

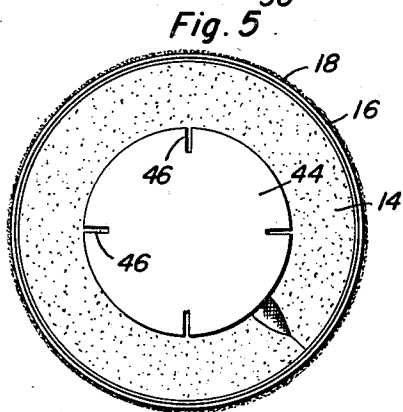
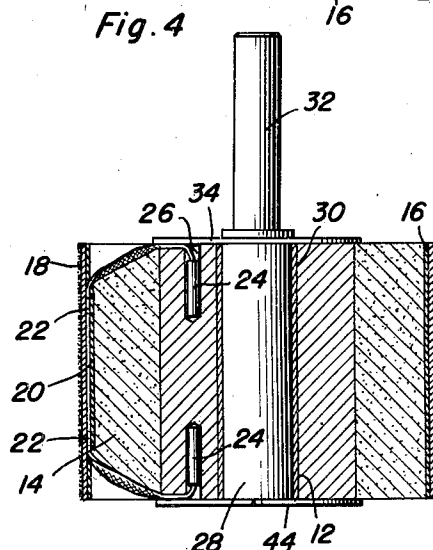
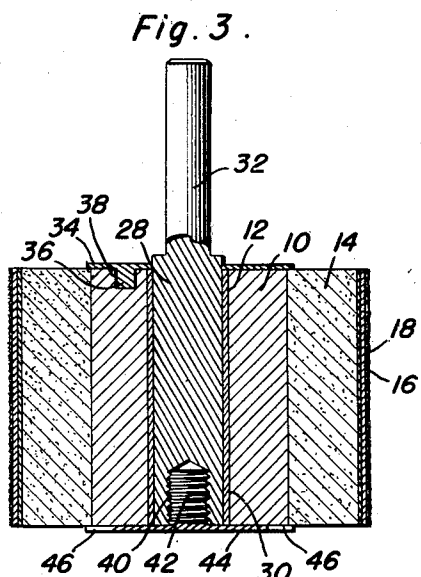
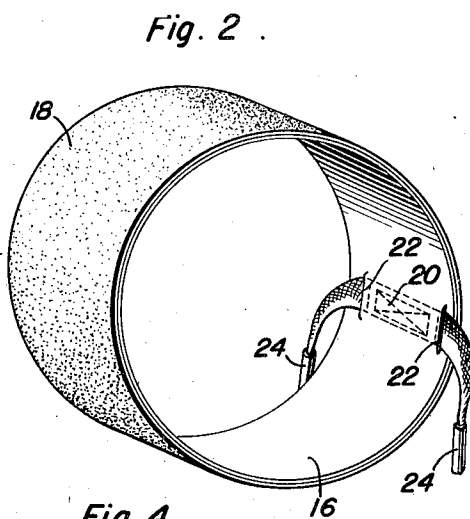
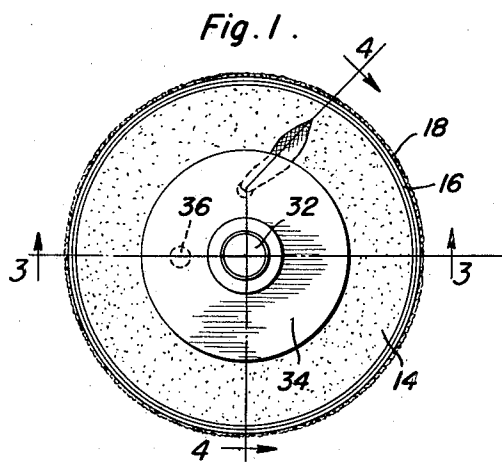
Dec. 13, 1949

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2,491,141

ROTARY SURFACE TREATING DEVICE

Filed July 9, 1948



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UNITED STATES PATENT OFFICE

2,491,141

ROTARY SURFACE TREATING DEVICE

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Application July 9, 1948, Serial No. 37,901

1 Claim. (Cl. 51—190)

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This invention comprises novel and useful improvements in a rotary surface treating device and more specifically pertains to a rotary sanding head suitable for use in a sanding device.

The principal object of this invention is to provide an improved rotary surface treating device wherein surface treating material may be easily and readily replaced upon the rotary head of the device.

A further important object of this invention is to provide an improved construction wherein a flexible sheet of surface treating material such as a sleeve of abrasive may be conveniently applied to or removed from the annular cushioning body of felt or the like with which the hub of a sanding head is customarily provided, the surface treating sleeve being retained upon the sanding head by an advantageous, convenient and efficient clamping and fastening arrangement.

Yet another important object of the invention resides in the provision of a rotary surface treating device as set forth in the preceding objects wherein the construction shall be of simple and inexpensive manufacture, easily and readily assembled or disassembled for service or repairs and shall be highly efficient for the purposes intended.

An important feature of the invention resides in the provision of a hub suitable for attachment to any convenient and conventional driving means of a sanding machine, for rotation thereby, an annular body of cushioning material secured to and surrounding the hub, and an endless sleeve of an abrasive or other surface treating material, of a flexible nature, being embracingly engaged upon the annular body and positively fastened to the hub.

Another important feature of the invention resides in the provision of a novel fastening means for securing the sleeve to the hub which fastening means consists of a piece of ribbon-like fabric or other pliable material which is secured to the inner surface of the sleeve, the ends of the ribbon extending across the sides of the annular body and terminating in tabs which are received within inwardly extending bores or sockets opening from the sides of the hub.

Yet another important feature of the invention resides in the provision of a construction as set forth in the foregoing features and objects, wherein there is further provided a removable arbor seated in the bore of the hub, and having cooperating flanges for overlying the sockets of the hub and retaining the tabs therein.

And the final important object and feature of the invention to be specifically enumerated herein resides in the provision of a surface treating device as set forth in the abovementioned objects and features, wherein there is provided an

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arbor having a flange intermediate its ends which is provided with a pin and socket connection with the hub for non-rotatably securing the flange thereto, together with a flange-like plate detachably and screw-threadedly engaged upon the arbor for clamping and compressingly receiving the hub together with the tabs therebetween.

These, together with various ancillary features and objects of the invention, which will later become apparent as the following description proceeds, are attained by this device, a preferred embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a side elevational view of a suitable embodiment of the invention;

Figure 2 is a perspective view of the exterior member of the device consisting of a sleeve of endless and flexible construction, and of a surface treating material such as abrasive, the sleeve being shown with its fastening means attached thereto;

Figure 3 is a vertical longitudinal sectional view taken substantially on the plane of section line 3—3 of Figure 1 showing the interior construction of the device;

Figure 4 is a further vertical sectional detailed view taken substantially upon the broken plane of the section line 4—4 of Figure 1, and showing further details of the interior construction of the device; and,

Figure 5 is an end elevational view taken from the opposite side of Figure 3 from that of Figure 1, and showing in end elevation the clamping plate forming a part of the device.

Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, attention is directed primarily to Figures 3 and 4 wherein the numeral 10 indicates a hub having an axial bore 12 disposed centrally therein, this hub being of any suitable material, such as wood, plastic or the like, and preferably being of an annular or drum-like construction. Suitably secured in any desired manner to the cylindrical outer surface of the hub 10, as by cementing or any other desired fastening means, is a body of a yieldable or cushioning material such as felt, and which is indicated at 14 may conveniently be of an annular shape and of a thickness or width substantially equal to that of the hub 10.

A surface treating sleeve 16 of a pliable or flexible material such as paper, suitable fabrics or the like, and which if desired may be coated with a suitable abrasive material such as indicated at 18, is adapted to snugly embrace the outer circumference of the annular cushioning body 14.

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It is to be distinctly understood that the principles of the invention are not limited to an abrasive or sanding device, but that the sleeve 16 may have its outer surface adapted for polishing, brushing, waxing, rubbing or otherwise treating the surface with which the circumference of the rotary head is adapted to be engaged.

In any event, the sleeve 16 which is preferably of an endless nature and of a diameter substantially equal to or even slightly smaller than the diameter of the flexible or cushioning and yieldable body 14, is intended to be placed thereon as shown in Figures 3 and 4, whereby the frictional fit of the slightly compressed body 14 will serve to assist in retaining the sleeve in proper position.

As shown in Figure 2, a fastening means is provided for positively retaining the sleeve in proper position and in embracing relation to the annular felt body 14, this fastening means consisting of a ribbon or tape 20 of any suitable material such as fabric, cloth, leather or the like, and which likewise is desirably of a pliable or flexible nature, this ribbon being secured to the inner surface of the sleeve 16 and extending axially or laterally thereof, and being secured as by fasteners 22, which may take any desired form, such as sewing stitches, staples or any other suitable means. The ribbon 20 is preferably of such length that the ends thereof, when the sleeve is placed upon the annular body as shown in Figure 4, will extend along and across the sides of the annular body for compressably engaging and embracing the same as clearly shown in Figure 4. The ends of the ribbon preferably terminate in suitable anchoring tabs 24 which are adapted to be received in inwardly extending retaining sockets or bores 26 formed in the end walls of the hub 10.

A combined means is now provided for mounting the rotary surface treating head upon a driving arbor or shaft, for assisting in positioning and retaining the annular yieldable body 14 upon the hub 10, for compressively engaging the ribbon 20 against the end surfaces of the hub 10, and for retaining the tabs 24 within the sockets or recesses 26. This last means includes a preferably integral arbor or shaft 28, which may be slidably received in a suitable metallic bushing 30 with which the bore 12 is provided, this arbor having an extending spindle 32 adapted for suitable driving engagement by any desired type of sanding or surface treating machine.

Suitably formed upon the arbor 28 is preferably integral flange 34 which as shown in Figure 3 is provided with an inwardly extending projection or pin 36 which is engageable in a socket or recess 38 formed in the adjacent end wall of the hub 10, whereby the flange may be anchored or non-rotatably secured against the hub. Preferably the diameter of this flange is such as to extend beyond the circumference of the hub 10, and to overlie the inner circumference of the annular body of cushioning or yieldable material 14, as clearly shown in Figures 3 and 4.

At its other end, the arbor 28 is provided with an axial, central screw-threaded bore 40 within which is received a screw-threaded extremity 42 of a bolt carried by an annular plate 44, of the same diameter as the flange 34. As will be readily understood, this plate may be screw-threaded upon the end of the arbor 28 to compressively engage and clamp between the flange and plate the hub, the annular body 14, the ends of the ribbon 20, and to thus close the ends of the sockets 26 to retain the tabs 24 therein.

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There will be further noted by reference to Figures 3 and 5, that the plate 44 is provided with radially and inwardly extending notches or slots 46 opening at the circumference thereof, which slots provide recesses into which the yieldable or cushioning material 14 may be forced when the plate 44 is tightened upon the arbor 28, whereby the plate will be to some extent frictionally anchored and retained in its compressed position by this yielding engagement of the body 14 therewith.

It is to be understood that numerous changes may be made in the manner of securing the clamping plate 44 to the arbor 28, in the manner of supporting the flange 38 therefrom, as well as in the manner by which the sleeve 16 is anchored to the hub.

It is particularly to be noted, as shown in Figure 4, that the ends of the ribbon 20 may be tightened to thus be recessed into or pressed into the sides of the body 14, when the tabs 24 are positioned in the sockets 26, in order to tension the ribbon and thus more firmly anchor the sleeve to the hub. This tensioning of the ribbon is maintained by the clamping action of the plate and flange of the arbor as above-mentioned.

From the foregoing, the manner of constructing and operating the device and its manifest advantages will be readily understood and further explanation is believed to be unnecessary.

However, since numerous modifications and equivalents will readily occur to those skilled in the art after a consideration of the foregoing specification and the accompanying drawings, it is not desired to limit the principles of the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

Having thus disclosed and described the invention, what is claimed as new is as follows:

In a rotary surface treating device, a hub having an axial bore, a body of cushioning material surrounding and secured to said hub, an endless flexible sleeve of abrasive material snugly embracing said body, a fastener attached to said sleeve, an arbor slidable in said bore, a flange on said arbor engaging one end of said hub, an internally threaded recess in one end of said arbor, a plate having a screw threaded extension engageable in said recess, said plate cooperating with said flange for clamping the hub therebetween, said fastener being retained between said plate and hub, said hub having a socket in the end thereof, said fastener having a tab received in said socket, said plate overlying said socket for retaining said tab therein.

GEORGE W. THOMAS.

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