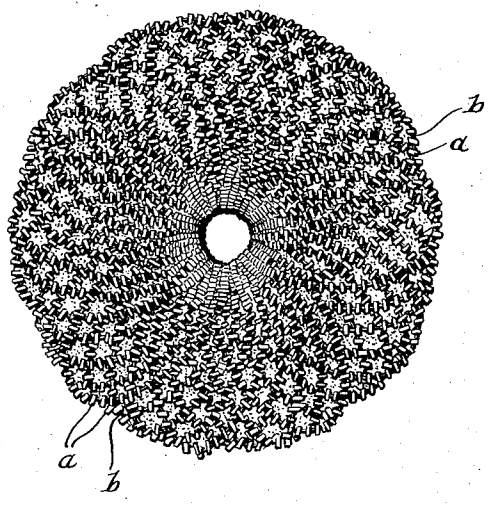
Feb. 12, 1935. D. J. MAYER 1,991,024

METHOD OF PRODUCING METALLIC SCOURING PADS

Original Filed Oct. 2, 1931

Fig. 1



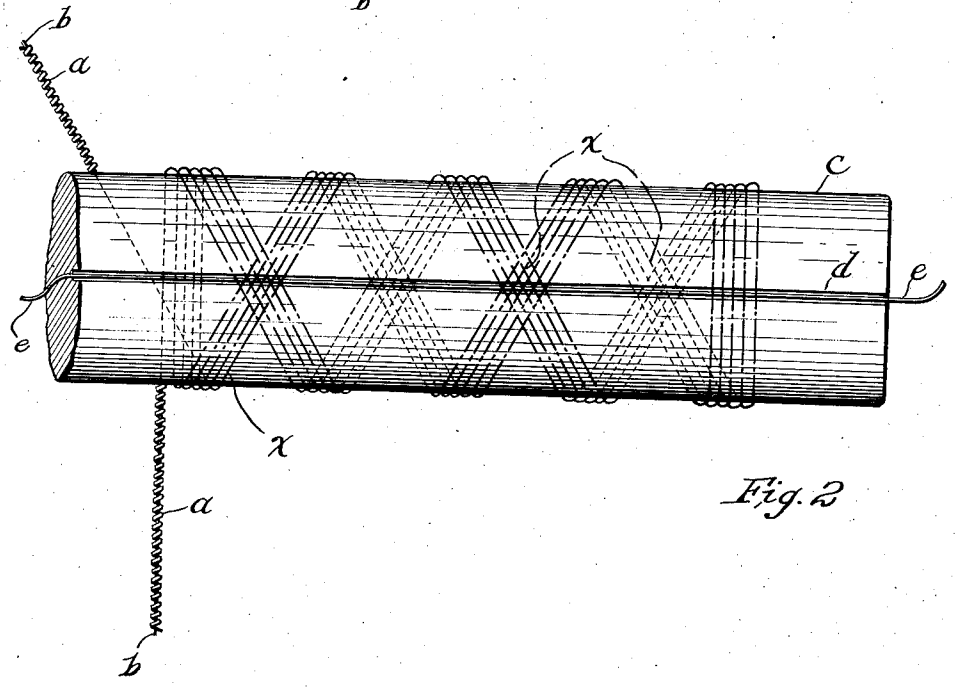


Fig. 2

INVENTOR.
Daniel J. Mayer,
BY
Geo. L. Richards
ATTORNEY.

Patented Feb. 12, 1935 1,991,024

UNITED STATES PATENT OFFICE

1,991,024

METHOD OF PRODUCING METALLIC SCOURING PADS

Daniel J. Mayer, Belleville, N. J., assignor to Metal Textile Corporation, West Orange, N. J., a corporation of Delaware

Original application October 2, 1931, Serial No. 566,499. Divided and this application June 5, 1934, Serial No. 729,085

1 Claim. (Cl. 140—3)

The present invention relates to an improved method of producing metallic scouring pads of the kind shown and described in my copending application for United States patent, Ser. No. 566,499, filed October 2nd, 1931, of which this application is a division.

The present invention has for its object to provide a novel method of producing a metallic scouring pad formed of spirally convolved metallic wire interwoven upon itself in a criss-cross relation so that in the finished article the interwoven strand portions will interlock one with another to form a non-raveling body calculated to retain its shape under more or less rough usage, and whereby the interweaving of the loops or strand portions of the metallic wire will tend to dispose the convolutions of the same at a great diversity of angles of projection, whereby scraping edges offered by said convolutions will project in the many various directions of movement which may be imparted to the finished device when employed to rub a surface to be scoured or scraped thereby.

The accompanying drawing shows the article and illustrates essential steps of the novel method by which the same is produced. In said drawing:

Fig. 1 is a face view of the article as produced by the method according to this invention; and Fig. 2 is a diagrammatic view showing certain essential steps of the said method of producing the article.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

The novel scouring pad of this invention is made of metallic material, comprising a wire which is turned or twisted upon itself to provide a roughly spirally convolved strand *a*, or otherwise deformed to provide a multiplicity of scraping projections or points along its length. Preferably the wire is of flat ribbon-like form or of angular cross-sectional shape, although wire of any cross-sectional shape, round or angular, may be employed. The flat ribbon-like wire, however, when spirally convolved, provides a multiplicity of chisel-like scraping edges or projections calculated to provide a maximum of abrading effect. While it is possible to use the metallic strand *a* alone, preferably, however, a flexible carrier core of metallic wire or textile *b* is employed upon and around which is convolved or gimped the metallic strand *a*. If metallic wire is employed for the core *b*, the surface of the same may be suitably roughened to hold the convolutions of the gimped wire from undue longitudinal slippage thereon. Preferably the metallic material employed for the gimping *a* and for the carrier core *b*, when the latter is of metallic character, is of relatively non-corrosive character; for example, copper affords a good material, both by reason of its relatively non-corrosive character as well as because of its comparatively hard nature, whereby its scraping or abrading functions are rendered more efficient.

The novel method of fabricating any of the forms of spirally convolved metallic strand above mentioned to form the transversely criss-cross interwoven loops making up the desired matted body of the scouring pad, comprises the provision of a mandrel *c* of suitable length, preferably having along one face thereof a countersunk longitudinal channel *d* in which is laid a center-tie cord or wire *e*. The spirally convolved metallic strand is wound over and around the mandrel *c* with a progressive traverse forward and back motion, whereby a diamond or criss-cross lattice pattern is executed, in which the looped strand portions interweave and inter-cross one another, as indicated at *x* in Fig. 2. The length of the thus applied and interwoven material may extend along the mandrel for such total distance as may be desired according to the size of article to be produced. The progressive back and forth traverse may be carried on as many times as desired to build up on the mandrel the desired amount of material according to the bulk and weight of the finished article to be produced. The amplitude of the back and forth traverse of the material, during the winding thereof on the mandrel *c*, may be varied according to the desired pitch of windings to be produced. In practice it has been found that pitch of three inches gives a very satisfactory result, and produces a criss-cross weave of about the proper mesh for the character of article desired.

After the interwoven metallic strand has been built up on the mandrel to the desired amount, the same is slid endwise off of the mandrel, together with the center-tie cord *e*, (when employed) which extends longitudinally through the interior of the fabricated interwoven mass or body. The mass or body thus withdrawn from the mandrel is turned endwise upon itself to bring its ends together, and the center-tie cord *e* is drawn or tightened to engage in the interior bights of the interwoven loops or strand portions, thus drawing and bunching the

same together to form a center portion from which the outwardly extending portions radiate, as shown in Fig. 1. The meeting ends of the mass or body may be further secured against separation by any suitable means, as by tying or sewing the same together with wire or cord (not shown) or by stapling or by use of any other mechanical fastening means found convenient or expedient. The center-tie cord *e* may be omitted if desired, since the interweaving of the loops of metallic strand material will, for many purposes, adequately retain the mass in its symmetrical form, when the ends thereof are brought together and secured. The use of the center-tie cord *e* is preferred, however, since it forms and maintains a concentrated center portion in the finished device calculated to maintain the form of the latter even under the most harsh and rough circumstances of use.

As the result of the described method of fabrication above set forth, a novel scouring pad is produced, such as illustrated in Fig. 1 of the drawing, in which the body or mass thereof comprises a multiplicity of interwoven criss-crossed loops of spirally convolved metallic material, said loops being interlocked one with another by their interwoven relation and contact, so that the finished pad is of more or less coarsely interstitial character, whereby cleansing fluids may be readily passed therethrough to clean and purify the same after use, while at the same time a comparatively soft, resilient mass is provided which is comfortable to the hand of the user, and easily compressible to efficiently contact with a surface desired to be scraped and cleaned therewith.

While I have shown the novel finished scouring pad in Fig. 1 as comprising an annular body formed by bunching and joining the ends of a length of the described interwoven mass of which it is basically formed together; it will be understood that the finished body may be finished in other shapes as well under the broader aspects of this invention.

Having thus described my invention, I claim:—

A method of fabricating scouring pads from a strand of abrasive metallic material, comprising looping said strand transversely around a mandrel with a progressive back and forth traversing movement longitudinally of said mandrel and over a tie cord longitudinally overlying said mandrel to thereby interweave the formed loops in criss-crossed interlocked relation, then removing the thus interwoven strand body together with said tie cord endwise from the mandrel, then drawing said tie cord around bights of said interwoven loops and securing the free ends of the same together to gather and bunch the thus engaged bights into a central portion from which the interwoven loops radiate, to thereby form a substantially round pad-like body.

DANIEL J. MAYER.