

G. HOOKHAM.

Metallic Line or Cord and Fastening for Suspending  
Pictures, &c.

No. 236,031.

Patented Dec. 28, 1880.

FIG II

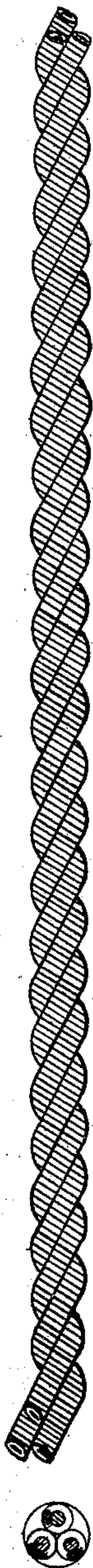
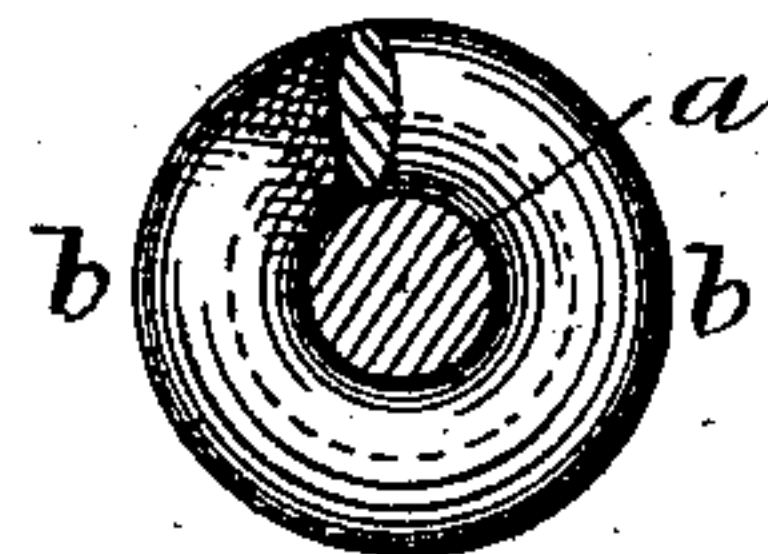
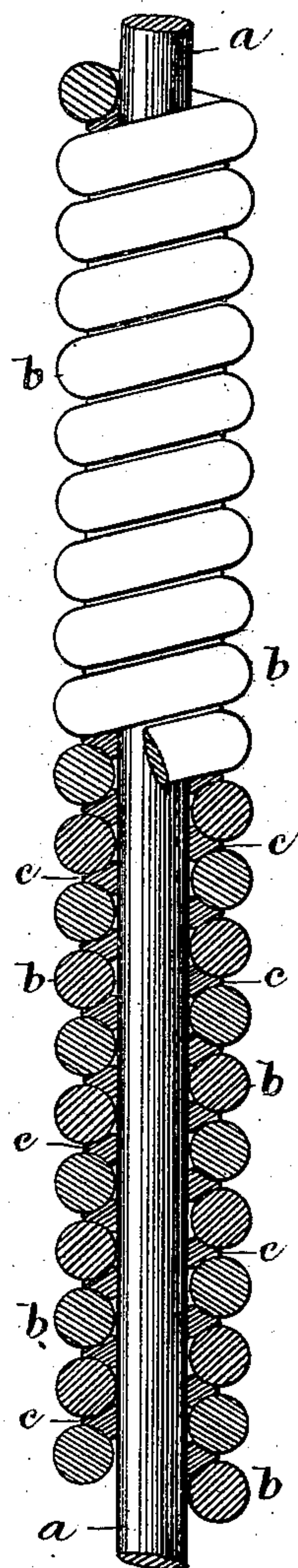


FIG I



Witnesses,  
*George Shaw*  
*Richard Bennett*

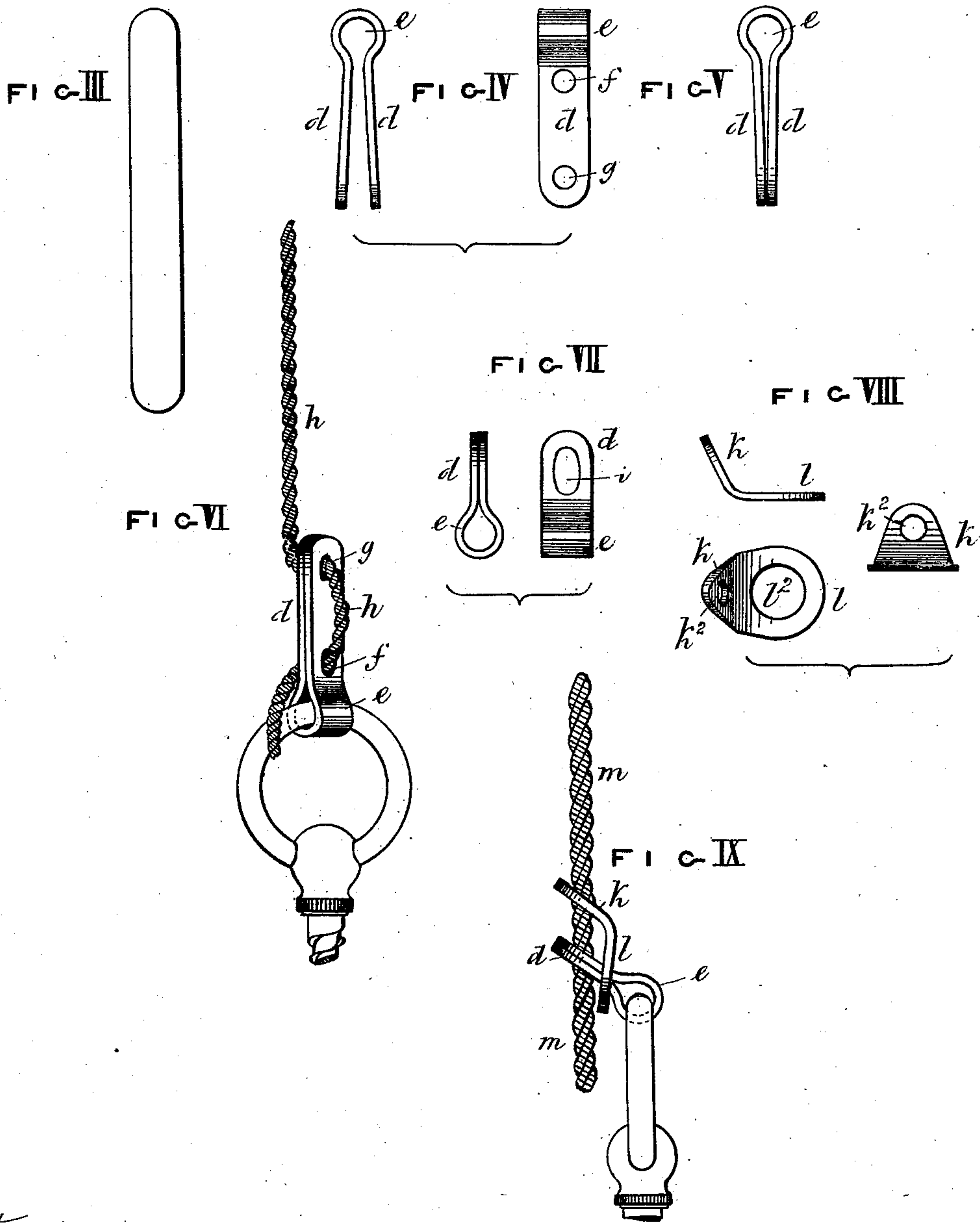
Inventor  
*George Hookham*

G. HOOKHAM.

Metallic Line or Cord and Fastening for Suspending Pictures, &c.

No. 236,031.

Patented Dec. 28, 1880.



Witnesses,  
George Shaw  
Richard Kenett

Inventor  
George Hookham



# UNITED STATES PATENT OFFICE.

GEORGE HOOKHAM, OF BIRMINGHAM, COUNTY OF WARWICK, ENGLAND,  
ASSIGNOR OF ONE-HALF TO ALFRED LUDLOW, OF SAME PLACE.

METALLIC LINE OR CORD AND FASTENING FOR SUSPENDING PICTURES, &c.

SPECIFICATION forming part of Letters Patent No. 236,031, dated December 28, 1880.

Application filed March 13, 1879. Patented in England March 24, 1876, and November 2, 1878.

*To all whom it may concern:*

Be it known that I, GEORGE HOOKHAM, of Birmingham, in the county of Warwick, England, manufacturer, have invented new and useful Improvements in Metallic Lines or Cords and Fastenings for Suspending Pictures and for other Purposes, which improvements are fully set forth in the following specification, reference being had to the accompanying  
10 drawings.

My invention consists, first, of the improvements hereinafter described, and illustrated in the accompanying drawings, in metallic lines or cords for suspending pictures and window-sashes, and for other like purposes.  
15

My invention consists, secondly, of the improvements hereinafter described, and illustrated in the accompanying drawings, in fastenings for connecting pictures and other articles to lines or cords.  
20

My improvements in metallic lines or cords for suspending pictures and window-sashes, and for other like purposes, consist in constructing the said lines or cords of steel wire covered with a binding of copper or brass wire, and having, in addition, a binding of cotton or other thread impregnated with wax or other water-proof material. The wire binding is for the purpose of ornamentation, and is not subject to any tensile strain, and is wound around the core in a close spiral, or spiral of small pitch. The strain is borne entirely by the core. The cord is essentially different in this respect from a wire rope having a central core.  
25 In such an article the "wire binding," if it may be so called, is coiled about the core at a very slight angle, so as to bear the tensile strain to which it is to be subjected, and is necessarily composed of a large number of strands; whereas in the present invention the angle is very large, and the binding is preferably of a single wire, producing a highly-ornamental appearance. The wire binding preferably employed is a metal non-corrodible under ordinary atmospheric conditions, such as brass or copper. The said binding of waxed thread is coiled upon the steel wire forming the core of the line at the same time as the copper or brass wire, and fills up, or nearly  
30  
35  
40  
45

fills up, the space between the coils of the copper or brass wire and the steel-wire core. The said waxed thread protects the steel from the action of moisture, especially at any part or parts of the line which may be bent. At such places the coils of the copper or brass wire separate on the convex side of the curve or bend, and but for the under coating of waxed thread the steel at those parts would be exposed.  
50  
55

The core of the line may consist of a single steel wire or of two or more steel wires. In place of steel wire for the core, iron wire may be substituted, and metals and alloys other than copper and brass may be substituted for the covering-wire. Threads of other fibrous material may be substituted for the cotton threads described.  
60  
65

Figure I represents, partly in elevation and partly in longitudinal section and in end elevation, drawn to a large scale, a piece of metallic line made according to my invention.  
70

In the said Fig. I, *a* represents the central steel wire or core of the line, *b* the copper or brass binding or covering wire, and *c* the binding or covering of waxed thread or other waterproofing material. The bindings of copper or brass wire and waxed thread *b c* are simultaneously coiled upon the central core, *a*, the coils of waxed thread alternating with the wire of copper or brass *b*, as represented. The waxed or protecting thread *c* has a cylindrical figure when coiled upon the core *a*; but by the coiling of the copper or brass wire *b* the said waxed thread *c* is compressed and made to take the figure represented in the drawings. By an examination of the drawings it will be seen that the coils of waxed thread *c* fill up, or nearly fill up, the space between the coils of copper or brass wire *b*, the said coils of waxed thread protecting the steel wire or core *a* from the action of moisture. As shown in the drawings, the wire *b* is coiled around the core *a* in close spirals, or spirals having a small pitch.  
75  
80  
85  
90

I prefer to employ covering-wire of about the same diameter as that of the steel wire or core; but I do not limit myself to any particular proportions.  
95

Where a compound line is required two,



three, or more of the said single lines are coiled or twisted upon one another after the manner of twisting the strands of a rope, so as to form a compound line or cord. A piece of compound line or cord consisting of three single lines or strands coiled upon one another is represented in Fig. II.

My improvements in fastenings for connecting pictures and other articles to metallic lines or cords are represented in Figs. III, IV, V, VI, VII, VIII, and IX of the accompanying drawings.

My improved fastenings are specially adapted to be used in conjunction with the metallic picture and other line or cord herein first described, but may be used with other lines or cords.

I will describe my improved fastenings in connection with the hanging of a picture by means of the metallic line or cord before described.

In making a fastening according to my invention I take a strip of copper or other strong sheet metal or alloy and bend or double it upon itself at its middle, the bending being effected around a cylindrical rod or otherwise, so as to leave the bend of a tubular figure. The arms or parts doubled on one another are in contact. Two holes, at a short distance apart, are made through the doubled arms.

Fig. III represents the blank from which the fastening is made, and Fig. IV represents elevations, taken at right angles to one another, of the fastening made by bending or doubling the strip, Fig. III, as described.  $d d$  are the arms or doubled parts of the fastening, and  $e$  the tubular end.  $f g$  are the holes in the arms  $d d$  for the metallic line or cord to pass through, the said holes being, by preference, punched in the doubled arms. The arms  $d d$  of the fastening, when in use, are closed upon one another, as illustrated in Fig. V and in the perspective view, Fig. VI.

In using the fastening the arms  $d d$  are sufficiently separated, as seen in Fig. IV, to permit the ring of the picture-frame to be suspended, being introduced into the tubular end  $e$  of the fastening. The said arms  $d d$  are then closed upon one another, as seen in Figs. V and VI, and the end of the metallic line or cord  $h$  is passed a short distance through the hole  $g$  in the closed arms most distant from the bend  $e$ . The end of the line or cord  $h$  is then bent or turned and passed through the other hole,  $f$ , in the arms of the fastening, as represented in Fig. VI, a length of about an inch of the cord protruding through the last-named hole. The connection of the picture line or cord  $h$  to the fastening is now complete, no amount of strain which the line or cord and fastening will bear sufficing to draw the line or cord from the holes  $f g$  in the fastening. Both rings of the picture-frame are or may be connected to the suspending line or cord  $h$  by a fastening of the kind described and represented.

Where a very light fastening is required

one of the arms  $d$  may be dispensed with, the fastening in that case consisting of a single strip of metal with a tubular termination or hook,  $e$ , at one end and two holes in the unbent part of the strip. This modification of my invention may be made capable of carrying a great weight when it is made of strong sheet metal.

Where a very strong fastening is required I make it in two parts in the following manner: One of the parts consists of the folded strip of metal hereinbefore described, in which a slot or elongated opening is made, instead of two holes. The other part, which I will call the "angular part," consists of a plate having two holes in it, one sufficiently large for the line or cord to pass through and the other hole large enough for the arms of the first-named or doubled piece to pass through. The part of the plate containing one of the holes is bent nearly at right angles to the part containing the other hole.

The two parts of the fastening last described are represented detached in Figs. VII and VIII and connected together for use in conjunction with a metallic line or cord in Fig. IX. The part of the fastening represented in Fig. VII is constructed as hereinbefore described, and represented in Figs. IV and V, excepting that its arms  $d d$  are provided with a single slot or elongated opening,  $i$ , and the other or angular part of the fastening is represented in Fig. VIII and marked  $k l$ . The small hole, for the line or cord to pass through, is marked  $h^2$ , and the large hole, for the closed arms  $d d$  of the part of the fastening, Fig. VII, to pass through, is marked  $l^2$ .

In using this fastening the closed arms  $d d$  of the part, Fig. VII, to the tube or eye  $e$  of which the ring of the picture-frame has been connected, is passed through the large hole  $l^2$  in the angular part, Fig. VIII, as illustrated in Fig. IX. The line or cord  $m$  is now passed first through the small hole  $h^2$  in the angular part, and then through the slot  $i$  in the other part,  $d$ , of the fastening. When tension is applied to the line or cord  $m$  the folded part  $d$  is drawn into a position approaching parallelism to the line or cord, as illustrated in Fig. IX, in which position the line or cord is gripped tightly between the angular part  $k l$  and the end of the slot of the folded part  $d$ . By relaxing the tension on the line or cord the unfastening or the adjustment of the length of the line or cord can be readily effected in any of the arrangements of my invention.

I do not claim a wire rope formed of a series of wires coiled about a core of wire and wormed with hemp or other yarn saturated with oil, as this is essentially different from my invention, but limit myself to a cord in which the wire forming the binding is coiled in close spirals around the core, so as not to be subjected to a tensile strain when in use. The improved cord hereinbefore described differs in its preferred form from the above-mentioned wire rope in the use of wire, of



brass, or copper, or similar ornamental and non-corrodible metal as the binding.

Having now described the nature of my invention and the manner in which the same is to be performed, I wish it to be understood that I claim as my invention—

1. As a new article of manufacture, a picture or sash cord composed of the following parts in combination: first, a steel wire or core of required resistance to tensile strain, capable of flexure, but practically non-extensible, as set forth; second, a ductile and inelastic metal wire coiled around said steel wire in a close spiral, or spiral of small pitch, for mere ornamentation, as set forth; third, a yarn or thread waxed or otherwise rendered water-proof and coiled around the steel wire, so as to fill the interstices between it and the ornamental wire, as set forth.

2. A picture or sash cord composed of two or more strands, twisted as described, each strand being composed of a steel core, an ornamental wire coiled in a close spiral, or spiral of small pitch, and waxed thread, substantially as shown and described.

3. A fastening having at one end two rounded openings and at the other a tubular bend, the said tubular bend being formed in a metallic strip doubled upon itself, and the latter being perforated through both arms with at least one of the aforesaid rounded openings, substantially as described.

GEORGE HOOKHAM. [L. S.]

Witnesses:

GEORGE SHAW,

RICHARD SKERRETT,

*Both of No. 37 Temple Street, Birmingham.*