G. E. SPOFFORD.

GUIDE WIRE FOR SPINNING AND TWISTING MACHINES.

APPLICATION FILED JULY 2, 1910.

991,555. **Patented May 9, 1911.**

Fig. 1.

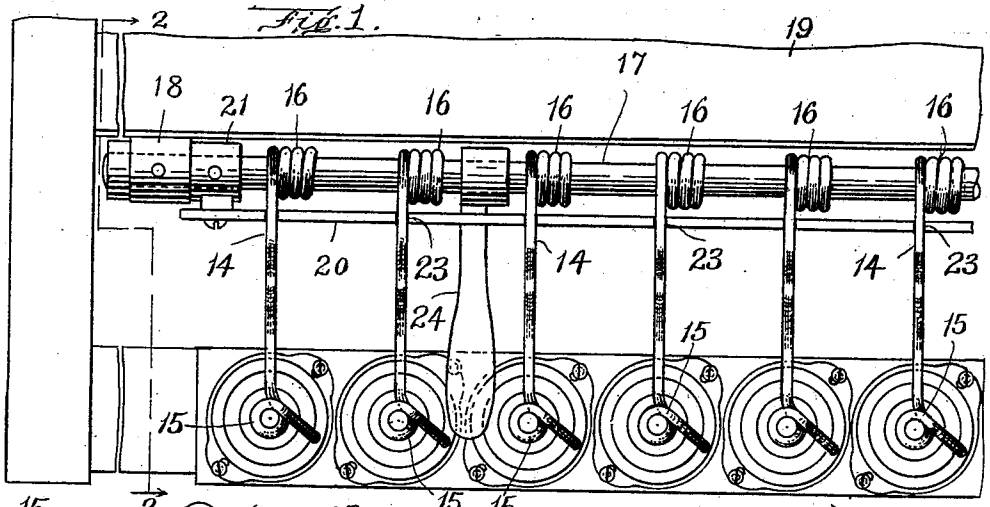


Fig. 3.

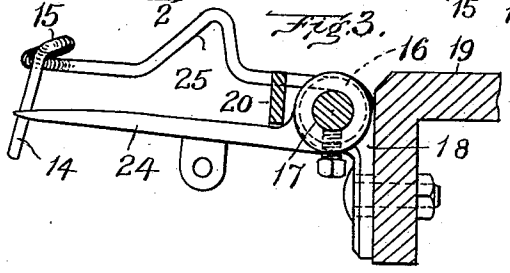


Fig. 2.

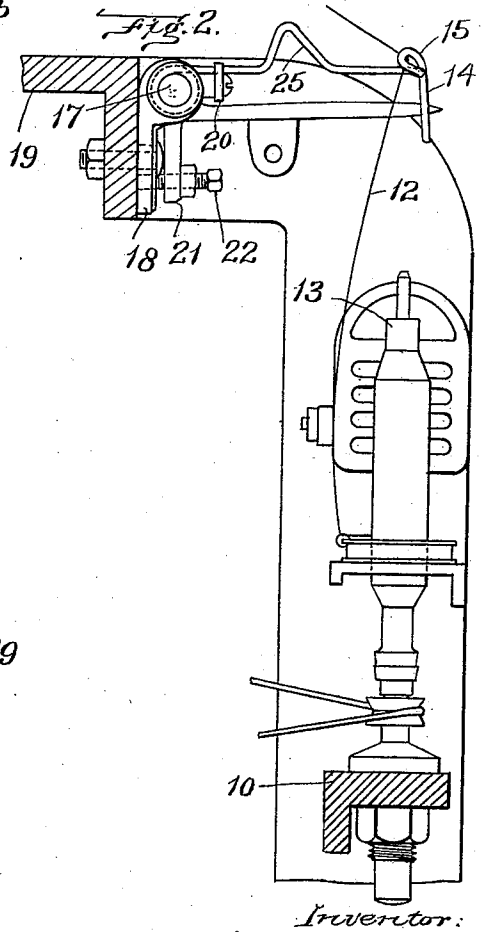


Fig. 4.

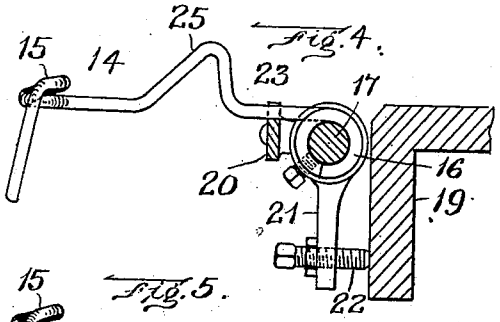
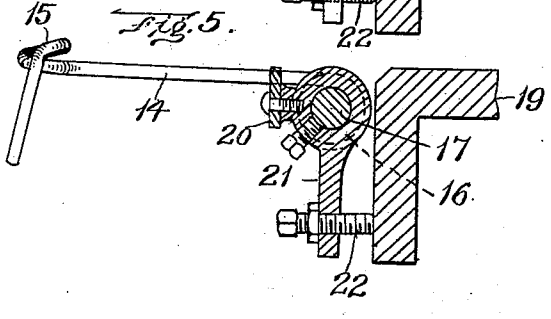


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE E. SPOFFORD, OF BLACKSTONE, MASSACHUSETTS.

GUIDE-WIRE FOR SPINNING AND TWISTING MACHINES.

991,555. Specification of Letters Patent. Patented May 9, 1911.

Application filed July 2, 1910. Serial No. 570,110.

To all whom it may concern:

Be it known that I, GEORGE E. SPOFFORD, of Blackstone, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Guide-Wires for Spinning and Twisting Machines, of which the following is a specification.

This invention relates to spinning and twisting machines, and its purpose is to provide an adjustable guide of novel construction for guiding the yarn or thread to the bobbins. For this purpose it is customary to provide a guide wire bent to form an eye through which the thread or yarn passes, said eye being located a short distance above the upper end of the bobbin and being preferably arranged concentrically with the axis of the bobbin. To be more explicit, it may be stated that the purpose of the present invention is to provide a guide wire which may be adjusted in a novel manner for the purpose of locating the eye concentrically with relation to the bobbin. Various devices for this purpose have hitherto been devised, many if not all of which depend upon screws and clamps for the purpose of effecting the desired forward and back adjustment of the eye.

According to the present invention a guide wire is provided which may be bent so as to move the eye in any direction, thus dispensing with clamps and screws and avoiding the possibility of losing the desired adjustment, because, according to this invention, there are no parts which can become loose or detached. The guide wire which forms the eye is composed of ductile metal and is so formed before being mounted in its support that it may be readily bent while in operative position without detaching or loosening any part of the supporting structure.

Of the accompanying drawings which illustrate the invention: Figure 1 represents a plan view of a portion of a spinning or twisting machine provided with thread guides made in accordance with this invention. Fig. 2 represents a section on line 2—2 of Fig. 1. Fig. 3 represents a section on line 3—3 of Fig. 1. Fig. 4 represents a section on line 4—4 of Fig. 1. Fig. 5 represents a section similar to Fig. 4, showing the thread guide in a different form.

The same reference characters indicate the same parts wherever they occur.

The spindle rail of a spinning or twisting frame is indicated at 10.

12 indicates the thread or yarn which passes from the drawing rolls (not shown) to a bobbin 13 mounted upon a spindle. Between the drawing rolls and each of the bobbins the yarn passes through a guide such as that shown in detail by Fig. 5. Another form of guide is shown by Figs. 1 to 4.

Referring first to Fig. 5, the guide is composed of ductile wire 14 which is coiled as indicated at 15 to form an eye through which the yarn passes. The rear end of the wire 14 is coiled as indicated at 16, the coil being loosely mounted upon a rod 17. The rod as shown is supported by brackets 18 affixed to a rail 19. One of the guide wires 14 is provided for each bobbin, the rod 17 being long enough to support a large number of such guide wires, each of which is independently movable about the rod. The desired elevation of the guide wires is maintained by an adjustable bar 20 which is supported by a plurality of brackets 21 tightly mounted upon the supporting rod 17. The brackets are provided with set screws 22 which engage the rail 19 and which may be adjusted to effect vertical movement of the supporting bar 20. The bar is provided with notches 23 for the reception of the guide wires, thus to prevent the wires from sliding longitudinally of the rod 17 when they are in the notches. The rod 17 is provided with a handle 24 by which it may be rocked to raise the bar 20 and thus raise all of the guide wires.

The notches 23 are located with a view to holding the guide wires as nearly as possible in alinement with their respective bobbins; but, as hereinafter explained, no great degree of accuracy is required in locating these notches, because any slight inaccuracy may be quickly corrected by bending such guide wires as are not correctly located. It is obvious that the guide wires may be bent laterally in order to locate the eyes in one vertical plane of the bobbins. It is also obvious that the guide wires may be bent up and down in order to vary the position of the eyes independently of each other. By means of bending the guide wires up or down, all of the eyes may be located in the

same horizontal plane, that is, at the same distance from their respective drawing rolls and bobbins. As previously explained, an adjustment of the brackets 21 effects simultaneous adjustment of all of the guide wires.

The guide wires are capable of still another adjustment which is the principal feature of this invention. It has been stated that the wires may be bent laterally in order to place the eyes in one vertical plane of the bobbins. It is often necessary to change the location of individual eyes by moving them toward or from the rod 17, thus to place them in the vertical plane of and parallel to the series of bobbins. According to the device illustrated by Fig. 5, this forward or back adjustment of the eye is effected by winding or unwinding the wire upon the rod 17, thus decreasing or increasing the length of the portion which extends forward from the rod. The means for and method of winding or unwinding a guide wire forms no part of this invention, but it may be stated that in practice it has been done conveniently and quickly by means of a hand tool without in any way loosening or detaching the guide wire itself or any other part of the machine. A hand tool for this purpose may be made to grip the coil 16 and to turn the same in one direction or the other while the straight portion of the guide wire is held against vertical movement. This forward or back adjustment of the eye is accomplished within a period of a few seconds and is easily obtained because the guide wire is composed of ductile metal which affords comparatively little resistance to a bending force. It is apparent that there are no fastening devices or screws associated with the guide wires which can become loose and permit accidental disarrangement of the eyes.

According to the form illustrated by Figs. 1 to 4 inclusive the guide wire is provided with an offset portion 25 between the eye 15 and coil 16. It is immaterial whether this offset portion extends up or down or to the right or left. This form provides additional means whereby the eye may be adjusted toward and from the rod 17. The bends of the offset portion may be increased or decreased to move the eye backward or forward. For this purpose a handle or lever provided with pins or projections adapted to straddle the wire is a convenient hand tool for bending the offset portion to effect the desired adjustment of the eye.

It is not claimed for this invention that it is new to provide a guide wire which may be bent laterally; but it is believed that this is the first instance of a guide wire which is preliminarily formed so that by increasing or decreasing the bend or bends of the portion preliminarily bent the eye portion may be advanced or retracted longitudinally of the guide wire. As a result of providing a guide wire which may be bent to effect the advancement or retraction of the eye it is obvious that the guide wire is capable of being bent to move the eye in every conceivable direction and that this may be accomplished as hereinbefore stated without removing the guide wire from its support or without loosening or detaching any part of the supporting structure.

What I claim is:

1. The combination with a machine of the character specified, of a rod arranged parallel to the line of the series of bobbins, a series of members each having a thread-guiding portion and a portion loosely surrounding said rod, and a bar parallel to said rod, said bar engaging said members to support them against turning in one direction about said rod, and being movable to turn said members about the rod in the opposite direction.

2. The combination with a machine of the character specified, of a rod arranged parallel to the line of the series of bobbins, a series of members each having a thread-guiding portion and a portion loosely surrounding said rod, and a bar parallel to said rod, said bar having notches in which said thread guiding members normally rest, said bar thus supporting said members against turning in one direction about said rod, and being movable to turn said members in the opposite direction, said notches holding the members against sliding longitudinally of said rod.

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

GEORGE E. SPOFFORD.

Witnesses:
WARREN G. HATHAWAY,
FRANK L. BELLS.

Correction in Letters Patent No. 991,555.

It is hereby certified that the names of the witnesses to the signature to the specification in Letters Patent No. 991,555, granted May 9, 1911, upon the application of George E. Spofford, of Blackstone, Massachusetts, for an improvement in "Guide-Wires for Spinning and Twisting Machines," were erroneously printed "Warren G. Hathaway" and "Frank L. Bells," whereas said names should have been printed *Warren A. Hathaway* and *Frank L. Bills;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 27th day of June, A. D., 1911.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.