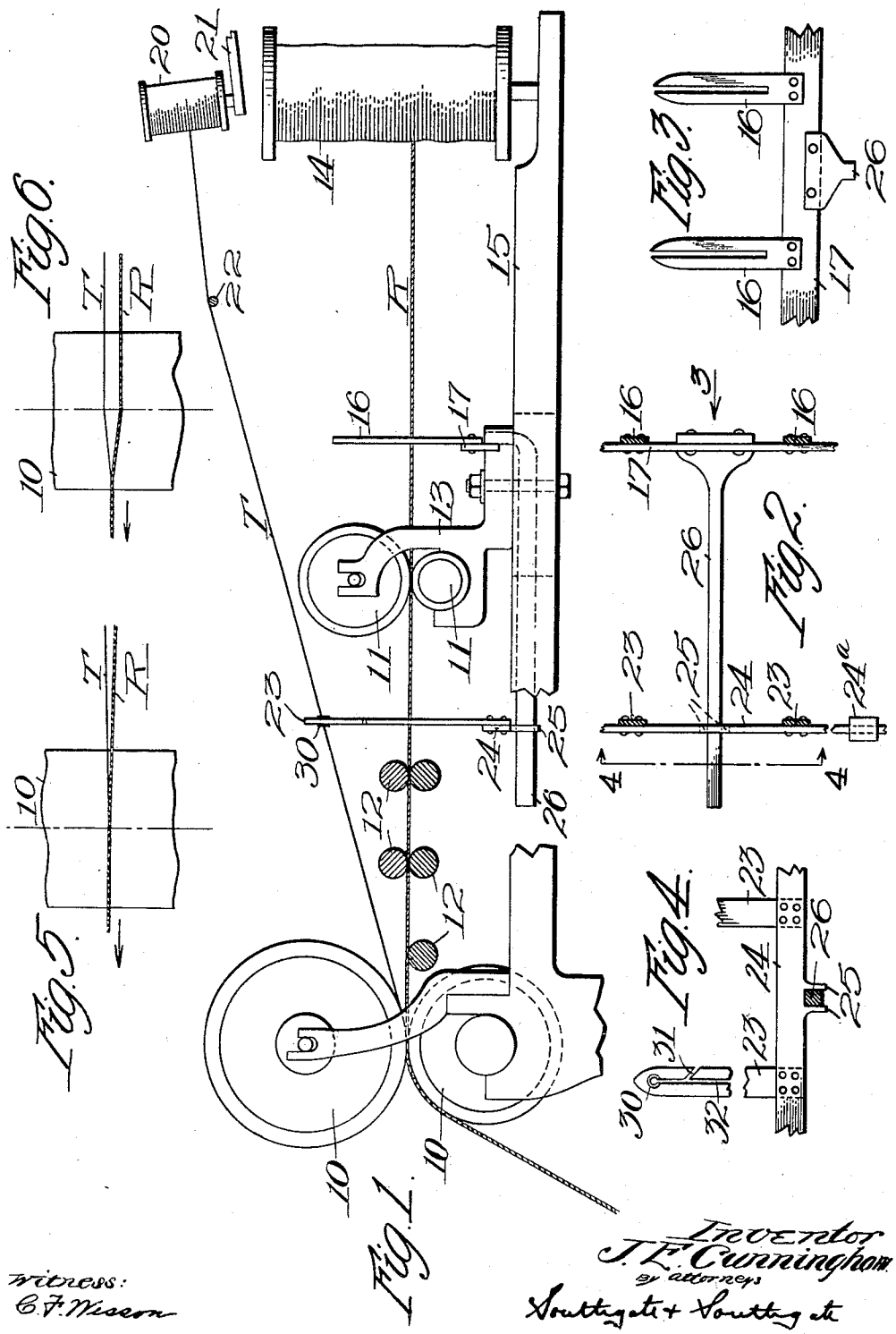
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YARN GUIDE FOR DRAWING AND SPINNING FRAMES.

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YARN-GUIDE FOR DRAWING AND SPINNING FRAMES.

1,198,997. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed January 12, 1916. Serial No. 71,786.

To all whom it may concern:

Be it known that I, JAMES E. CUNNINGHAM, a citizen of the United States, and residing at Farnumsville, in the county of Worcester and State of Massachusetts, have invented a new and useful Yarn-Guide for Drawing and Spinning Frames, of which the following is a specification.

This invention relates to a yarn guide for drawing frames and particularly to an auxiliary yarn guide for use on a frame making mixed filling. Such filling is commonly formed by passing a worsted roving through the two sets of drawing rolls in a worsted drawing frame and by combining a cotton thread with the drawn worsted as it passes under the front drawing rolls. As the cotton thread has been previously spun, it is not possible to pass this thread under the two sets of drawing rolls. It is necessary, however, that both the thread and the roving should be traversed together axially of the drawing rolls and that they should be close together as they pass between the front drawing rolls.

Accordingly it is the object of my invention to provide improved means for guiding and traversing the thread and roving so that they may be at all times closely adjacent when presented between the front drawing rolls. This is a matter of considerable importance in the manufacture of mixed filling as otherwise many and serious imperfections will be formed in the filling.

With this object in view one feature of my invention relates to the provision of an auxiliary yarn guide positioned in front of the rear drawing rolls and effective to guide the cotton thread over the rear drawing rolls and between the front drawing rolls. In the preferred form, this guide also acts as an additional guide for the worsted roving.

Further features of my invention relate to the provision of means for moving the auxiliary guide simultaneously with the regular yarn guide, and in the provision of self-adjusting connections between the guides, operable in any relative position thereof.

A preferred form of my invention is shown in the drawings in which—

Figure 1 is a vertical sectional view of a portion of a drawing frame embodying my improvement; Fig. 2 is a top plan view of a structural detail; Fig. 3 is a rear elevation of a portion of the regular yarn guide; Fig. 4 is a front elevation of a portion of the auxiliary yarn guide, taken on the line 4—4 of Fig. 2; Fig. 5 is a diagrammatic view showing the manner of forming the filling with the auxiliary guide in use, and Fig. 6 is a similar view, with the auxiliary guide not in use.

Referring to Fig. 1, I have shown the front drawing rolls 10—10, the rear drawing rolls 11—11 and a plurality of so-called carrier rolls 12, positioned between the front and rear drawing rolls. The rear drawing rolls 11 are mounted upon brackets 13 adjustable relatively to the front drawing rolls to vary the distance between the rolls in accordance with the length of the fiber in the worsted roving R. This roving is supplied from a spool 14 suitably mounted upon the top board 15 of the drawing frame. The roving R in passing from the spool 14 to the rolls 11 passes through the usual yarn guide 16 which is mounted upon a rod 17 extending the length of the frame and reciprocated longitudinally by any usual traverse motion (not shown). The parts thus far described are all of the usual construction and form no part of my invention.

The cotton thread T which is combined with the roving to form the mixed filling is supplied from a spool 20 mounted upon a support 21 and positioned somewhat higher than the spool 14. The thread T passes directly from the spool 20 to the front drawing rolls 10, being supported, if necessary at an intermediate point by a fixed rod 22. The thread is guided and moved axially of the drawing rolls by an auxiliary yarn guide 23 secured to a slidable rod 24 and preferably positioned between the carrier rolls 12 and the rear drawing rolls 11.

The rod 24 is suitably supported in bearings 24^a (Fig. 2) and is provided with depending studs or projections 25 adapted to engage the opposite sides of an arm 26 secured to the traverse bar 17 of the regular yarn guide and extending forwardly beneath the rod 24. The arm 26 and the projections 25 thus provide connections through which the guides 16 and 23 may be simultaneously moved axially of the rolls and at

the same time these connections are self-adjusting and permit adjustment of the rear drawing rolls and yarn guide without disturbing the operative connection between the two yarn guides.

The auxiliary yarn guide 23 may be constructed in any usual manner and as shown in the drawings comprises a small porcelain bushing 30 secured in the guide 23 near its upper end, the yarn being introduced to the bushing 30 by means of a downwardly inclined entrance slot 31 and a vertical slot 32. The slot 32 is of such length that the roving R may pass through the slot near its lower end, the auxiliary guide thus serving to guide both the roving R and the thread T at a point between the two sets of drawing rolls. By guiding the roving and thread in this manner it has been found that the two elements will be introduced beneath the front drawing rolls at substantially the same point as indicated, for instance, in Fig. 5. When thus introduced the two elements will be twisted together as soon as they leave the bite of the rolls, thus forming a substantially uniform thread.

Prior to the use of my auxiliary yarn guide it was impossible to secure this result, the thread and the roving continually separating and being presented at different points to the front drawing rolls. This separation of the elements caused the filling to spin as indicated in Fig. 6 in which it will be seen that the roving and thread do not unite until they have passed a substantial distance beyond the bite of the rolls. Under these conditions it was found that the fine worsted roving, when not immediately united with the cotton thread, was easily caught up by the upper drawing roll and would often be wrapped several times around the roll. The roving would then engage the twisting cotton thread and would be drawn off from the roll. In this way irregular yarn was formed, one portion of the yarn having no worsted whatever and the succeeding portion having an excess of worsted. As above stated, by the use of the auxiliary guide I am able to keep the thread and the roving closely adjacent as they pass under the drawing rolls and I thus avoid the tendency of the roving, when separated, to catch and be wound up by the drawing rolls.

The term "drawing frame" as used herein, is to be understood as including any machine in which roving is drawn out between spaced sets of rolls, such as roving frames or spinning frames as well as the machines more commonly termed "drawing frames".

Having thus described my invention, it will be evident that changes and modifications can be made therein by those skilled in the art without departing from the spirit and scope thereof as set forth in the claims and I do not wish to be otherwise limited to the details herein disclosed. But

What I claim is:—

1. In a drawing frame, in combination, front and rear drawing rolls, supports for roving and thread positioned behind said rolls, a traversing yarn guide for the roving movable axially of and behind said rear drawing rolls, an auxiliary traversing yarn guide positioned between the front and rear drawing rolls and effective to guide both roving and thread together between the front drawing rolls, and means whereby said yarn guides may be traversed simultaneously.

2. In a drawing frame, front drawing rolls mounted on said frame, rear drawing rolls adjustable relatively to said front drawing rolls, a traversing yarn guide adjustable with said rear drawing rolls, an auxiliary yarn guide slidably mounted in bearings between said front and rear drawing rolls, means whereby said traversing guide may be moved longitudinally, and means for moving said auxiliary guide from said traversing guide.

3. In a drawing frame, front drawing rolls mounted on said frame, rear drawing rolls adjustable relatively to said front drawing rolls, a traversing yarn guide adjustable with said rear drawing rolls, an auxiliary yarn guide slidably mounted in bearings between said front and rear drawing rolls, means whereby one of said guides may be moved longitudinally, an arm mounted on one of said guides, and coöperating projections on the other guide engaging said arm, whereby one guide is effective to move the other guide in any adjusted relative position.

4. In a drawing frame for making mixed filling, in combination, front and rear drawing rolls, supports for worsted roving and a cotton thread, a yarn guide effective to guide the worsted roving between the rear drawing rolls, an auxiliary yarn guide positioned between the front and rear drawing rolls and effective to guide the cotton thread over the rear drawing rolls and between the front drawing rolls, and means whereby said guides may be traversed simultaneously.

5. In a drawing frame, front and rear drawing rolls, carrier rolls between said drawing rolls, a yarn guide behind the rear drawing rolls, an auxiliary yarn guide between the rear drawing rolls and the carrier rolls, and means whereby said guides may be traversed simultaneously.

6. In a drawing frame, a drawing roll, a yarn guide positioned behind said roll, an auxiliary yarn guide separated from said rear guide and positioned in front of said roll, means whereby one of said guides may be traversed automatically, and means to

move the other guide simultaneously with said traversing guide.

7. In a drawing frame, a yarn guide, an auxiliary yarn guide, means whereby one of said guides may be traversed automatically, and connections from one guide to the other guide whereby said guides will move simultaneously, said connections being self-adjusting for different relative positions of said guides.

In testimony whereof I have hereunto set my hand.

JAMES E. CUNNINGHAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."