June 27, 1939. M. A. STYBR 2,164,286

METALLIC WOOL ABRADING RING

Filed March 22, 1937

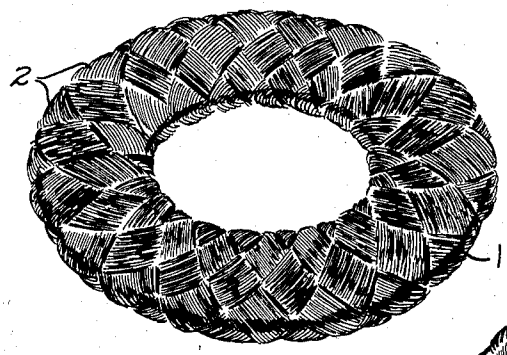


Fig.-1

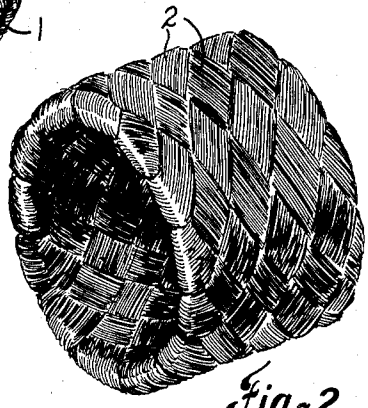


Fig.-2

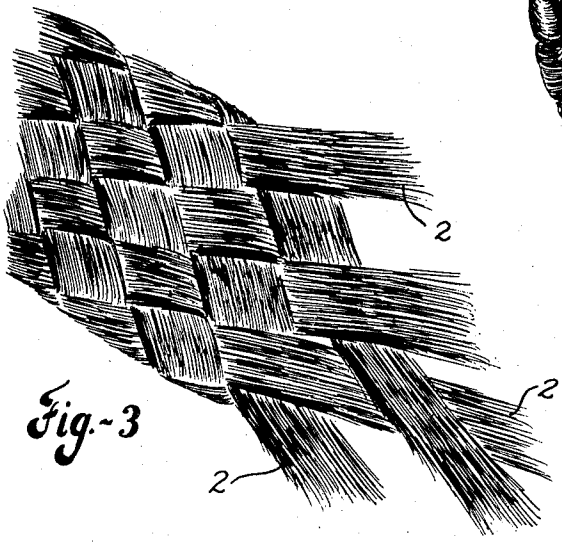


Fig.-3

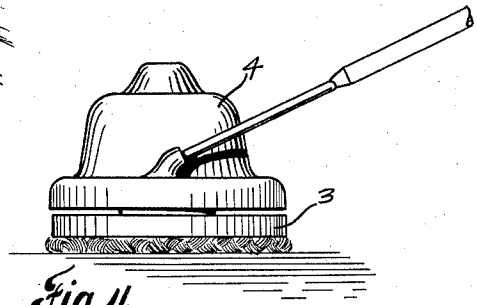


Fig.4

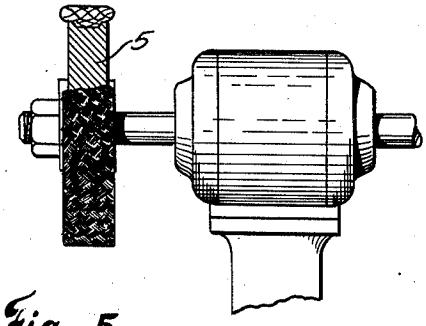


Fig.-5

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METALLIC WOOL ABRADING RING

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5 Claims. (Cl. 96—25)

This invention pertains to abrasive pads for cleaning, scouring and polishing operations and comprises an annular pad of metallic wool wherein the rovings are so disposed and arranged as to afford mutual support and resistance to displacement.

Heretofore the strands of annular wool pads have usually been disposed in substantially radial relation. It is found, however, that the radial strands tend to shift their positions under rotary rubbing action incident to use, causing disarrangement of the fibers into bunches and development of uneven areas. The present invention solves this problem by forming the annular pad of flat braided or plaited rovings, the ends of the plait being spliced together in endless formation. In such arrangement the transversely disposed rovings of metallic wool filaments are mutually supporting, whereby the shifting movement of one roving is resisted by another and the metallic wool filaments are disposed in substantially diagonal relation to the direction of rotation which greatly facilitates the abrasive action as well as minimizes displacement strain upon the strands.

The object of the invention is to improve the construction as well as the means and mode of operation of metallic wool pads whereby they may not only be economically manufactured, but will be more efficient in use, of increased durability, and capable of retaining their shape and uniformity of distribution of fibers or filaments under sever usage.

A further object of the invention is to provide a metallic wool pad wherein the rovings of metallic wool will be mutually supporting, and wherein each roving will tend to prevent displacement of other rovings under frictional strains and stress incident to use.

A further object of the invention is to provide an annular abrasive pad for rotary action wherein the abrasive filaments are angularly disposed relative to the direction of travel.

A further object of the invention is to provide an annular metallic wool pad wherein the rovings of metallic wool are braided or plaited to afford a more firm and resistant pad wherein the metallic wool filaments are disposed in the most advantageous relation.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents as hereinafter described and set forth in the claims.

Referring to the drawing wherein is illustrated the preferred but obviously not necessarily the only form of embodiment of the invention,

Figs. 1 and 2 are perspective views of metallic wool abrasive pads of different forms embodying the present invention.

Fig. 3 is a perspective view illustrating the manner of manufacture of the annular pad.

Figs. 4 and 5 illustrate two service applications of the abrasive pads forming the subject matter hereof.

Like parts are indicated by similar characters of reference throughout the several views.

The present abrasive pad is especially desirable for use on rotary cleaning and polishing apparatus, as for example rotary floor finishing and polishing machines, or as a cover for buffing or polishing wheels. Obviously, the pad is not limited to such applications but may be used for various other scouring, cleaning and abrading operations.

Referring to the drawing, 1 is the annular pad comprising multiple rovings 2 of metallic wool arranged in transverse intersecting relation. The rovings are preferably plaited by passing each roving alternately over and under other rovings 2 of the plurality to form a relatively thick, flat braid. The number of rovings employed and the relative size thereof, as well as that of the individual fibers, may vary according to the desired size of the pad and the character of the work for which it is to be used.

After braiding or plaiting a suitable length of material sufficient to form an annulus of the desired size the ends of such fabricated material are joined by splicing. In such operation the several rovings at each end are interlaced in the rovings of the opposite end, preferably following the course of the braided rovings of such joined portion. Such splicing of the ends of the braided material is quite similar to the common method of splicing ropes and cables and need not be here described in further detail.

After fabrication the annular pad is preferably subjected to sufficient pressure to flatten it in a plane transversely to its axis in event that it is to be used for floor surfacing or scouring or for analogous purpose. In such event it may be either attached to the rotary head 3 of a polishing machine 4 as shown in Fig. 4, or it may be interposed between the rotating head and the surface operated upon. For such use a flat "pancake" type of pad as shown in Fig. 1 is preferable. If the pad

is to be mounted upon a buffing wheel 5 or other rotary support for peripheral engagement with the work, the fabricated material will be flattened circumferentially into an annular band or belt as shown in Fig. 2 to be circumferentially disposed about its rotary carrier or mounting. The disposition of the plaited rovings angularly to the direction of rotation affords a draw cut motion which facilitates the scouring and abrading action of the material and is less likely to break the filaments, thereby effecting an improved result and increasing the lasting qualities of the pad.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is, therefore, claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. As an article of manufacture an abrasive pad of metallic wool comprising a plurality of rovings of metallic wool fibers plaited into a strip, the ends of which are spliced together to form an endless band, wherein the rovings are disposed diagonally to the general direction of the band, and of which only short relatively spaced portions are exposed to engagement with the work, and are overlaid at relatively short intervals by other rovings which thereby mutually resist displacement.

2. As an article of manufacture, a rotary abrasive pad of metallic wool comprising a rotary annular body having an aperture to receive a mounting and comprising a series of transversely overlapping rovings of metallic wool the fibers of which are disposed diagonally to the direction of rotation.

3. As an article of manufacture, an annular pad of metallic wool to be mounted for rotary motion relative to a work surface, having an aperture to receive a rotary carrier, said pad comprising a series of rovings of metallic wool plaited into a flat strip, the ends of which are interconnected, the metallic wool fibers forming the rovings being disposed diagonally to the direction of rotation.

4. As an article of manufacture, an abrasive pad of metallic wool comprising an annular body having a central aperture to receive a rotary mounting, the pad comprising superimposed layers of metallic wool, the strands of different layers of which extend transversely in diagonal relation to the direction of rotation.

5. As an article of manufacture, an annular abrasive pad of metallic wool material for use with a rotary carrier comprising a ring shaped body having a central aperture to receive the rotary carrier and composed of layers of metallic wool material the fibers of which are disposed diagonally to the direction of rotation of the pad.

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