(Specimens.)

J. H. BRIGGS.

SEWING THREAD OR CORD.

No. 387,207. Patented Aug. 7, 1888.

Fig. 1.

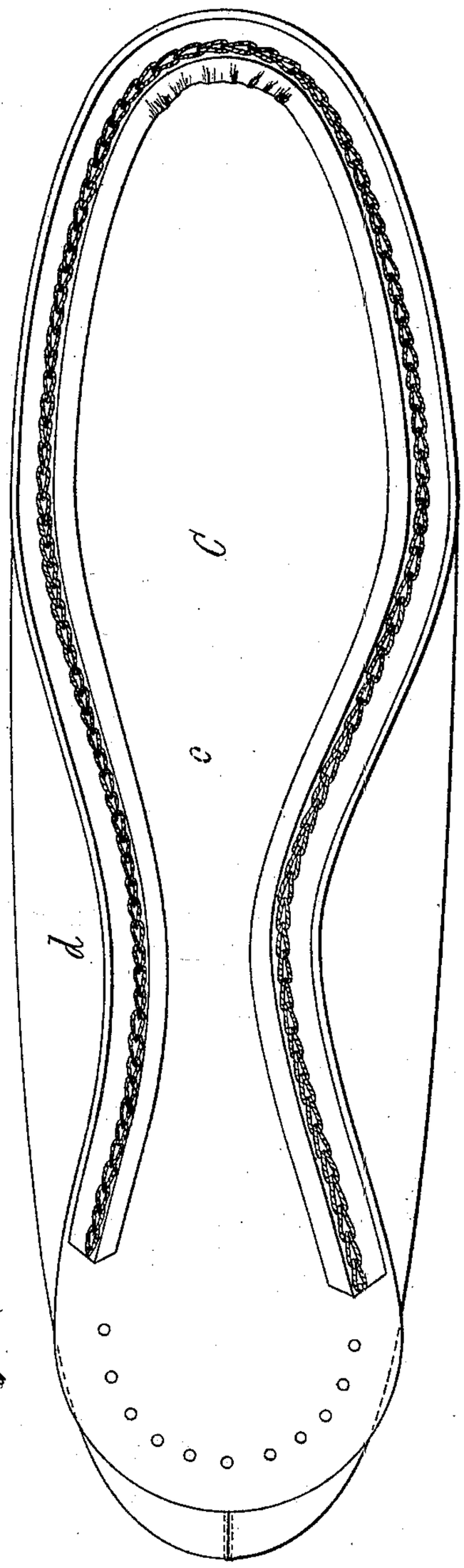
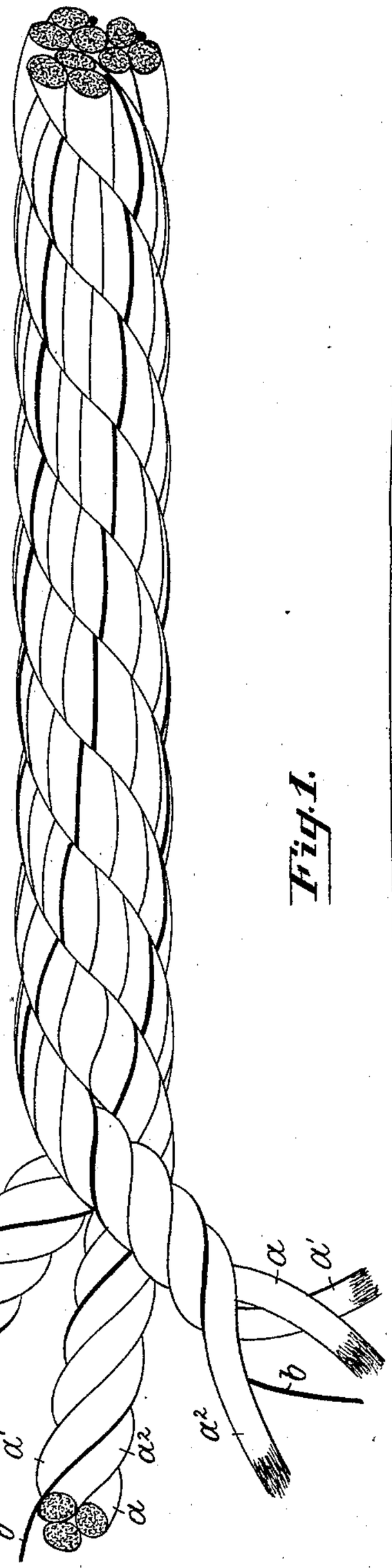


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

J. HENRY BRIGGS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO J. WALTER DOUGLASS, OF SAME PLACE.

SEWING THREAD OR CORD.

SPECIFICATION forming part of Letters Patent No. 387,207, dated August 7, 1888.

Application filed October 12, 1887. Serial No. 252,143. (Specimens.)

To all whom it may concern:

Be it known that I, J. HENRY BRIGGS, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Sewing Thread or Cord, of which the following is a specification.

My invention relates to threads for sewing and other purposes, and is an improvement upon the thread or cord shown and described in Letters Patent granted and issued to me under date of August 3, 1886, and numbered 346,577.

The object of my invention is to provide an improved thread for sewing boots, shoes, &c., composed of two or more strands of filamentous material—such as flax or other vegetable or animal material—and one or more metallic wires, the filamentous strands and wire or wires being intertwisted spirally and the said wire or wires lying between and parallel with the filamentous strands. In this manner I form an inelastic pliable thread for sewing boots and shoes without covering the same with shoe-makers' wax, which it is eminently desirable to dispense with, because the wax in cold weather granulates and in warm weather becomes soft and soils the inside lining of the shoe or boot, and is more or less absorbed by the leather.

It is a mistaken idea generally entertained by boot and shoe manufacturers that the use of wax is absolutely essential to the working of a thread into shoes, more particularly such as are made by machinery, and, furthermore, that the wax tends to strengthen the thread. I have found, by practical tests made, that waxed threads possess no more strength than unwaxed threads. I have also found that detrimental oxidation of the wire that I combine with the fibrous material of my thread, which one would suppose might occur and might impair the strength and durability of the thread, does not and will not occur, which I attribute principally to the frictional action constantly taking place on the part of the thread in the boot or shoe in its use by the wearer.

I am aware that it has been attempted to sew boots and shoes with a thread composed of one or more metallic wires having fibrous material laid around the wire and the material then coated with shoe-makers' wax; and I am also aware that it has been attempted to corrugate the wires before twisting or laying the fibrous material around the same and then coating the material with shoe-makers' wax.

My improved thread, which is intended to be used without shoe-makers' wax thereon, is especially adapted for use on a McKay or Goodyear machine. It possesses all the characteristic features essential to the utility of a thread for sewing boots and shoes by machinery, and has greater strength by actual tests of twenty per cent. than the ordinary waxed thread or unwaxed thread now in the market. It can be made at much less cost than the ordinary waxed thread. It possesses greater durability without detrimental oxidation, and it is practically inelastic and perfectly pliable in its nature.

The inelastic feature of this thread as far as I am aware has not been presented in any of the threads composed of fibrous material and wire with wax thus far manufactured or used for the sewing of boots and shoes, and the lack of which feature in them has been the main reason why such threads have not been used to any extent or met with general favor among shoe-manufacturers, and then my improved thread can be used on a McKay machine without a waxing device connected therewith.

The thread is simply wound, by preference, upon spools readily mounted on a tension device and the tension regulated and the delivery of the thread to the needle of the machine managed as easily and economically as to time and labor as is the ordinary thread in its use on a sewing-machine.

My improved thread with its characteristic features in its application to the manufucture of boots and shoes is fully illustrated in the accompanying drawings in forms found practically efficient; and in which—

Figure 1 is a bottom view of a boot or shoe having the outer sole sewed to the insole and upper with the inelastic pliable thread of my improved manufacture. Fig. 2 is a side elevation, on an enlarged scale, of the improved inelastic thread. Fig. 3 is a similar view, on an enlarged scale, of a "three-ply" thread,

such as I make by laying together three of the "single-ply" threads shown in Fig. 2.

Referring to the accompanying drawings, *a*, *a'*, and *a*^{2} represent the strands of fibrous material, each composed of one or more single filamentous strands of flax or other suitable vegetable or animal material.

b and *b'* represent fine wires consisting of iron, copper, brass, or other metal.

In the production of my thread the filamentous or fibrous strands are intertwisted together, the wire or wires lying in the twisted thread between the filamentous strands and parallel therewith, as clearly shown in Fig. 2.

The single-ply thread made in this manner is adapted for light machine-work for sewing the outer sole to the insole or upper of ladies' and misses' shoes, or for inseaming or "fair" stitching and other light work in connection with shoes or slippers.

In Fig. 3 I have shown what I have designated as a "three-ply" cord, which consists of three threads or strands each, such as shown in Fig. 2, and consisting of strands of filamentous vegetable or animal material with a single metallic wire, *b*, intertwisted spirally with the three strands *a*, *a'*, and *a*^{2}. The three strands of wire and filamentous or fibrous material combined are twisted together, preferably in the opposite direction to that in which the component strands of each primary thread are intertwisted. This forms a strong and durable thread of an inelastic and pliable nature, and such a cord or thread as I have used with practical success on a McKay machine for sewing shoes and boots. Similarly have I used on such a machine a thread having but three single filamentous strands and three single metallic wires intertwisted spirally therewith, so that it is possible to reduce the size of the needle used in such machines and likewise the size of the hole made thereby in the leather, and the loose fibers extending from the cord will tend to fill up these holes in the leather, and thereby taking the place of the shoe-makers' wax heretofore used. In making the cord shown in Fig. 3 the two or more threads and wire combined constituting the thread may be laid up or twisted in the same direction as that in which the fibrous strands and wires of the individual threads are primarily twisted together, if so desired; but I have found that the best results are obtained by laying the wired fibrous strands up to form the thread in the opposite direction to that in which the said fibrous strands and wires are intertwisted together.

I wish it to be distinctly understood that my thread, whether a single-ply thread, as shown in Fig. 2, or a three-ply thread, as shown in Fig. 3, is to be used in the art without the use of shoe-makers' wax, which I have found can be dispensed with in practice. In the use of wire or wires corrugated previous to it or their being combined with the fibrous material the wire or wires "break short," impairing the utility of the thread in use.

In Fig. 1 I have shown the manner of sewing the outer sole, *c*, to the upper *d* and insole of a shoe, C, with the improved thread hereinbefore fully described without the use in connection therewith of shoe-makers' wax.

In the manufacture of sewing-cord described and claimed in my said Letters Patent I employed strands of filamentous material having twisted spirally around the same a single metallic wire, while in my present invention, instead of merely wrapping the metallic wire around the exterior of the filamentous material, I intertwist the fibrous strands and metallic wire or wires in such a manner that the wire or wires has or have in the thread or cord substantially the same position as the fibrous strands—that is to say, the wire or wires lying between the fibrous strands and parallel therewith.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

An improved sewing-thread composed of two or more strands of filamentous material and a metallic wire or wires, the said filamentous strands and wire or wires being twisted together, as described, and the said wire or wires lying between and parallel with the filamentous strands, as shown and described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. HENRY BRIGGS.

Witnesses:
THOMAS M. SMITH,
HERMANN BORMANN.