(No Model.)

D. M. CHURCH.

POLISHING OR EMERY CORD.

No. 328,004. Patented Oct. 13, 1885.

Fig. 1.

Fig. 2.

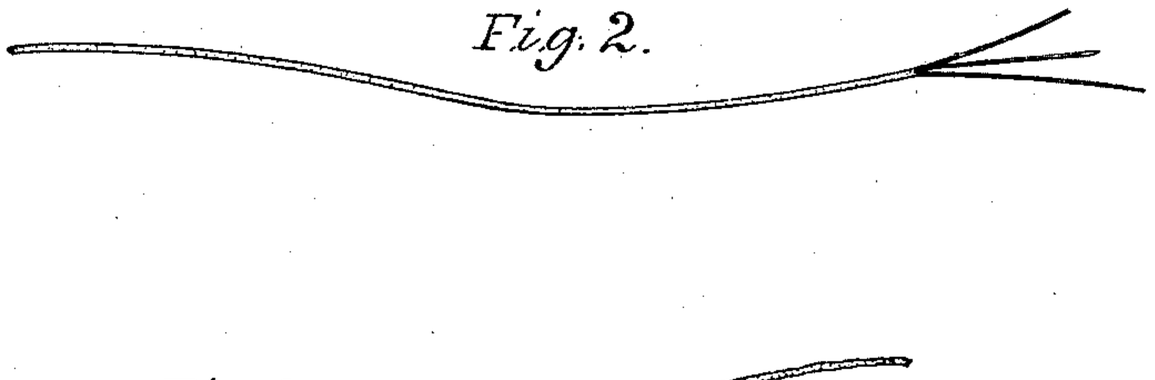


Fig. 3.

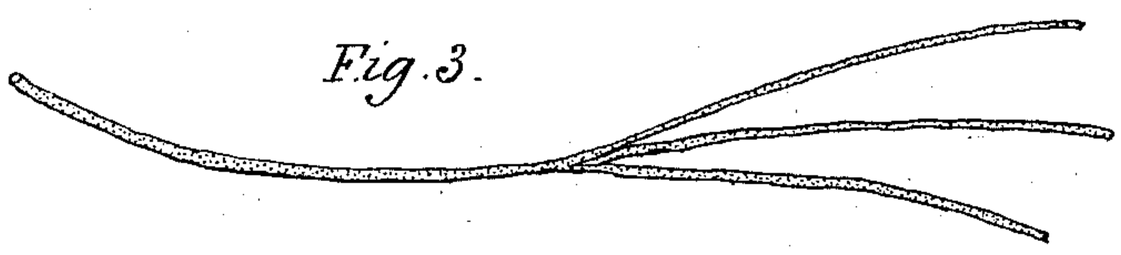


Fig. 4.

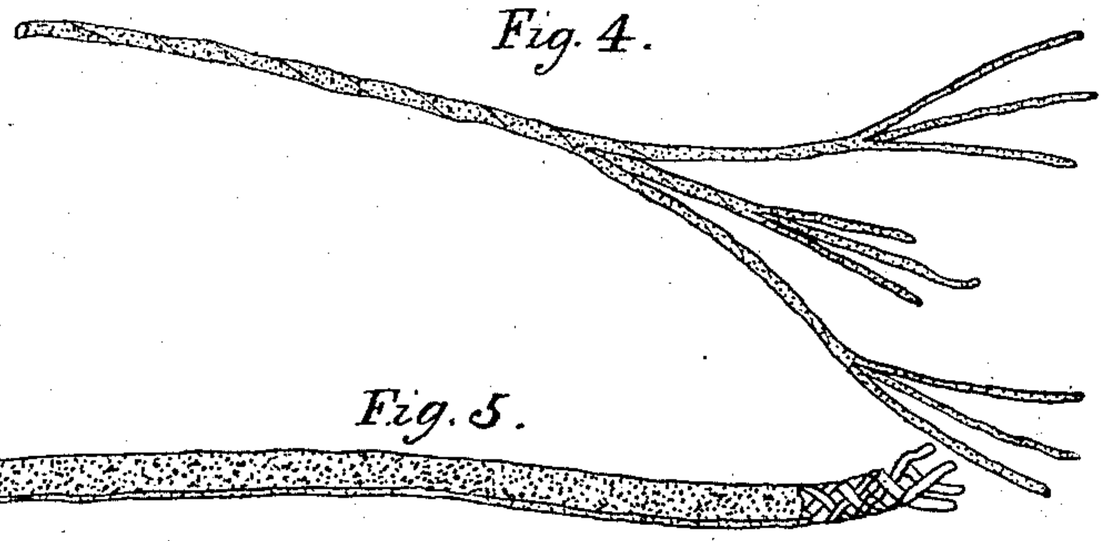


Fig. 5.

Fig. 6.

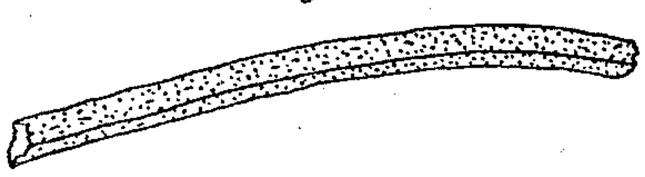
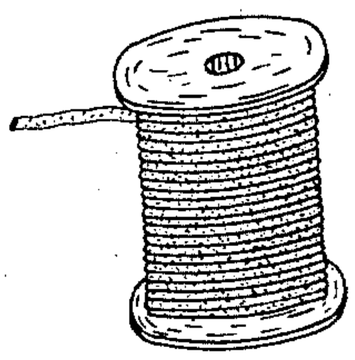


Fig. 7.



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UNITED STATES PATENT OFFICE.

DWIGHT M. CHURCH, OF BALTIMORE, MARYLAND.

POLISHING OR EMERY CORD.

SPECIFICATION forming part of Letters Patent No. 328,004, dated October 13, 1885.

Application filed August 8, 1884. Serial No. 140,031. (No specimens.)

To all whom it may concern:

Be it known that I, DWIGHT MADISON CHURCH, of Baltimore, in the State of Maryland, have invented a new and useful Polishing or Emery Cord; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Heretofore, for the purpose of polishing holes in metals, &c., in various branches of the arts, "emery-sticks" have been used composed of pieces of wood having a surface-covering of emery; also, sometimes, instead of such sticks, narrow strips of "emery-cloth" have been used, such cloth having of course only a surface-covering. The "sticks" are fragile, besides being necessarily in comparatively short pieces, and there is much loss of a greater part of these pieces, in addition to the fact that their emery coating soon wears off in whole or in part. The "cloth," also, besides having a mere surface coating of emery, must, in order to be passed through a small hole for the purpose of polishing it, be cut into strips so small and narrow as to leave it quite weak and incapable of resisting the requisite amount of pull or tension when in use without soon breaking, and the very act of cutting and adapting the strips rubs off or disposes of a large part of the emery before commencing to use the strips for polishing. In either case and in any mode now known to me there is nothing more than a mere superficial or outside covering or coating of the emery or abrading material on the cloth or stick, so that when this outer surface has been worn off the cloth or stick becomes useless for polishing purposes, and so far as I am aware no continuous emery or polishing cord of any kind has heretofore been made or used.

My invention has for its object the avoidance of these and other objections incident to the present methods; and it consists in a new article of manufacture, now to be described, and such that any desired length of uniform strong emery-cord may be furnished, and such that when the finished material is put to use not only its exterior surface, but the inside of such material, underneath its outer surface, may serve for polishing, as hereinafter explained and pointed out in the claims. My invention also permits the same cord or braid to have a coarse grade of emery or coating at its outer surface, a finer grade embodied in the cord or braid to come into action after this outer material has worn away, and, if desired, still other and finer grades embodied in the cord or braid to come yet later into action, thus enabling the same cord or braid to be continuously presenting not only fresh cutting-surfaces until the cord or braid is substantially used up, but also permitting it to cut faster and coarser at the start, and to finish finer and smoother as the cord wears away.

In the drawings, which can but imperfectly represent my invention, Figure 1 is intended to illustrate a single fine twisted thread or strand, several or any number of which serve when twisted together to form a larger thread. Fig. 2 shows such larger thread having only three strands and coated with emery or equivalent polishing material; Fig. 3, a still larger cord, made from coated strands, such as are shown in Fig. 2, and then itself also coated; Fig. 4, a still larger cord, made from coated strands or cords shown in Fig. 3, this larger cord being also coated. Fig. 5 illustrates a piece of braid the several strands of which have been coated with emery or cutting material, and in which also the several twisted threads composing such strands have been similarly coated prior to being braided, and in which the finished braid is also coated. Fig. 6 illustrates another form or shape, in cross-section, of cord or braid adapted for holes of other than round or flat form. Fig. 7 illustrates a spool of my finished cord ready for market and for use, my invention permitting the cord or braid to be made in any lengths without limit, and to be wound or put up like other common cords and unrolled only as may be needed, thus keeping the remainder intact and free from damage by handling.

Generally I take as many fine cords or strands as I need, according to the required size of the completed article, and in the process of twisting together any of such cords or strands I pass them through a compound of

hot glue or other suitable adhesive material and emery, (or equivalent material—such, for instance, as pounded glass, sharp sand, corundum, adamantine spar,) and this compound adheres to each separate cord or strand before these strands are twisted together. I then twist these strands together (see Fig. 3) while they are in this liquid compound, and then pass the twisted and coated product over suitable drying devices. Of course this product may, if desired, before leaving the heated compound or afterward, be twisted with similar ones to form a completed emery-cord of still larger size, (see Fig. 4,) and so on to any extent needed, according to the special use to which it is to be applied; or in some cases a larger finished product may be obtained by commencing with larger-sized cords.

If it be desired to have a flat polisher—as, for instance, in cases where the hole or surface to be polished is flat or oblong—I braid together several strands in this hot compound, and then run this braid through or between pressing-rolls to flatten it. (See Fig. 5.) If other shapes are required in the cross-section of the completed article (see Fig. 6)—as, for instance, triangular, square, or accurately round—I run the braid or cord, as the case may be, from the hot compound through rolls adapted to give the shape needed.

The cords or braids may be made from any desired or suitable material—such as cotton, flax, hemp, or kindred filaments—and may be fabricated as tightly or loosely as may be needed to suit the special purpose for which it is to be used.

It will now be seen that in this new article of manufacture the emery or polishing agent is not only on the exterior of the cord or braid, but is also within the same and on each separate strand; that even if a large part of that upon its outer surface be worn away by use new or other fresh portions of the emery are constantly being reached and brought into action as the cord or braid may wear away, and that as a consequence polishing can be done much faster than when using emery-sticks or emery-cloth, and that the cord, whether twisted or braided or composed both of braid and twist, is far stronger than either sticks or cloth strips, besides the incidental but yet important advantage of being capable of being made in any desired length and of any desired diameter and shape, and of being compactly wound for the market on spools or otherwise. (See Fig. 7.)

The uses to which my invention is applicable in the various mechanical arts are almost innumerable. For instance, the thread-holes in the needle-bars, hooks, shuttles, or other parts of sewing-machines, spinning-machines, knitting-machines, and wherever a hole or eye or guide is used through or over which a thread or yarn is constantly drawn, and which causes a crease or cut to be gradually worn in it, rendering it necessary to be reshaped and polished and made smooth again. It is also useful in every machine-shop, gun, or clock factory, &c.

As previously mentioned, any size of emery or abrading material may be used, according to the desired object in view, and fine material may be used for the inside of the cord and coarser for the outside.

I do not in this application illustrate any mechanism, none being herein claimed. I reserve for a future application my improvements in machinery.

I claim as a new article of manufacture—

1. An emery or polishing cord consisting of a single cord composed of twisted fibrous threads or elemental strands, each separate strand and the cord which they compose being coated with an abrading or polishing compound, substantially as and for the purposes set forth.

2. The described emery or polishing cord, consisting of a set or series of continuous cords or strands, each of which, as well as the smaller strands or strings of which they are composed, is coated with an abrading material, and which are then fabricated into a larger string or cord, which is also coated with an abrading material, all substantially as and for the purposes set forth.

DWIGHT M. CHURCH.

Witnesses:
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