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1,779,975

ABRADING AND POLISHING DEVICE AND METHOD OF MAKING SAME

Filed March 6, 1929

Fig. 1.

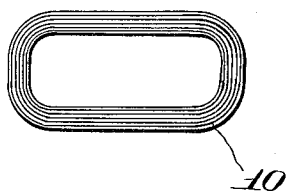


Fig. 2.

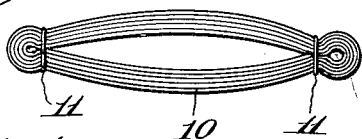


Fig. 3.

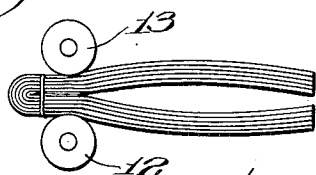


Fig. 4.

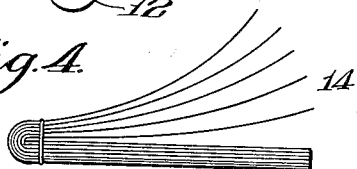


Fig. 5.

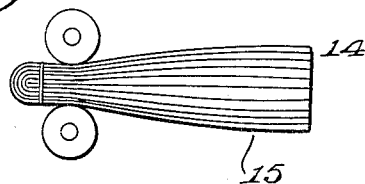


Fig. 6.

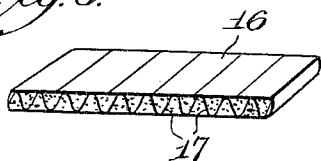


Fig. 9.



Fig. 7.

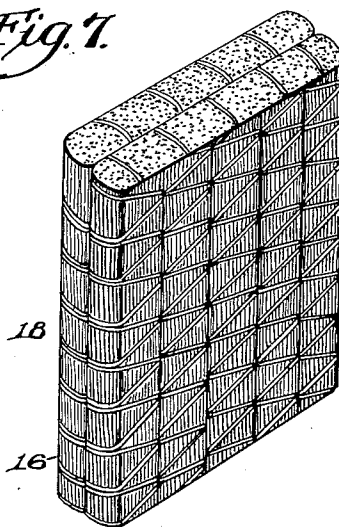


Fig. 8.

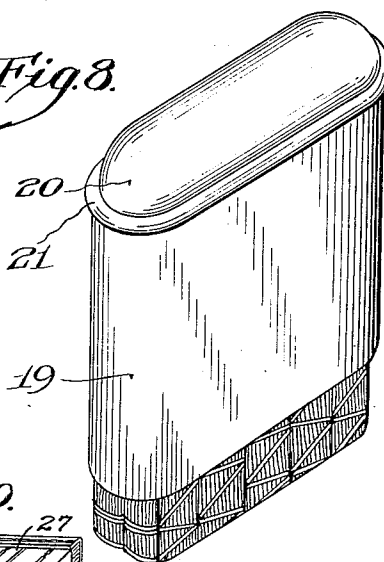
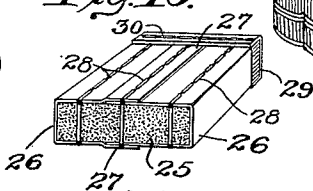


Fig. 10.



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UNITED STATES PATENT OFFICE

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ABRADING AND POLISHING DEVICE AND METHOD OF MAKING SAME

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The object of the invention is to provide improvements in abrading and polishing devices, and particularly in articles of this character which are designed primarily for use in the cleansing of aluminum and similar types of cooking utensils.

Another object therefore is to provide a device comprising a large number of strands of steel wool or other so-called metal wool, bound together in such manner that only the ends of the strands are exposed in a relatively compact mass, and the whole protected by a yielding rubber sleeve for conveniently gripping the device, said sleeve being slidable upon the core of metal wool, or adapted to be cut away at its free edge portions, so as to progressively expose additional portions of the strands as the originally exposed end portions wear away.

A further object is to provide an improved method of forming the abrasive core by means of what might be termed a building-up process, the mass of parallel strands being opened up in any suitable manner to permit the injection of soft or semi-fluid soap between them, after which the mass is compressed in such manner as to force the soap uniformly throughout the strands and to dispel excess soap therefrom, this impregnation of the mass with soap or the like serving to lessen the friction between the wool and utensil and thereby lessen the resulting scratching of the utensil by the wool, at the same time effectively preventing the entrance of water between the strands, and covering them individually to such an extent that they are prevented from rusting.

And a still further object is the development and perfection of an improved method of cross-stitching and overcasting the strands of metal wool to secure them together, so as to provide a substantially rigid, or laterally unyielding, block or core with the result that even with frequent or almost constant use for long periods the free ends of the strands of steel resist the tendency to break off, as would otherwise occur with repeated bending in opposite directions.

With these and other objects in mind, the

present invention comprises further details of construction and operation which are fully brought out in the following description when read in conjunction with the accompanying drawings, in which Figs. 1 to 6 show diagrammatically the several steps in the method of forming the abrading core or block; Fig. 7 is an enlarged perspective view of the finished core or block, stitched together according to one arrangement of the preferred process; Fig. 8 is a perspective view of the rubber or similar casing by which the device is manually held, and from which the free end of the core is seen to protrude, Fig. 9 is an elevation of an abrading device adapted to be secured to a pencil as an eraser; and Fig. 10 is a perspective view of an abrading block formed by a slightly modified method.

Referring to Figs. 1 to 6 inclusive of the drawings, there are shown the principal steps in the process of forming or producing the abrading block. First, either individual or groups of parallel strands are wound about any suitable form (not shown) in order to provide a ring or hank 10. Next, this hank is elongated as shown in Fig. 2 and its end portions tied by transversely extending strands 11, after which the collapsed ring or hank is passed between compression rollers 12 and 13. Following this step, as the material emerges from the rollers, one end portion is severed from the remainder so that the compressed parallel, yet more or less interlocked, strands can be opened as shown in Fig. 4.

Upon opening up the body of the mass of metal wool, it is not to be understood that the separation is in accordance with any arrangement of layers or other regular formation, but merely in order to facilitate their impregnation with semi-fluid soap or the like. After this impregnation has taken place, the relatively swollen mass 15 is inserted within the press 12-13 and pressure applied until the mass of metallic strands have been compressed into the form of a block 16 and the excess soap or similar material forced therefrom.

Finally, the block 16 is pierced by any suit-

able arrangement of stitches but preferably comprising substantially parallel series of zig-zag stitches 17 throughout the central portion of the block, while the laterally opposite edge portions of the block are bound to said central portion by zig-zag stitches 18, with the final result shown in Fig. 7.

This completed block may be of any desired length but is preferably only a severed portion of the original block 16 shown in Fig. 6. After it has been completely formed, it is inserted within a hollow tubular sleeve 19, preferably made of relatively soft rubber for manually engaging and operatively supporting the abrasive block. This sleeve while open at one end is closed at its opposite end 20 and may if desired be provided with one or more peripherally extending beadings 21, which assist the user in manually gripping the device.

The finished block shown in Figs. 7 and 8, to all intents and purposes, is transversely rigid with its lower or exposed end characterized by the uniformly exposed end portions of the multitude of metal wool strands impregnated with the soap or other binder and adapted to be drawn to-and-fro across the surface of any metal article, such for instance as cooking utensils, faucets and the like. The device can be employed dry if desired, but some forms of dirt and stains are more rapidly removed from a given article by moistening the article, with the result that a moderate portion of the soap is dissolved and runs upon the article and consequently at least a portion of the dirt is thereby softened and together with the stains positively removed by the abrading action of the strands of metallic wool.

Referring again to Fig. 6, this may also represent a transversely severed block comprising a portion of a much longer strip, previously formed of parallel strands of wool compressed together, and which is held together by means of a suitable fabric or other covering, and the whole secured together as a compact unit by means of transversely spaced longitudinally extending lines of stitches. The resulting article is seen to advantage in Fig. 10, wherein the central core of parallel strands of mineral wool 25 is covered by a plurality of strips of fabric 26, transversely U-shaped so as to cover the laterally opposite portions, and overlapped at their overlapping central portions 27, and stitched together along the parallel lines 28. This article may then have one end covered in any suitable manner as by means of the transversely extending head strip 29, which may be secured in position by any suitable means such for instance as by means of a line of stitching 30. The resulting article either with or without impregnation by saponaceous material is ready for use as an abrading

device adapted to the polishing of many different articles.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:

1. The method which consists in assembling substantially parallel strands of metal wool, to form a strip, covering said strip with a strip of material transversely surrounding the same, securing the edge portions of said covering strip together and to said first strip by means of a longitudinally extending line of stitches, and then severing predetermined lengths of said united strips transversely of said wool strip, to form abrading blocks in which the ends only of the metal wool strands are exposed at one end of each block.

2. The method of forming a substantially solid unyielding abrading and polishing article of uniform structure, which consists in assembling strands of metal wool in substantial parallelism, separating said strands and injecting between them a saponaceous substance, then subjecting the mass to pressure to homogenize the same, to dispel excess of said substance therefrom, then binding said strands together to make the article substantially inflexible throughout, and then cutting said structure transversely of the direction of said strands in order that only the ends of the strands are presented at the resulting working surface.

In testimony whereof I have affixed my signature.

PAUL B. MALEBRANCHE.