

E. G. CONE.
BOBBIN THREAD HOLDER.
APPLICATION FILED NOV. 15, 1909.

954,562.

Patented Apr. 12, 1910.

Fig. 1.

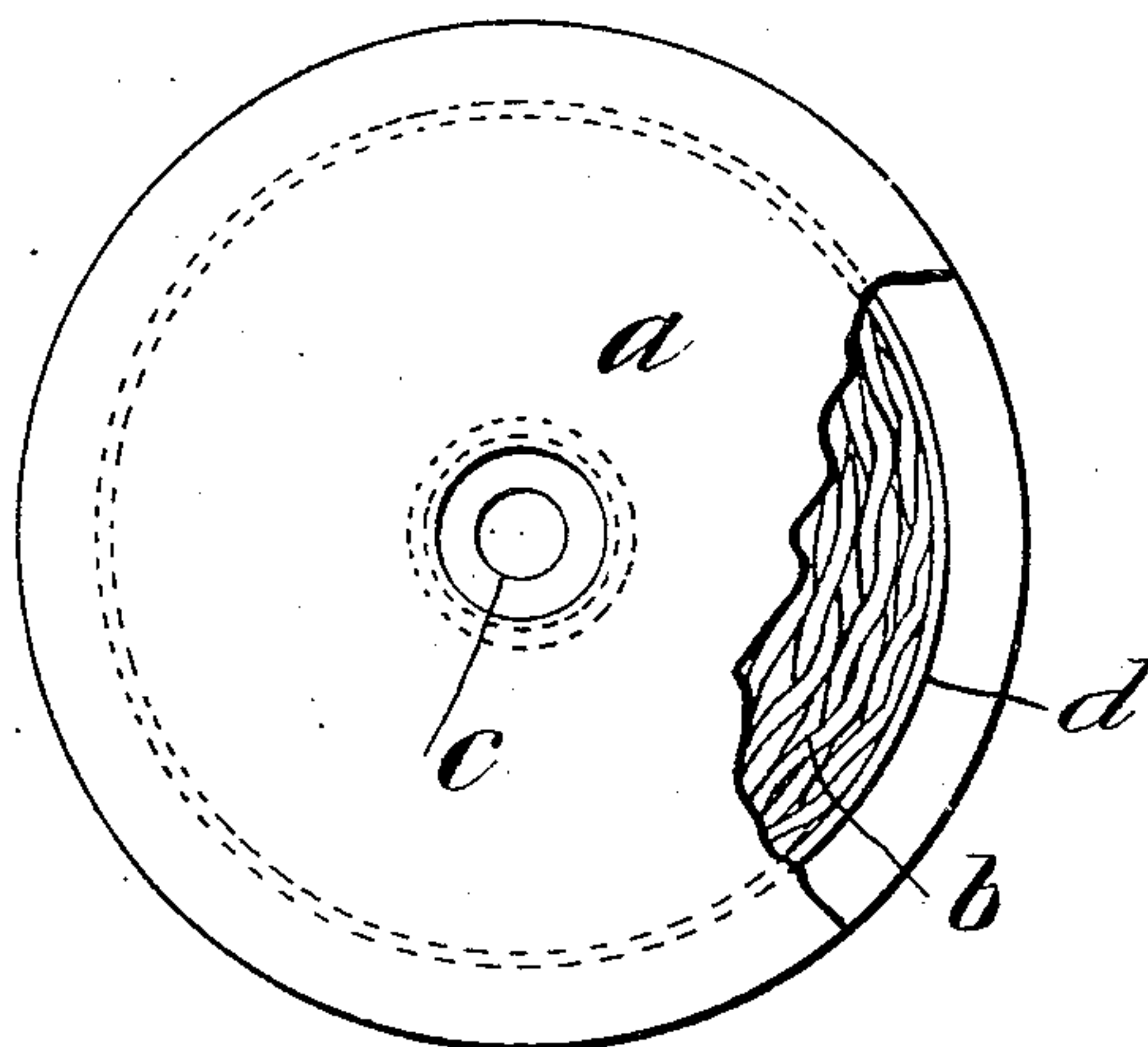


Fig. 2.

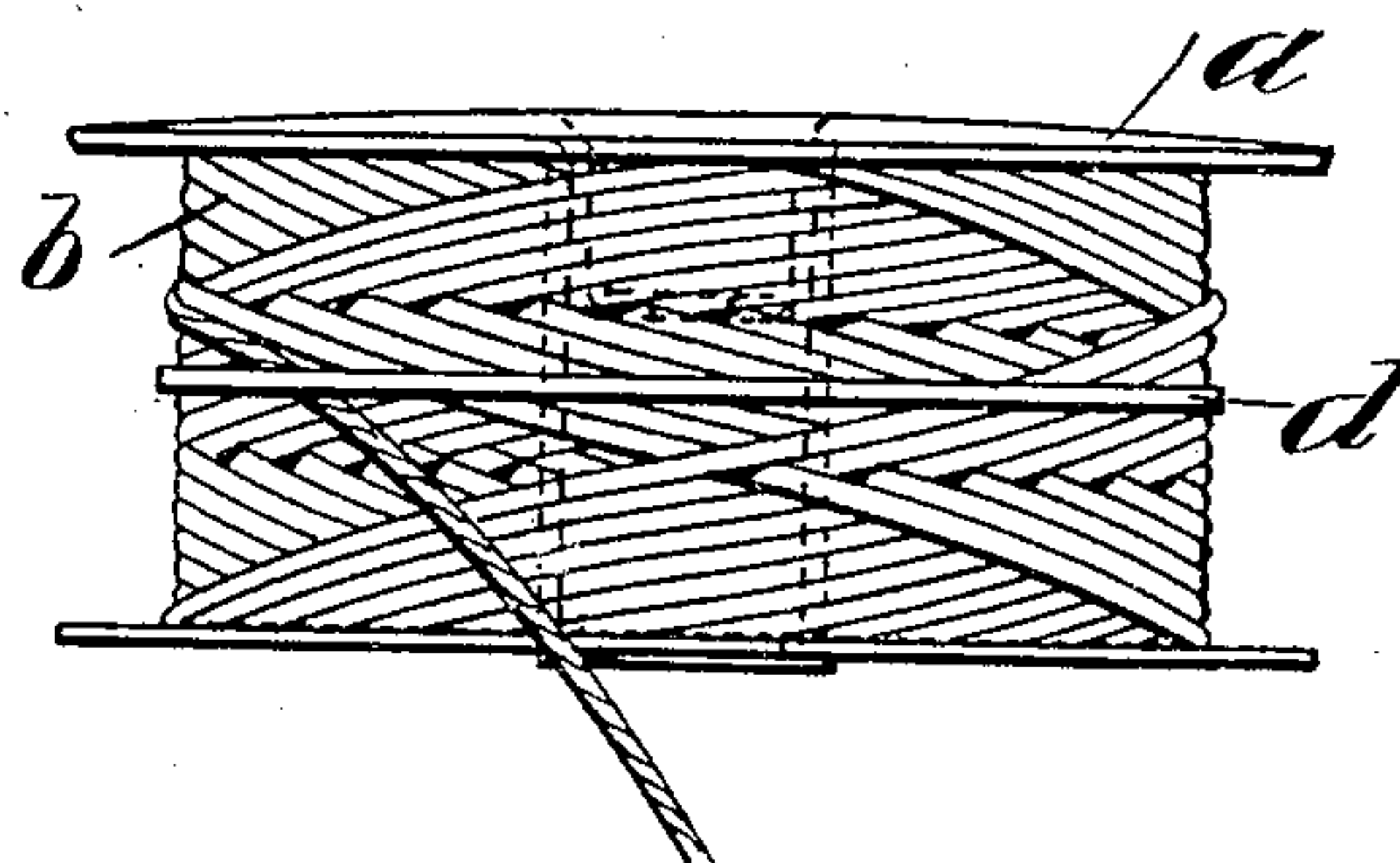


Fig. 3.

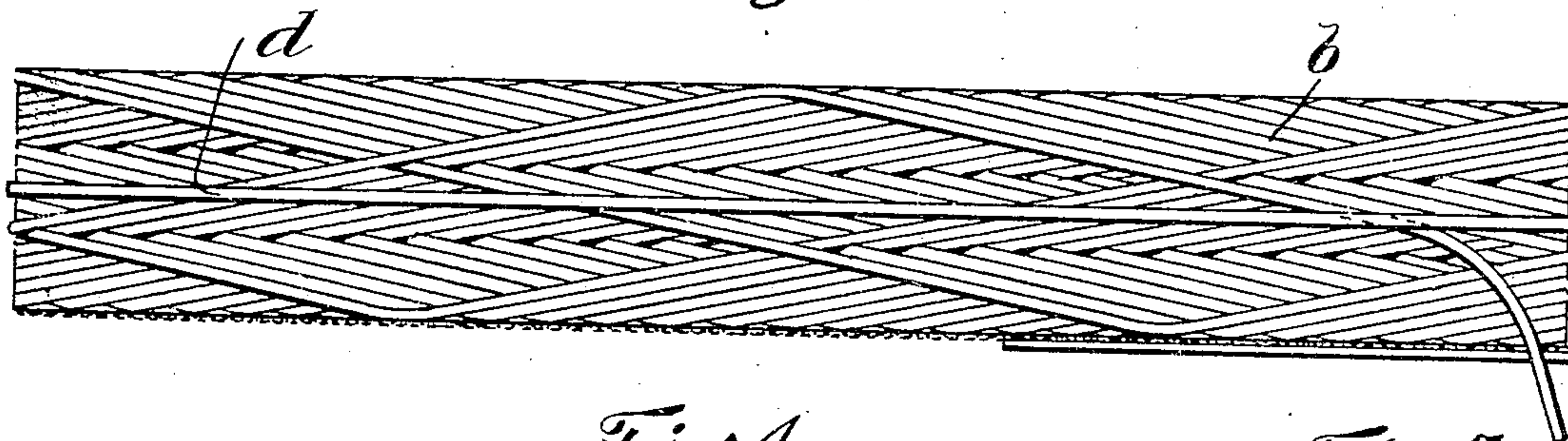


Fig. 4.

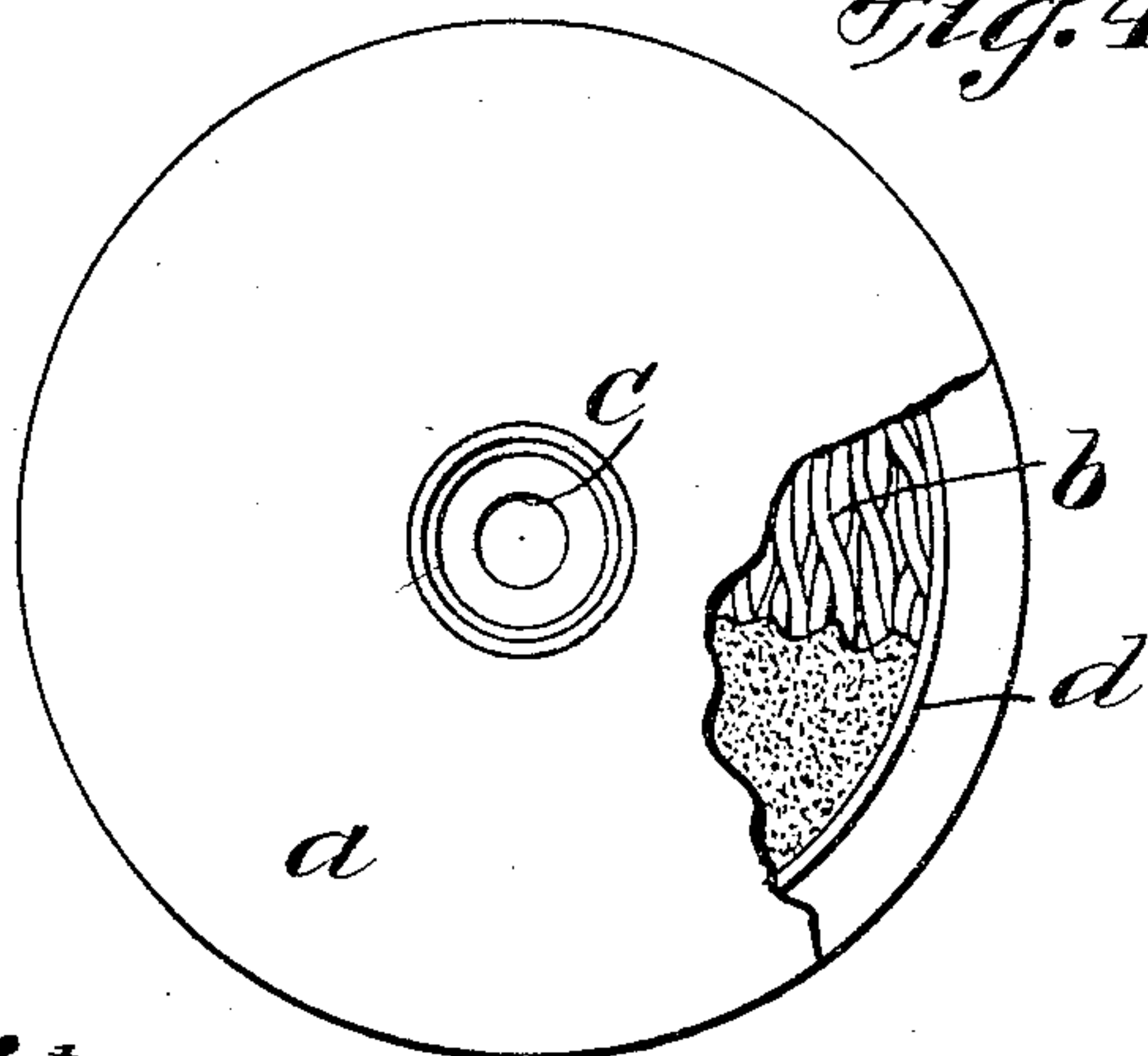
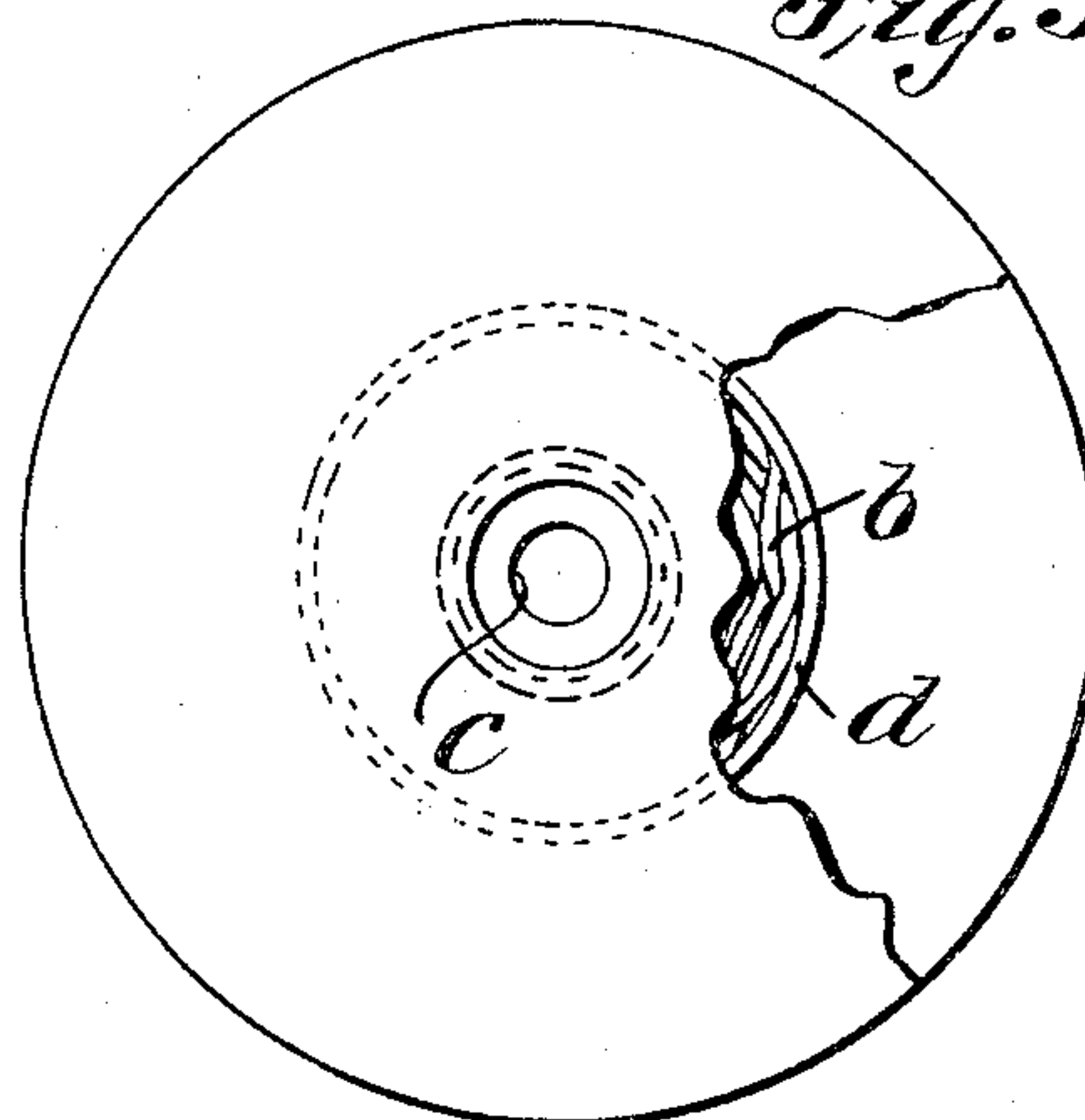


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

EZRA G. CONE, OF EAST HAMPTON, CONNECTICUT, ASSIGNOR TO SUMMIT THREAD COMPANY, OF EAST HAMPTON, CONNECTICUT, A CORPORATION OF MAINE.

BOBBIN-THREAD HOLDER.

954,562.

Specification of Letters Patent.

Patented Apr. 12, 1910.

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To all whom it may concern:

Be it known that I, EZRA G. CONE, of East Hampton, in the county of Middlesex and State of Connecticut, have invented
5 certain new and useful Improvements in Bobbin-Thread Holders, of which the following is a specification.

This invention relates to means adapted to be used in connection with a bobbin on
10 which thread or cord is wound, particularly such bobbins as are employed in sewing machines, to prevent the thread from becoming loose in consequence of the rapid motion of the bobbin and the jarring of the machine.
15

More particularly the invention consists in the combination with a bobbin in which the thread is wound diagonally of elastic retaining means crossing the convolutions
20 or windings of the thread so that the thread is held to the bobbin and prevented from loosening to such an extent as to slip over the end of the bobbin.

My invention therefore consists of combining an elastic retainer or binder with a bobbin having diagonal windings in such a way that the retainer crosses all of the windings, and also in providing a binder having a sufficient degree of resilience and contractile capacity to enable it to act as long as
30 any windings remain on the bobbin. That is, the binder is enabled to contract to such a degree as to embrace the core of the bobbin when all the thread is removed therefrom, whereby it is enabled not only to hold the
35 thread in place when the bobbin is full, but also to continue in action until the last or ultimate winding is removed from the bobbin.

In the accompanying drawings I have illustrated a device embodying my invention in which—

Figure 1 represents an end elevation of a bobbin having the thread or cord wound
45 thereon so that the successive turns or windings are diagonal with respect to the axis of the bobbin and cross each other, together with a binder surrounding and crossing all the convolutions of the thread. Fig. 2 is a side elevation of the bobbin. Fig. 3 is a development of the surface of the bobbin. Fig. 4 is an elevation of the end of the bobbin opposite to that shown in Fig. 1. Fig.
50 5 is a view similar to Fig. 1, but showing the

bobbin when a large part of the thread has
55 been drawn therefrom.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings *a* represents a bobbin having thread or cord *b* wound
60 thereon.

c is the core of the bobbin on which the thread is directly applied.

The windings of the thread, instead of being laid closely side by side, are separated
65 laterally and arranged on a sharp slant with respect to the axis of the bobbin, so as to form a helix of sharp pitch. At the ends of the bobbin the thread is bent back and led toward the opposite end on the same pitch,
70 but at an opposite inclination. By this method of winding the turns of the thread cross each other, and the immediately succeeding parallel turns are comparatively
75 widely separated from each other, while lying closely adjacent to the turns of previous windings. Outside of the windings is placed a band or binder *d* which is made of a highly elastic substance such as rubber, and is applied to the bobbin under tension. When
80 the thread is drawn from the bobbin, it is drawn from under the binder, and the latter acts continuously with elastic tension on those windings which remain in place, preventing the rapid drawing off of the thread
85 and movement of the bobbin from loosening and unwinding the inner windings or causing the same to slip off the end of the bobbin. This result, that is, loosening of the
90 thread and slipping thereof from the bobbin, is a cause of much difficulty in sewing machines, because once the thread does become loosened and leaves the bobbin, it is liable to become tangled and snarled up with
95 the mechanism. This result is the one which the main object of my invention is to avoid, and it is avoided by the relation which the binder *d* bears to the windings on the bobbin, because, owing to the diagonal arrangement of the windings, the band is always
100 inclined to them and crosses them, so that it acts in an efficient manner to retain the thread. Another important feature of my invention is that the binder continues in action as long as any thread remains upon the
105 bobbin, for the reason that it is highly resilient, and is placed upon the bobbin under tension. When the band is allowed to con-

tract to its normal size in an unstretched condition it is of about the same diameter as the core *c* of the bobbin.

The principal value of the foregoing invention lies in the fact that an elastic binder of simple form and without having any particular construction adapted to engage and guide the thread may be employed on account of the fact that, because of the diagonal windings of the accumulation of thread on the bobbin, the binder crosses all the windings of thread and so is enabled to bear upon each turn of the thread as it becomes exposed by drawing off of the previous turns. I am aware that a thread retainer has been devised for use with a spool on which the thread is wound in the ordinary manner with successive convolutions or turns in contact with one another and practically perpendicular to the axis of the spool. Such a retainer was of necessity provided with spiral grooves, in order to guide the thread and enable it to retain its engagement with the thread at all times, as otherwise many of the turns of thread on either side of the retainer would be unengaged therewith and could unwind freely. With a spool having the common winding, a simple binder such as I employ could not be used to secure the desired result, but, as above noted, a special form of binder must be used. Such a special binder is also defective for the reason that it cannot have the contractile capacity necessary to cause it to hold the last windings of the thread. A binder of this highly elastic nature could not be formed with the grooves which form an essential part of the device hereinbefore referred to. The reasons for this are first, that the nature of the material would not permit, and second that,

if a material of so highly contractile a nature would permit of grooves being formed in it, these grooves would either be entirely closed when the binder is contracted about the last windings of the spool or bobbin, or else be opened so widely when stretched about the full spool or bobbin as to be useless.

By my invention in which the combination of a binder with a bobbin on which the thread is wound diagonally, or, in other words, in undulating convolutions extending back and forth from end to end of the bobbin, is used, I am able to employ a simple form of binder having no special configuration to engage with the winding.

I claim,—

A bobbin for sewing machines, comprising a core, an accumulation of thread on said core wound on a sharp slant diagonally back and forth between the ends of the core, and a soft rubber binder completely surrounding all the windings of the thread and pressing elastically against the outer convolutions thereof and having only its inner circumference in engagement with the thread, said binder remaining upon the bobbin while the latter is in use, and having a sufficient amount of resiliency and elasticity to press upon the outermost windings of the thread while any thread remains upon the bobbin, whereby said binder is caused to prevent reeling off of an excess of thread when the bobbin is in use.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EZRA G. CONE.

Witnesses:

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