(No Model.) 2 Sheets—Sheet 1.

G. HOOKHAM.

LINE OR CORD FOR SUSPENDING PICTURES, &c.

No. 387,975. Patented Aug. 14, 1888.

Fig 1.

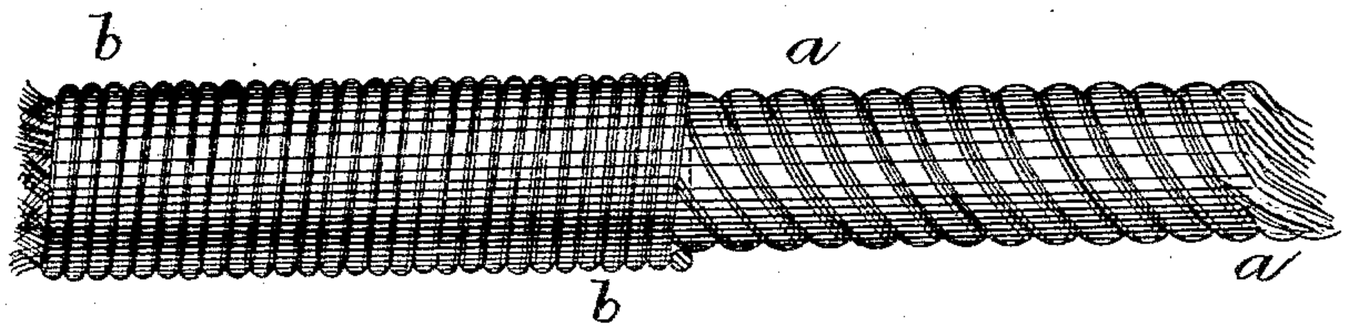
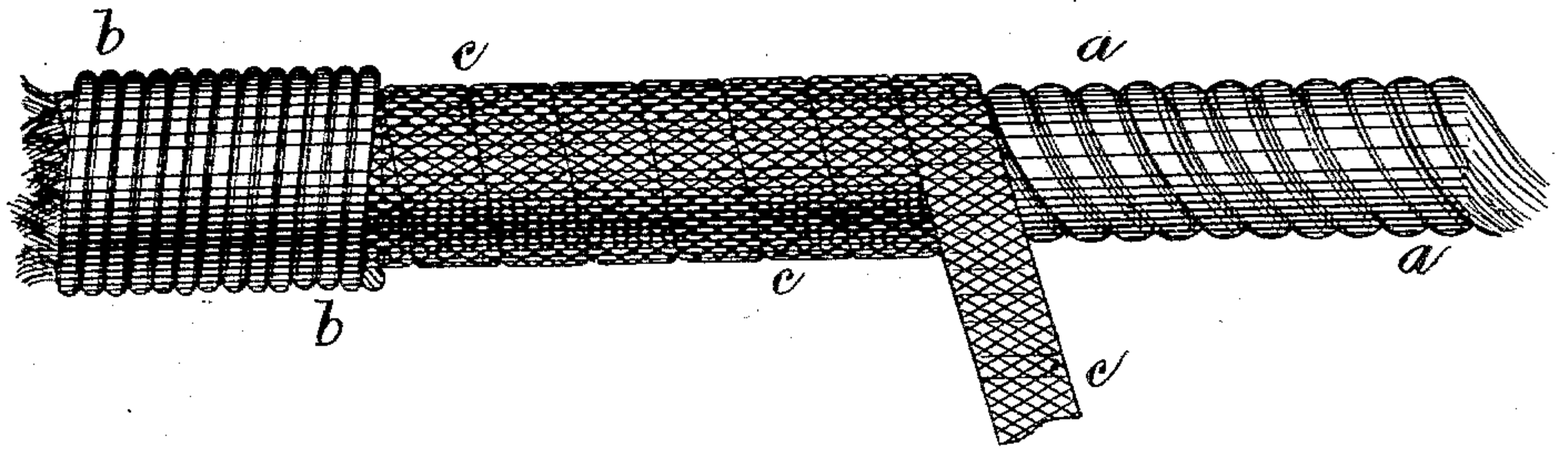


Fig 2.



Witnesses;-
George Shaw.
Richard Skerrett.

Inventor:
George Hookham

(No Model.) 2 Sheets—Sheet 2.

G. HOOKHAM.

LINE OR CORD FOR SUSPENDING PICTURES, &c.

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Fig. 3.

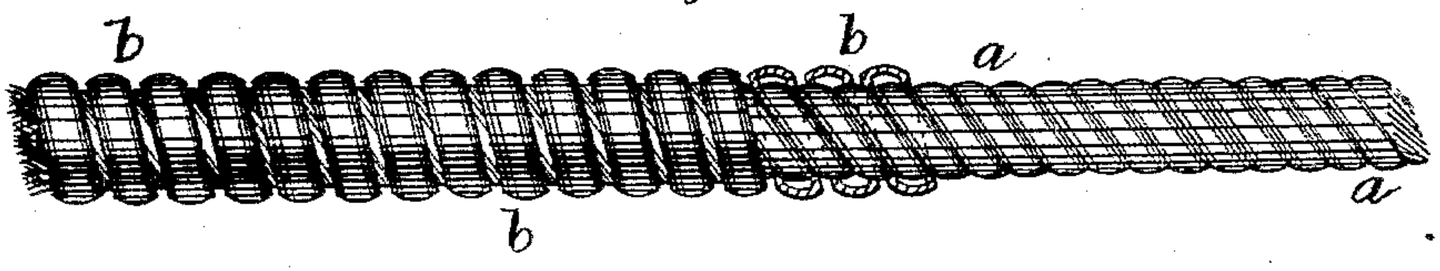


Fig. 4.

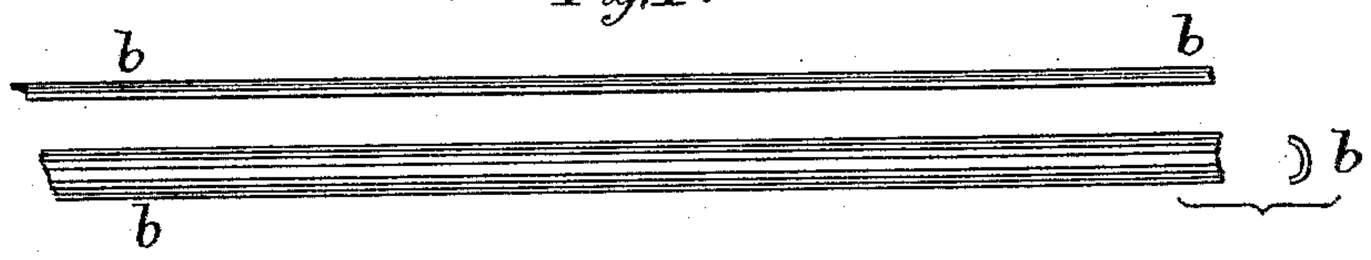


Fig. 5.

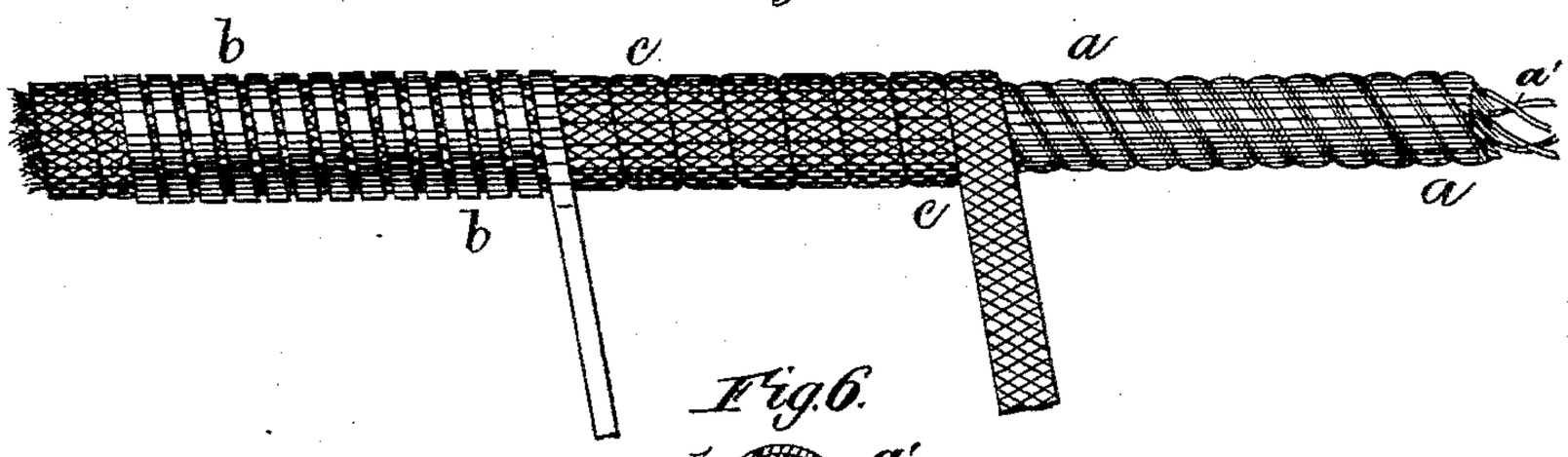
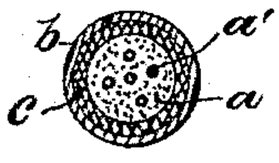


Fig. 6.



Witnesses;-
George Thaw.
Richard Skerrett.

Inventor;-
George Hookham.

UNITED STATES PATENT OFFICE.

GEORGE HOOKHAM, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND,
ASSIGNOR OF ONE-HALF TO WILLIAM HENRY TONKS, OF SAME PLACE.

LINE OR CORD FOR SUSPENDING PICTURES, &c.

SPECIFICATION forming part of Letters Patent No. 387,975, dated August 14, 1888.

Application filed November 2, 1887. Serial No. 254,126. (No model.) Patented in England June 9, 1885, No. 7,033, and September 16, 1885, No. 10,982.

To all whom it may concern:

Be it known that I, GEORGE HOOKHAM, of Birmingham, in the county of Warwick, England, a subject of the Queen of Great Britain, have invented Improvements in Lines or Cords for Suspending Pictures, Window-Sashes, and Chandeliers, and for other Purposes, (for which I have obtained Letters Patent in Great Britain, No. 7,033, bearing date June 9, 1885, and Letters Patent No. 10,982, bearing date September 16, 1885,) of which the following is a specification.

In making according to my invention a line or cord for suspending pictures, window-sashes, and chandeliers, and for other purposes I prepare a line of hemp or cotton or other strong vegetable fiber either by twisting or plaiting, and I make the said hemp or fibrous line water-proof or nearly water-proof by impregnating it with wax or paraffine or other waterproof material or composition. I cover or partly cover the said waterproofed line (which I will afterward call the "solid core") with a helical coil of annealed or soft wire, preferably of copper or brass. Where great strength with small diameter is required, the solid core may have twisted fine wire, *a'*, in its axis. The covering of the said solid core with wire is effected by ordinary wire-coiling machinery. The helical wire covering upon the core may be so coiled thereon that the several convolutions are either close together or in contact, or are not made in contact, but are separated, say, to a distance about equal to one-fourth of the diameter of the wire, or of its longest diameter if the said wire is not cylindrical. It is preferred to make the wire coil of the separated convolutions of flat or slightly convex wire. Wire of this kind has the advantage of a larger bearing-surface both on the core and on the suspending pulley, hook, or nail than wire of a cylindrical figure; but the separated coils may be made of cylindrical or other shaped wire. In all cases, however, the convolutions are kept separated by a distance about equal to one-fourth of the largest diameter of the wire.

Where it is wished to lacquer the covering-wire, I prefer to cover the solid core with a tape or strip of woven fabric saturated with india-rubber or other like waterproofing material prior to covering the said core with wire. The said covering of tape prevents the wax or paraffine being forced from the solid core and coating the wire more or less, and also forms an additional protection to the solid core against moisture.

The line or cord made as described can be conveniently tied in a knot for the purpose of suspending pictures and for various other purposes by stripping off the wire for a short distance and tying a knot in the fibrous or solid core.

In the drawings, Figure 1 is an elevation of a cord the coils of the outer wire covering of which are in close contact with each other. Fig. 2 is an elevation showing a strip of woven fabric interposed between the core and wire covering. Fig. 3 is a view, partly in elevation and partly in section, showing the convolutions of the wire covering separated a short distance apart. Fig. 4 represents in edge, top, and end views a portion of the metallic covering-wire. Fig. 5 is an elevation in which a flat wire is used for the separate convolutions, and also shows the fine wire in the core protruding at one end; and Fig. 6 is a transverse section of Fig. 5.

The line or cord consists of a solid core of hemp or cotton or other strong vegetable fiber (marked *a*) made by twisting, as represented, or by plaiting, the said core being waterproofed by impregnating it with wax or paraffine or other waterproofing material or composition. The waterproofed core *a* is covered with a helical coil of soft cylindrical wire, (marked *b*,) the convolutions of the covering-wire *b* being in close contact, as shown in Figs. 1 and 2. By the waterproofing of the core *a* and covering it with a helical wire covering the said core is preserved from the action of the atmospheric air and moisture, and consequently from decay.

The core *a* may, if desired, have twisted fine wire, *a'*, in its axis, thus imparting increased longitudinal strength to the cord. Before the metallic covering-wire is wound on the core there may be wound thereon a tape or strip of

woven fabric, *c*, as shown in Figs. 2 and 5, said tape or strip saturated with india-rubber or other waterproofing material.

As before explained, instead of using a cylindrical covering-wire, I may use one slightly convex in cross-section, as shown in Figs. 3 and 4, so that its edges will slightly penetrate into or take a firm bearing against the fibrous core *a*, upon which it is coiled, and the slipping or movement of the coil upon the core will be effectually prevented; or I may use, as shown in Fig. 5, a flat covering-wire. The covering-wire *b* may also be coiled upon the core *a*, so that the convolutions will be separated a short distance apart, as shown in Figs. 3, 4, and 5.

I wish it distinctly understood that the covering-wire *b* wound upon the core *a* is not for the purpose of increasing the longitudinal strength of the cord, but merely for a flexible protection to the cord proper.

Having now particularly described and ascertained the nature of my invention, I declare that I claim—

1. A line or cord for suspending pictures and other articles, consisting of a core of waterproofed vegetable fiber having wound thereon a helical wire covering, substantially as described.

2. A line or cord for suspending pictures and other articles, consisting of a solid core of vegetable fiber, a waterproofed strip of woven fabric covering said core, and a helical coil of wire wound upon said strip, substantially as described.

3. A line or cord for suspending pictures and other articles, consisting of a core of waterproofed vegetable fiber and a helical coil of wire convex in cross-section wound upon said core, substantially as described.

4. A line or cord for suspending pictures and other articles, consisting of a core of waterproofed vegetable fiber and a helical coil of wire wound upon said core, the convolutions of which are slightly separated, substantially as described.

GEORGE HOOKHAM. [L. S.]

Witnesses:

GEORGE SHAW,

RICHARD SKERRETT.