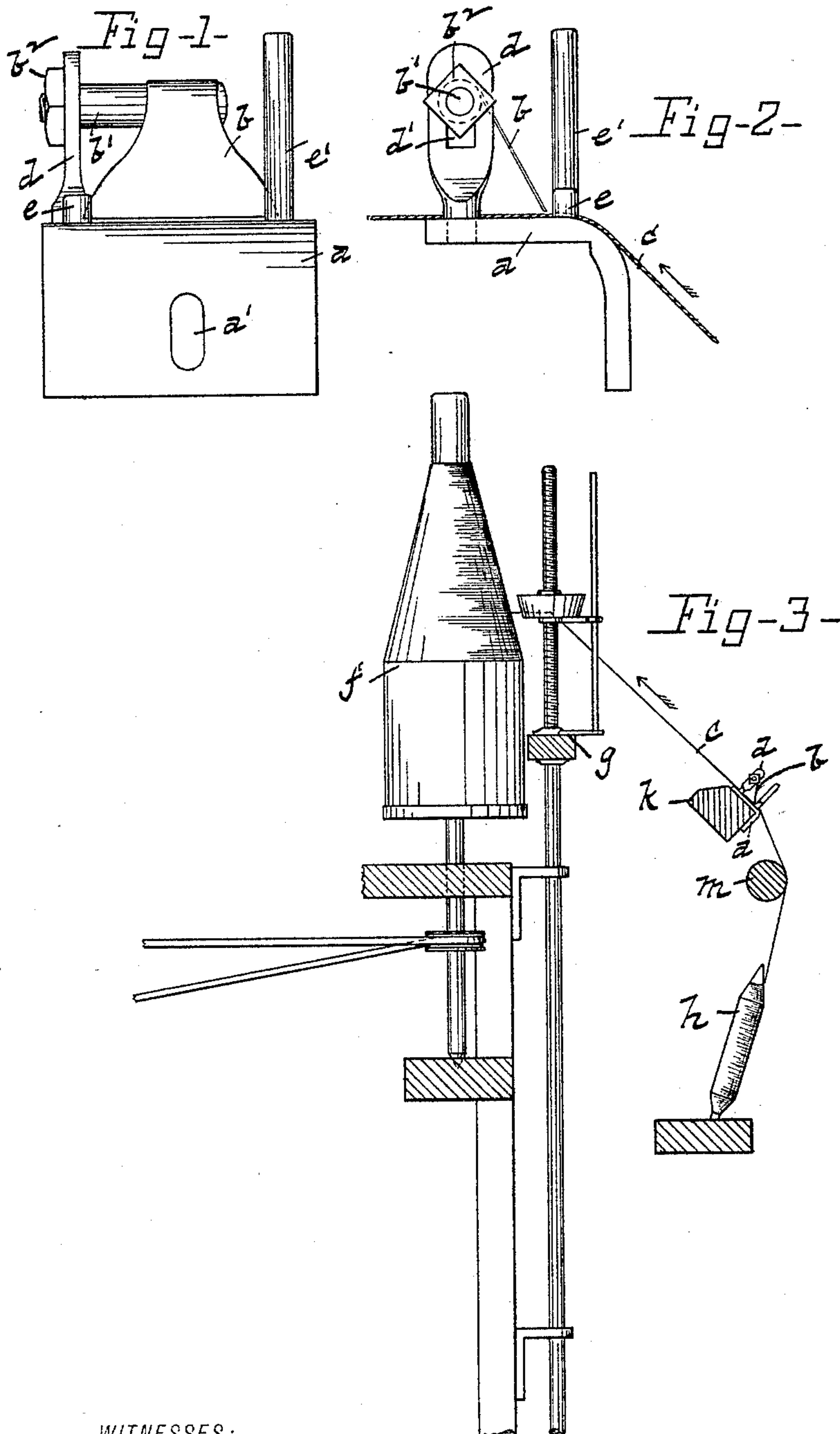


(No Model.)

W. L. RICHMOND.  
THREAD GUIDE FOR SPOOLING MACHINES.

No. 497,819.

Patented May 23, 1893.



WITNESSES:

Robt. Ruddell  
J. E. Chapman

INVENTOR

W. L. Richmond

BY

James F. Chapman  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

WILLIAM L. RICHMOND, OF HOLYOKE, MASSACHUSETTS.

## THREAD-GUIDE FOR SPOOLING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 497,819, dated May 23, 1893.

Application filed April 12, 1892. Serial No. 428,858. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM L. RICHMOND, of Holyoke, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Thread-Guides for Spooling-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to the spooling machines used in the preparation of cotton and woolen yarn for the loom, and especially to the devices used on such machines for detecting any lumps or "slubs" in the yarn and preventing the passage thereof to the receiving bobbin, while, at the same time, guiding the perfect yarn properly to said receiving bobbin. Heretofore such device has consisted of two rigid bars or plates, one or both of which is adjustable to vary the space between their adjacent edges, said space being so regulated as to permit the perfect yarn to run freely between said bars or plates while preventing the passage therethrough of lumps in the yarn. This form of thread guide has been found to be open to serious objection in that the rigidity of the two members thereof and their fixed relation to each other render it incapable of adapting itself to variations in the size of the lumps or slubs in the yarn, and, as a consequence, many of the smaller lumps slip through said guides undetected, while, on the other hand, mere unevenness in the size of the yarn will oftentimes cause the breakage of the yarn when it should not be broken.

It is the object of my invention to provide a thread guide for spooling machines which will be free from these objections, that is to say, which will infallibly detect lumps and slubs in the yarn, whatever may be their size, and cause the breakage of the yarn at that point, and which will permit mere uneven portions of the yarn to pass to the receiving bobbin without breaking the yarn, and to this end my invention consists in a thread guide composed of two members, one of which members consists of an elastic blade, as hereinafter fully described and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several

views, Figure 1 is a front view of a thread guide embodying my invention. Fig. 2 is a side view thereof. Fig. 3 illustrates one manner of applying the invention to a spooling machine.

Referring to Figs. 1 and 2, the letter *a* designates the base and lower member of my improved thread guide, which is preferably made in the form of an angle-plate to enable it to be readily secured to a supporting bar, and has its upper surface rounded as shown to prevent abrasion of the yarn, said plate being provided with the slot *a'* to receive the set-screw or bolt by which it is connected to its support. The upper member of the guide consists of an elastic blade *b*, preferably made from sheet-steel and having a blunt edge, which blade is adjustably supported at a slight angle to the upper face of said plate *a* in such manner as to afford a passage for the yarn *c* between its lower edge and said plate. As herein shown said blade *b* is supported by securing its upper end to a rod or bolt *b'*, one end of which projects through a slot *d'* in a standard *d*, erected upon the plate *a*, and is threaded to receive a nut *b<sup>2</sup>*, whereby it and the blade are secured in any desired position of vertical adjustment. Two pins *e e'* project from the plate *a*, near each end thereof, and serve to limit the lateral movement of the yarn due to the increasing diameter of the receiving bobbin. The thread guide thus constructed can be applied to spooling machines in various ways to suit the various forms of such machines, and in the same manner that thread guides have heretofore been applied thereto. In Fig. 3 I have illustrated one manner of making such application, in which the letter *f* designates the receiving bobbin of a spooling machine, *g* the reciprocating thread carrier and bobbin former, and *h* the supply bobbin.

My improved thread guide is shown as being secured to a supporting bar *k*, the yarn being led from the supply bobbin *h* around a guide-roll *m* to the thread guide, and from thence to the carrier *g* and the receiving bobbin. In lieu of being secured to a stationary bar, the thread guide can be secured to the carrier *g* or other reciprocating carrier for the thread, its action being the same in either case. The blade *b* being adjusted to afford a



clear space between its edge and the lower member of the guide for the yarn, as represented in Fig. 2, the yarn passes freely through the guide so long as no lumps or slubs are contained therein. Whenever one of said lumps or slubs occurs in the yarn it engages the lower edge of the blade *b*, and the latter, yielding to the movement of the yarn, is deflected in such manner as to tightly clamp the yarn between itself and the lower member and break it, the greater the draft on the yarn the more positive the grip taken thereon by said blade. It is thus rendered impossible for one of said lumps to slip through the guide however small it may be. The blade upon being released returns to its former position, and the yarn being reunited the operation goes on as before. The vertical adjustment of the blade *b* within the slotted standard *d* enables its lower edge to be accurately set for different sizes of yarn, and the same result can be secured by an axial adjustment of the rod or bolt *b'*, if desired. Not only does the yielding action of the blade *b* thus infallibly detect lumps and slubs of any size and secure the breakage of the yarn, but it also prevents the rupture of the yarn upon the passage of mere uneven places therein where the increase in the diameter of the yarn is a gradual one, such places serving to deflect the blade in an upward direction and passing on to the receiving bobbin undisturbed. It will thus be seen that by my invention I provide a thread guide which is perfect in its action and which, while insuring the detec-

tion of the objectionable lumps and slubs in the yarn, obviates the loss of time incident to reuniting the ends of the yarn when unnecessarily broken by the rigid guides heretofore used.

The particular shape and dimensions of the two members of the guide devised by me and the manner in which the same are applied to a spooling machine admit of various modifications within the spirit of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The thread guide for spooling machines herein described composed of two members, one of said members consisting of a rigid plate over which the thread or yarn is drawn, and the other member consisting of a blade of elastic material supported in an angular position with respect to said plate, said blade being adjustable to vary the distance between the two members, substantially as set forth.

2. The thread guide for spooling machines herein described, consisting of plate *a* having the standard *d* projecting therefrom, rod or bolt *b'* adjustably secured to said standard and extending parallel with said plate, and the elastic blade *b* rigidly secured at its upper end to said rod or bolt, substantially as set forth.

WILLIAM L. RICHMOND.

Witnesses;

W. H. CHAPMAN,  
JOHN HILDRETH.