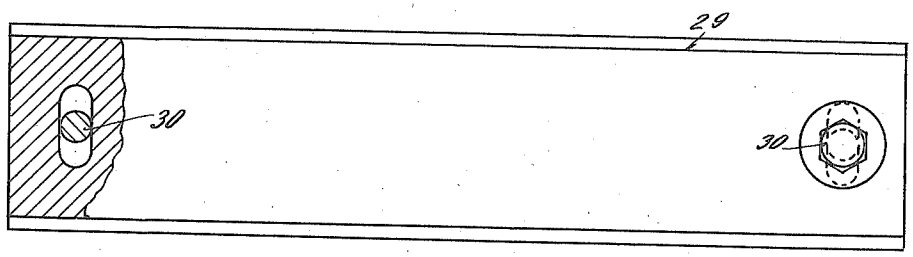


Fig. 4.

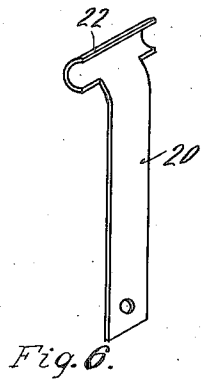


Fig. 6.

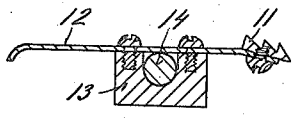


Fig. 5.

Witnesses

Inventor

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UNITED STATES PATENT OFFICE.

PETER A. SOLEM, OF CINCINNATI, OHIO.

DRUM FOR SANDER-MACHINES.

1,302,724. Specification of Letters Patent. Patented May 6, 1919.

Application filed April 16, 1917. Serial No. 162,376.

To all whom it may concern:

Be it known that I, PETER A. SOLEM, a citizen of the United States, and residing at Kennedy Heights, Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Drums for Sander-Machines, of which the following specification is a full disclosure.

My invention relates to abrading or polishing drums and in particular to the devices for securing and stretching several webs of different texture over the face of the drum to provide a cushioned abrading or polishing surface.

An object of the invention is to provide a web stretching claw which will increase its hold or grip upon the end of the web under its web stretching motion. and further, in providing a flexible support for the claw, and means for flexing said support, for positively moving the claw in web stretching and releasing directions and yieldingly urge the claw laterally for increasing its grip upon the web.

Another object of the invention is to provide means for applying a tension upon a web stretched over a drum face which will compensate to slack the web, and thereby relieving the web of rupturing torsions.

Other objects of the invention relate to a friction roller device for gripping the opposite ends of a web, as a drum face covering, and for stretching the web over the drum and to the details of construction of the various parts and devices, all of which will be more fully disclosed in the description of the accompanying drawings forming a part hereof, and in such drawings like characters of reference denote corresponding parts throughout the several views, of which:

Figure 1 is an end elevation of the abrading roll or sander drum with portions thereof shown in section.

Fig. 2 is a detailed plan view of the claw, its yielding supports and actuating shaft for gripping one end of the felt padding surrounding the periphery of the drum.

Fig. 3 is a section taken on an irregular line A—A, Fig. 1.

Fig. 4 is a section taken on line B—B, Fig. 1.

Fig. 5 is a section taken on line C—C, Fig. 2.

Fig. 6 is a plan view of a flexible finger for applying a stretching tension to the sandpaper or abrading web upon the periphery of the drum.

Referring to the drawings, 1 indicates a split cylindrical rim secured upon the wheel frames or spiders 2, 2. As shown but two spiders are employed, the number, however, is optional depending upon the width of the drum. The ends of the rim 1 are spaced apart to form edges over which the opposite ends of the padding and abrading webs are stretched, and an opening for bringing the ends of the webs within the periphery of the rim of the drum for anchorage. The wheel frames or spiders 2, 2, each comprise the solid web portion 3 notched at opposite sides of approximately a diametric line, to one notch 5 located at the open ends of the drum rim to receive the drum covering web gripping and clamping devices, and to the notch 6 at the opposite side to provide a clearance or opening for a spider hub bolt or screw and drum equalizing or counter balancing bars or weights fixed to the inner periphery of the drum rim. The spider web portion has peripheral segmental rim flanges 7, 7, terminating with the notches in the web portion to which the drum rim 1 is secured, and as shown in Fig. 1, by screws, and a hub flange 8 and radial boss to receive the set screw 9 for securing the spider to the shaft.

Padding rim covering.

It is customary in sander drums to cover the rims or periphery with a fibrous padding to provide a cushion surface for the abrading web. The padding is stretched over the periphery of the rim of the drum and held secure at its ends.

One end of the padding loops over one edge of the split rim to lap for a slight distance upon the inner periphery of the rim and to be permanently clamped to the rim by a clamp plate 10 longitudinally extended the width of the rim and held to the rim by screws. The opposite end of the padding loops over the opposite edge of the rim and slightly laps over the inner periphery of the rim, and is grasped and held secure by a claw plate 11 longitudinally extending the width of the rim. This claw plate is secured to the ends of a series of flexible fingers 12. The fingers are suitably spaced apart and of a number necessary to properly support a given length of claw bar or plate 11, three fingers being shown herein, and ex-

tend rearwardly from the claw. Each finger intermediate of its length is secured to a bearing block 13 and extends beyond the block bringing its free ends into engagement with the inner periphery of the rim to provide an abutment for the free finger ends when the finger is tensioned by a pressure brought against the intermediate portion of the finger for forcing the teeth of the claw bar into the padding for securely gripping the padding end. The bearing block 13 is of U-form to provide a socket or journal for the eccentric crank portion 14 of the crank or clamp rod 15 journaled and having bearing within the webs of the wheel frames or spiders of the drum. Rotating the crank or clamp rod in an appropriate direction will cause its eccentric crank portion to influence or move the fingers for a padding clamping or releasing motion. Thus as the rod 15 is rotated to draw the fingers and claw rearwardly from the edge or end of the rim, the bearing block 13 of each finger will be forced to the rim periphery, increasing the tension of the elastic finger ends projecting from the opposite sides of the bearing block, causing the claw bar to increase its gripping or biting hold with the end of the padding. The rear free ends of the fingers under said action apply additional gripping pressure to the claw bar as they impart a swiveling influence to the bearing block 13 and the whole clamping structure being inert against self release. The clamp rod 15 has one of its ends squared to receive a wrench.

Abrading web or rim covering.

The abrading or sandpaper web covering 16 for the drum is tautly applied over the padding web, with its ends threaded through the rim opening and covering together between a pair of opposing gripping rollers 17, 18. These rollers frictionally grip the ends of the abrading web between them and upon rotating one or both of the rollers in an opposite direction impart a winding or drawing influence to the web, pulling the web tautly over the drum rim. The roller 17 journals in an open slot bearing in each of the spiders of the drum. The abrading web between the roller 17 and edge of drum and lengthwise of the roller 17 is engaged by a series of tension fingers, each finger representing a spring metal blade 20, having one end fixed to a bar 21. The bar 21 longitudinally extends parallel to the axis of the drum and is supported on the drum spiders. The opposite end of each finger of ogee formation provides a curved head 22 that engages the abrading web at that portion bridging from the end of the run rim to the web spanning rollers 17, 18. The fingers 20 at a point intermediate of its ends are engaged by a cam rod 23 extending lengthwise of the drum axis and supported in the drum spiders. The rod 23 has rectangular contoured portions 19 that engage the fingers 20 respectively of the series for flexing the fingers to bring their ends against the web and press the same outwardly to apply an additional or final stretching pressure to the web, but of a yielding character to permit of slack motion to the abrading web as when depressed at points contacting with the work. This offers sufficient yield to the web circumferentially to prevent it snapping or tearing apart unduly and thus prolongs the life of the web and also assists in maintaining the same in a comparatively taut condition over the padding layer beneath. The rectangular outline of the rod cams provides surfaces for alternately flexing and releasing the fingers to any direction of rod rotation.

The roller 18 journals in bearings formed in the swinging arms 25, and, therefore, is movable toward and from its companion roller 17. The arms 25 are pivoted to respective spiders of the drum and each has a tapered rear edge portion 26, (see Fig. 3), each contacting with a cone sleeve 27 fixed upon the adjusting rod 28. One end of the adjusted rod has a threaded engagement with one of the spiders for moving the cone axially, exerting a wedging influence against the arm in a direction of rod feed or rotation for forcing the periphery of roller 18 against the periphery of roller 17 when the ends of the webs are threaded therebetween or for releasing or separating the rollers to withdraw the ends of the web.

It is desirable for free running to counterbalance the drum and equalize the weight of the web gripping parts. This is accomplished by providing a counterbalance weight bar 29 fixed to the inner periphery of the drum rim opposite the web gripping by screw bolts 30 passing through oblong slots in the bar 29 and engaged into the rim. The bar can thus be moved laterally for adjusting it to a proper position to establish an equilibrium to the drum inertia. The weight bar is shown as of a length equal to the width of the rim.

Having described my invention I claim:—

1. A device of the class described comprising a drum having a rim split lengthwise of the drum axis providing an opening to the interior, clamping devices comprising coacting rollers adapted to engage the opposite ends of a drum face covering web threaded through said rim opening, for securing and stretching the covering over the rim face, and a series of elastic fingers for engaging said web for imparting a pressure, stretching the web over the drum face and relieving to slack the web, and means for unitarily regulating the tension of said fingers.

2. An abrading or polishing drum hav-

ing its rim split to provide an opening to receive therethrough the ends of a web covering the drum rim face, roller devices journaled within the drum having peripheral friction contact to clamp and feed the ends of the web therebetween, and a series of flexible fingers alined across the width of the rim that engage the web at said rim opening for imparting a stretching pressure to the web, and a cam rod engaging said finger for regulating the tension thereof.

3. An abrading or polishing drum having its rim split to provide an opening to receive therethrough the ends of a web covering the drum rim face, roller devices journaled within the drum having peripheral friction contact to clamp and feed the ends of the web therebetween, means for moving one of said rollers to and from the other roller for contacting and separating said rollers, a series of flexible fingers alined across the width of the rim that engage the web at said rim opening for imparting a stretching pressure to the web, and a cam rod engaging said fingers for unitarily controlling the same.

4. An abrading or polishing drum having its rim provided with a longitudinal peripheral slot through which the ends of a rim covering are threaded, coacting rollers therebetween frictionally engaging the rim covering ends for drawing the covering over the rim, a pair of oppositely disposed swinging arms pivoted within the drum, carrying and journaling said rollers, and a screw rod having wedge elements respectively engaging said arms for swinging said roller to and from its companion roller.

5. An abrading drum having its rim provided with a longitudinal peripheral slot through which the ends of a rim covering are threaded, coacting rollers therebetween frictionally engaging the rim covering ends for drawing the covering over the rim, hinged bearings for journaling one of said rollers and a screw rod having wedge elements respectively engaging said bearings for adjusting said rollers toward its companion roller.

6. An abrading drum having its rim provided with a longitudinal peripheral slot through which the ends of a rim covering are threaded, coacting rollers therebetween frictionally engaging the rim covering ends for drawing the covering over the rim, hinged bearings for journaling one of said rollers, and a series of flexible fingers beneath the rim engaging said covering between the rim slot and one of said rollers, and means for unitarily regulating the tensions of said fingers.

In witness whereof, I hereunto subscribe my name, as attested by the two subscribing witnesses.

PETER A. SOLEM.

Witnesses:
M. SMITH,
L. BECK.