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J. R. SCOTT.

ABRADING DEVICE.

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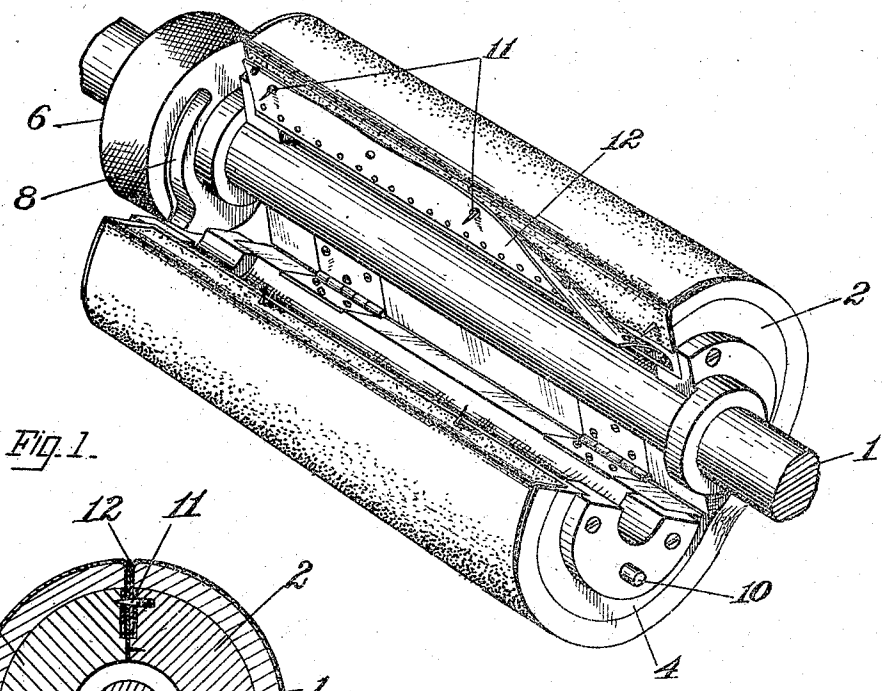


Fig. 1.

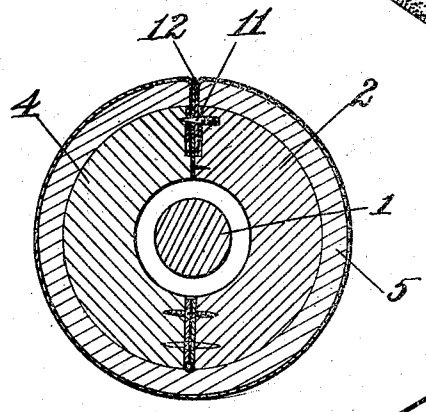


Fig. 2.

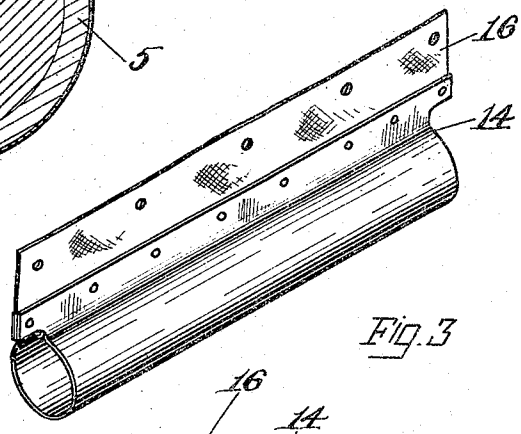


Fig. 3

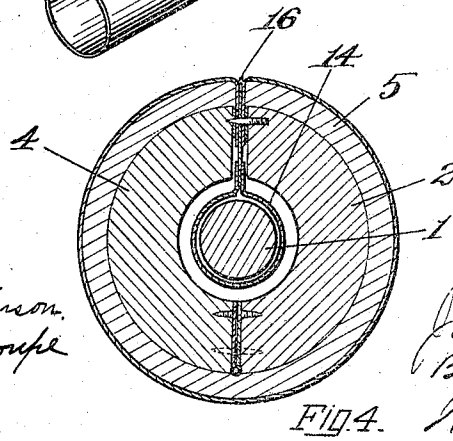


Fig. 4.

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ABRADING DEVICE.

No. 868,021. Specification of Letters Patent. Patented Oct. 15, 1907.

Application filed February 11, 1907. Serial No. 356,920.

To all whom it may concern:

Be it known that I, JACOB R. SCOTT, a citizen of the United States, residing at North Weymouth, in the county of Norfolk and Commonwealth of Massachusetts, have invented certain Improvements in Abrading Devices, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to abrading devices, and more particularly to movable devices constructed to sustain in working position covers of flexible abrading material.

The invention is herein shown embodied in a rotary abrading device of the type in which a support for the cover, having a curved supporting surface concentric with the axis of the device, is divided longitudinally into two sections arranged for relative movement transverse to the axis and provided with longitudinally arranged meeting clamping surfaces extending inwardly from the periphery of the devices. As is well-known, in applying a cover to a device of this type the cover is wrapped circumferentially about the support, its two ends being arranged between the clamping surfaces, and the sections are then forced together and held in closed position by suitable mechanism. In the practical use of devices of this class, for example in their use as buffing rolls in the manufacture of boots and shoes or in other arts, considerable difficulty has been experienced in securely retaining in place an abrading cover. The reaction of the work upon the cover has a tendency to withdraw the ends of the cover from between the clamping surfaces of the roll sections, and the cover thus gradually becomes loose. Not only is the life of the cover thereby shortened and a waste of time and material thus occasioned, but also the defective condition of the roll detracts more or less from the quality of the work which is performed, and at times causes it to be seriously impaired.

The primary object of the present invention is so to improve devices of the class described as to obviate the objectionable result above referred to.

To this end an important feature of the invention consists in the provision, in a rotary abrading device formed of a plurality of longitudinal sections between which the ends of a cover are held, of means for gripping said ends and holding them frictionally from outward movement by engagement with both sides of each end of the cover.

In prior devices of this type for supporting flexible covers of abrading material, such as sand paper or the like, the clamping surfaces of the sections engage the smooth or inner side of the cover and do not come in contact with the rough or outer side of the two ends of the cover. There is, consequently, little frictional resistance to withdrawal of the ends of the cover from between the sections. According to the present invention, the arrangement is such that in the closed position of the parts the ends of the abrading material are gripped between surfaces which engage not only the smooth side of the material but also its rough side so that the ends are effectually held from outward movement.

The arrangement herein disclosed for securing a cover in its working position comprises an intermediate member adapted to be interposed between the clamping surfaces of the sections and between the ends of the cover. This member is arranged for free movement in approximately the line of relative movement of the sections, so that when the sections are forced together said member is brought in close relation to their clamping surfaces and in close engagement with the rough side of each end of the cover. Said member is held from outward movement from between the sections, and by its engagement with the ends of the cover holds said ends securely from outward movement. The intermediate member is preferably formed of flexible non-elastic material so that it will have even contact with the cover, but the invention is obviously not limited to use of such material. Said member is made thin, so that it will not prevent the clamping faces of the sections from being brought into close relation. I have shown herein an intermediate flexible member supported in two different ways, and it will be obvious that other arrangements of the parts lying within the scope of the present invention may be made. In one form of the device herein described a strip of flexible material is mounted upon one of the roll sections, being secured to its clamping face by suitable fastenings adjacent to the inner side of said clamping face. In another device herein shown, the intermediate member is sustained independently of the roll, it being supported by a holder mounted upon the shaft carrying said roll.

Other features of the invention will be hereinafter described and defined in the claims.

In the drawings,—Figure 1 is a view in perspective of a buffing roll embodying my invention in one of its forms; Fig. 2 is a transverse sectional view of the parts in Fig. 1 in their closed position; Fig. 3 is a view in perspective of a holder which may be employed to support a strip of flexible material between the roll sections, and Fig. 4 is a transverse sectional view of a roll provided with the holder of Fig. 3, showing the parts in their closed position.

Referring to the drawings, the reference numeral 1 indicates a shaft arranged for rotation in any convenient manner. A section 2 of a buffing roll is shown mounted upon the shaft 1, said section being secured in fixed position upon said shaft by any suitable means. A second section 4 is arranged for movement with rela-

tion to the shaft 1 and the section 2, and is adapted to form, in conjunction with the section 4 in the closed position of the parts, a cylindrical support for a cover of sand paper or similar material. The outer surface of the sections is formed by a layer of felt 5, as is common in rolls of this type, the inner portion of each roll section being formed of wood. The section 4 is hinged to the section 2 at the periphery of the wooden core of the roll, as shown in Fig. 2.

A cam 6 is arranged upon the shaft 1 at each end of the roll, and each cam is provided with a curved slot 8 which coöperates with pins 10 carried by the movable section of the roll to hold the parts in their closed position. It will be understood that in the use of rolls of this type the meeting faces of the sections upon the side opposite to the hinges constitute clamping surfaces between which the two ends of a cover are held, said cover being formed of a continuous strip of material provided with an abrading surface upon its outer side. Each of said clamping surfaces is provided with a plurality of outwardly projecting pins 11, which are of advantage in facilitating the application of a cover to the roll and have been heretofore required for the purpose of holding the ends of the cover from outward movement from between the roll sections in their closed position.

In the arrangement of parts shown in Fig. 1, a thin strip 12 of flexible, non-elastic material, such as canvas, leather, or the like, is secured to the clamping surface of the fixed roll section 2, at its inner edge, said strip extending preferably the entire length of the clamping surface and being unsecured to the roll at its sides and outer edge. This intermediate strip of material preferably is of such a width as to extend approximately to the periphery of the roll in its working position, and is provided with perforations to receive the pins 11.

In the construction shown in Figs. 3 and 4, a holder 14 of tubular form is arranged within the roll about the shaft 1. A longitudinal strip 16 of flexible material is secured at its inner edge to the holder 14 in any suitable way. As will appear from Fig. 4 in the operative position of the parts the strip 16 is held by the holder 14 from outward movement from between the roll sections. It will be seen also that, in the open position of the roll the strip 16 and holder 14 are arranged for free movement about the shaft 1.

In the use of the constructions shown and described, one end of a cover of suitable dimensions is forced upon the pins of the fixed section 2 of the roll, said ends being interposed between the intermediate strip of flexible material and the clamping surface of said roll section. The cover is then wrapped circumferentially about the sections and its other end forced upon the pins of the movable section 4 and between the clamping face of said section and the intermediate member. The sections now being forced together, the cover is stretched tightly upon the roll and its ends are brought in close engagement with opposite sides of the intermediate strip of flexible material. It will be seen that, on account of its flexible nature, the intermediate member is brought into close contact with the rough faces of the ends of the cover throughout the entire area of the portion having contact with the cover. In the closed position of the roll, the intermediate member is gripped by the rough sides of the ends of the cover and as said member is held from movement radially of the roll, the ends of the cover are securely held from outward movement. Since the intermediate member is thin, it allows the clamping faces of the sections and consequently the adjacent faces of the cover to be brought into close relation, as will appear from Figs. 2 and 4.

The use of the holder shown in Figs. 3 and 4 is advantageous in that it allows the ends of the cover to be conveniently placed in position between the clamping surfaces of the roll sections. It will be seen that in the use of this holder, the intermediate strip of flexible material may be moved out of proximity to each clamping surface while the cover is being placed in position upon the pins projecting from said surface. It will be also observed that in the use of this arrangement, the ends of the cover may project further inwardly toward the axis of the roll than is possible in the use of the construction shown in Figs. 1 and 2.

While in the constructions herein illustrated I have shown pins projecting from the clamping surfaces of the sections, it will be understood that their purpose is to facilitate application of the cover, and that they are not required for the purpose of preventing outward movement of the ends of the cover in the use of the roll. In prior devices, an important function of the pins has been to retain the cover in working position during the use of the roll. They have been ineffective for this purpose, however, as the ends of the cover frequently have been gradually torn from the pins by the peripheral pull of the work. In the use of devices embodying the present invention, any liability of the cover ends being torn in this way is effectually obviated since the ends of the cover may be gripped over a considerable area. It will be understood that the frictional resistance to relative movement between said ends and the gripping means in the closed position of the roll is so great as to preclude such movement, not only because both sides of each end of the cover are engaged by the gripping means, and the area of frictional contact thus doubled, but also because said means has engagement with the abrasive side of the cover which, as will be obvious, is of such a rough character as to offer considerable resistance to relative movement between the cover and the gripping surfaces.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A movable device for sustaining in working position a cover of abrading material having in combination a plurality of longitudinal sections arranged to receive the ends of the cover between them, and means for holding said ends frictionally from outward movement by engagement with opposite sides of each end of the cover.

2. A movable device for sustaining in working position a cover provided with an abrading surface upon one of its sides, having in combination, a plurality of longitudinal sections arranged to receive between them the ends of the cover, and means for holding said ends frictionally from outward movement by engagement with the rough side of each en dof the cover.

3. A rotary device for sustaining in working position a cover of abrading material having in combination a plurality of relatively movable longitudinal sections constructed to form in their closed position a curved cover-supporting surface and provided with longitudinal clamping surfaces arranged to receive between them the two ends of the

cover, means for holding said sections in closed position and an intermediate member interposed between said clamping surfaces and arranged to lie between the ends of the cover, said member being held from outward movement from between the sections.

4. A movable abrading device having in combination a plurality of longitudinal sections arranged for relative movement transverse to the axis of the device, and provided with longitudinal clamping surfaces arranged to receive between them the two ends of a cover and an intermediate member interposed between said clamping faces arranged for free movement in approximately the line of relative movement of said faces and held from outward movement from between the sections.

5. A rotary device for sustaining in working position a cover of abrading material, having in combination, a plurality of relatively movable longitudinal sections provided with longitudinal clamping surfaces arranged to receive between them the two ends of a cover, means for retaining said sections in closed position and an intermediate member of flexible, non-elastic material interposed between the clamping faces of the sections and arranged to lie between the ends of the cover, said member being held from outward movement from between the sections.

6. A rotary device for sustaining in working position a cover of abrading material, having in combination, a plurality of relatively movable longitudinal sections constructed to form in their closed position a curved supporting surface concentric with the axis of the device and provided with longitudinal clamping surfaces arranged to receive between them the two ends of the cover, means for retaining said sections in closed position and an intermediate member supported independently of said sections between their clamping faces and arranged to lie between the ends of the cover, said member being held from outward movement from between the sections.

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

JACOB R. SCOTT.

Witnesses:
BERNARD BARROWS,
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