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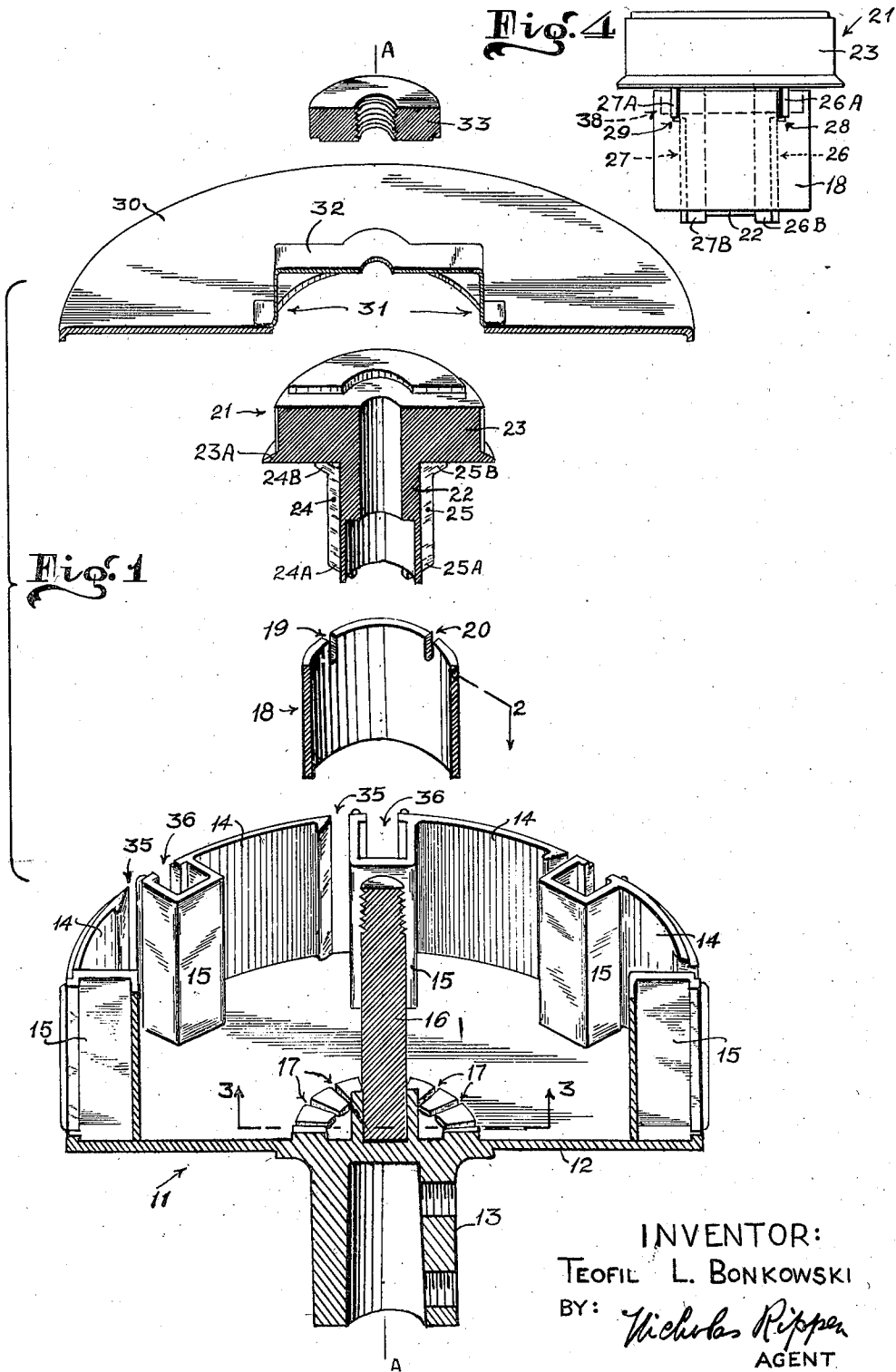
T. L. BONKOWSKI

2,439,962

SANDING DRUM

Filed April 24, 1945

2 Sheets-Sheet 1



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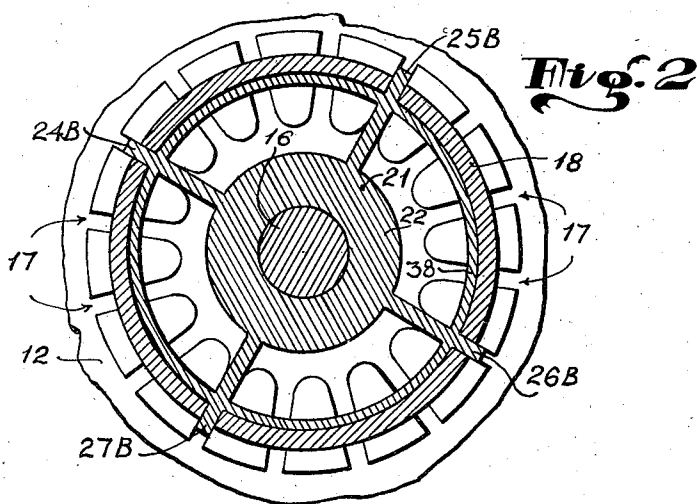
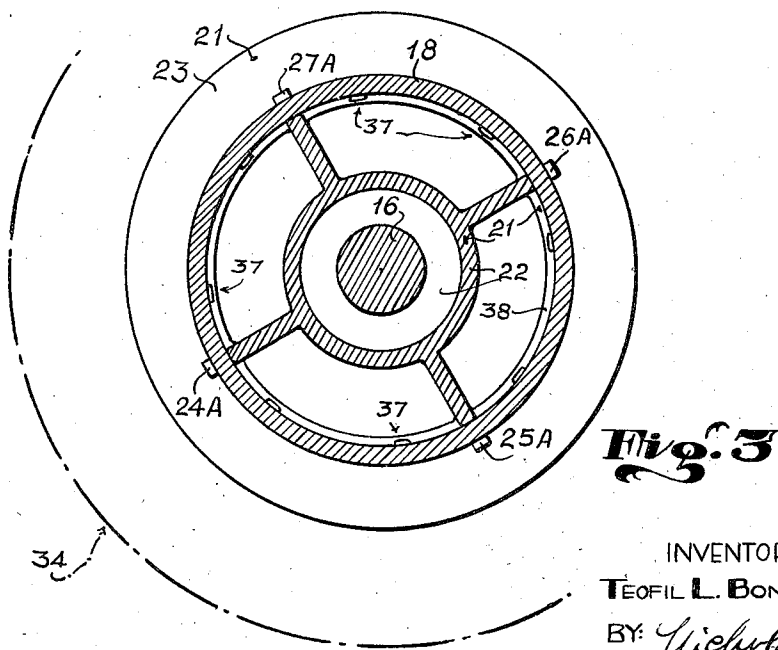
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SANDING DRUM

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3 Claims. (Cl. 51-194)

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This invention, like the one set forth in a previous application for United States Letters Patent filed November 23, 1944, and bearing Serial Number 564,799, relates to drums for sanding wooden, plastic, metal and other articles having narrowly recessed sections in the surfaces thereof and therefore more or less inaccessible to sanding means, the drum containing a plurality of flexible, plurally slit sanding or abrasive strips of cloth, paper or otherwise, disposed inside of the drum, with the free or working ends of the strips protruding outside of the peripheral wall, each of said ends being backed up or stiffened by a thereto adjacent stiffening means, generally a small brush.

Particularly, both said inventions relate to that type of sanding drum wherein the plurality of sanding strips are wound concentrically about a single reel instead of a corresponding plurality of individual reels.

In common with the preceding said invention and in distinction from other sanding drums, the present type of drum provides for retraction of and release of fresh strip ends at will without opening the drum, said retraction and release being effected by means manually operable from outside of the cover of the drum.

Also in common with the drum of said preceding application, the present drum permits quick and easy replaceability of used-up cartridges and worn-out brushes with fresh cartridges and new brushes, as well as enjoying the advantage of economy with respect to manufacturing, use and maintenance, as well as consistently good performance and relative freedom from breakdown.

Constituting the particular object and advantage of the present invention and also the special feature distinguishing it from that forming the subject of said preceding application, in which there is a single-part or single-section reel, is the incorporation of a two-section reel in the present drum, the two sections being separable from one another. The word, section, is deliberately chosen instead of the word, part, or the word, member, because it will be obvious to persons skilled in the art, reading this specification, that each section may consist of a single integral structure or of two or more structures collectively discharging the function of the single structure.

As in the case of the one-section-reel type of drum in said preceding application, this drum too has a main body and a detachable cover therefor, respectively constituting a greater part and a lesser part of the drum, the interior of the drum being substantially defined by a platelike

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base, a therefrom spaced and detachable cover and a therebetween intervening peripheral wall provided with a plurality therein of successively spaced peripheral or strip openings, disposed around said peripheral wall and corresponding to said plurality of strips and respectively accommodating the protruding free or working ends of said strips, the cover being provided with an axially aligned cover opening, thru which and out of which a turning means protrudes sufficiently to be grasped for manual turning thereof without the need to remove said cover, in the manner already referred to.

The expression, cartridge, as employed herein, whether with reference to the instant invention, applies to the combination of the reel and of the strips wound thereon—not to the reel itself.

Although, to persons skilled in the art, many embodiments of the principles of the instant invention can and will suggest themselves, I deem it sufficient, for the purpose of clear and simple exposition of said principles, to use a simple and typical one of said embodiments as the subject of this specification and of the accompanying drawings, in which—

Figure 1 is an exploded, half-sectional view, inclined toward the observer in the plane of symmetry, of the sanding drum constituting said embodiment, the sanding strips and the brushes, however, having been omitted from the view.

Figure 2 is a sectional view of the inventively essential, said two sections constituting the strip-mounting reel in said drum, as seen in the transverse-sectional plane 2—2 in Figure 1, in this view, an assembled disposition of the parts having now been assumed.

Figure 3 is a sectional view of the same, as seen in the plane 3—3 in Figure 1, the thereon reeled said abrasive strips being represented schematically.

Figure 4 is an elevation view of said two-section reel.

Referring to Figure 1, the axis of symmetry of the drum, which is also the axis of rotation thereof, is indicated by A—A.

The basic structure or main body of said drum is indicated by 11 and includes these major portions, the platelike base portion or base or supporting plate, 12, the connecting means or hub 13, the peripheral wall sections 14 and the chanlike brush-housings 15, all integral with one another, although not necessarily so. Because of the threaded end of the spindle being subject to considerable wear in connection with the screwing and unscrewing of the nut therefor, and be-

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cause the main body of the drum may be of relatively soft material, lending itself well to die-casting, for instance, I prefer to make the spindle 16 of a separate structure and press-fit it into a recess formed out of the base. Also integrally formed out of the base 12 is an annulus-defining group of mutually separated projections, constituting successively between them a plurality of radially extending metering grooves, in this case, sixteen in number, four whereof being indicated by 17.

Constituted from an abbreviated paper tube is the reel sleeve section, also referred to as a sleeve, 18, one of said two sections. Otherwise expressed, a circular wall constitutes said sleeve. It is provided with four slots, axially parallel, in the end of said circular wall, two of said slots being indicated, in Figures 1 and 4, by 19 and 20, the other two thereof being indicated, in Figure 4, by 28 and 29. To this sleeve 18, a plurality of flexible abrasive or sanding strips are securable, conceivably by directly stapling their inner or secured or non-working ends to successively spaced points around said sleeve, the strips being then wound or reeled on it concentrically. In Figure 3, these staples are indicated by 37.

Constituting the other of said two reel sections is the reel core section, also referred to as a core, 21. The main body thereof is indicated by 22 and the numeral 23 indicates a turning means that is integral therewith and extends therefrom. It may be an originally separate member secured thereto. Extending radially from and integral with said main body 22 are the four webs, 24, 25, 26 and 27, whose four small respective ends constitute base-engaging tongues similar to tongues 24A and 25A, extending beyond the base-confronting edge of body 22. The thereto opposed other ends of the webs are enlarged to constitute sleeve-engaging tongues and are respectively indicated by 24B, 25B, 26B, and 27B. A concentric flange 38 serves to prevent the inward collapse of the otherwise unsupported edge of the sleeve 18.

Adapted to fit over the edges of the peripheral wall sections 14 is the quickly detachable cover 30, provided with a cover opening 31 therein, which bears marginally thereof on the flange 23A of the turning means 23. Bearing on cover 30, externally thereof and marginally of cover opening 31, is the two-armed spider 32. When entirely assembled, the spindle 16 passes thru sleeve 20 and core 21, cover opening 31 and a hole in spider 32, the threaded end of the spindle receiving the nut 33. The diameter of the spindle is appreciably smaller than that of said cover opening.

Said strips are indicated schematically by 34 in Figure 3. Each thereof passes through a respective one of a corresponding plurality of successively spaced peripheral openings or strip openings 35 in the segmental peripheral wall of this drum, out of which openings the free or working ends of the strips protrude, each whereof being backed up by a respective one of a corresponding plurality of stiffening brushes, respectively held by and within the corresponding brush-housings 36, integral with the main body of the drum.

In the average shop, where sanding drums of this general class are in demand and in use, the personnel do not like to refit used-up cartridges with new strips but prefer to remove the used-up cartridge and replace it with a fresh, complete

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one. Because of this fact and because, in the case of the drum in my said preceding application, the one-section reel is a relatively costly article, and because the average shop has need of a selection of different grains in the abrasive strips, an inconvenient condition obtains in that many of these reels must be kept in stock and the used-up reels must be returned to the manufacturer thru the supply houses, thereby causing more or less trouble and inconvenience all around, and complicating transactions among the parties concerned. In the case of the present invention, the strips are mounted on entirely expendible reel sleeves 18, since they are made preferably of abbreviated paper tubes. A large supply of them, in an adequate selection of different grains, may be kept on hand, and, when they are used up, they are simply discarded and forgotten. The cost of each paper sleeve is of course very nominal.

Persons skilled in the art will readily conceive other satisfactory methods of restraining rotation of the sleeve 18 by the core, as well as other methods of fixing the core against rotation thereof with reference to the base. I have deemed it sufficient to illustrate only one satisfactory and simple method for each of these conditions of restraint. Common to the design described and illustrated herein and to the several mechanical equivalents that will present themselves to persons skilled in the art is the combination of a relatively expensive and permanent reel core and of a relatively inexpensive and expendible reel sleeve for mounting the strips, as well as the restraining means referred to.

The economy inherent in a reel sleeve need not take the extreme form of a paper tube. By some it will be regarded as sufficient that the economy is resident in the simple form of the sleeve, even when it is made of plastic or of fiber or even of metal. It is more its simple form rather than the nature of the material constituting it that constitutes its economy.

Instead of a plurality of webs and respective tongues, a single web and respective tongue may be employed.

I claim:

1. A rotatable sanding drum comprising, a drum portion consisting of a back plate adapted to be mounted upon a drive shaft, a removable front plate which serves as a cover for the drum and a uniformly perforated peripheral wall extending between the front and rear plates, a reel concentrically located with respect to the drum consisting of a centrally located spindle for securing the reel in assembled condition, a male reel member and a female reel member lockable therewith mounted concentrically on said spindle, a slotted indexing means concentrically fixed to said spindle and cooperating with said male reel member to adjustably lock the reel assembly in any one of a plurality of desired positions, a plurality of abrasive strips wound on said female reel member and extending through the perforations in the peripheral wall of said drum, said reel assembly cooperating with said indexing means to manually adjustably feed the abrasive strips through the perforations in said peripheral wall of the drum and outwardly thereof.

2. In combination, a rotatable sanding drum comprising: a back plate adapted to be mounted on a drive shaft, a removable front plate which serves as a cover for the drum, a uniformly perforated peripheral wall extending between the

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front and rear plates and a centrally located spindle passing therethrough; a reel assembly comprising: a male reel member and a female reel member lockable therewith mounted concentrically on said spindle; cooperating releasable indexing means between said spindle and said reel assembly to adjustably lock the reel assembly in any one of a plurality of desired positions; a plurality of abrasive strips wound on said female reel member and extending through the perforations in the peripheral wall of said drum; said reel assembly cooperating with said indexing means to manually adjustably feed the abrasive strips through the perforations in said peripheral wall of the drum and outwardly thereof.

3. In sanding apparatus of the type described, a drum member, a centrally located spindle affixed to said drum member and extending there-through, a two-part reel assembly comprising a spool member having a plurality of strips of

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abrasive material wound concentrically thereon and a male member journaled for rotation on said spindle, releasable locking means between said male and female member, releasable indexing means between said drum member and said male member, and said male member having a portion thereof extending outside the confines of said drum member for manual movement thereof.

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