

March 7, 1933.

R. J. BARTHOLOMEW

1,900,480

TRAVERSE MOTION

Filed Oct. 15, 1930

2 Sheets-Sheet 1

Fig. 1.

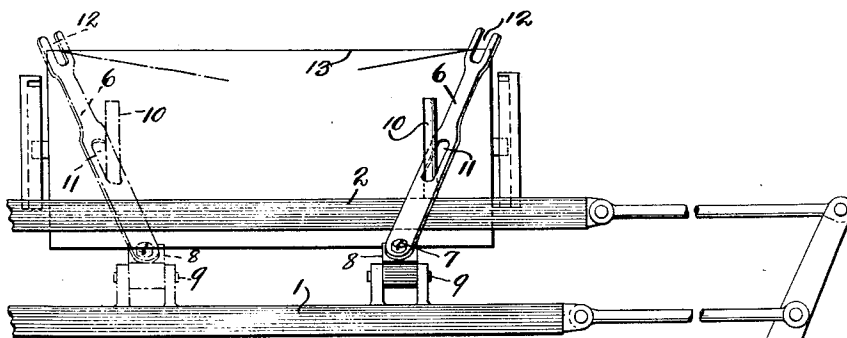
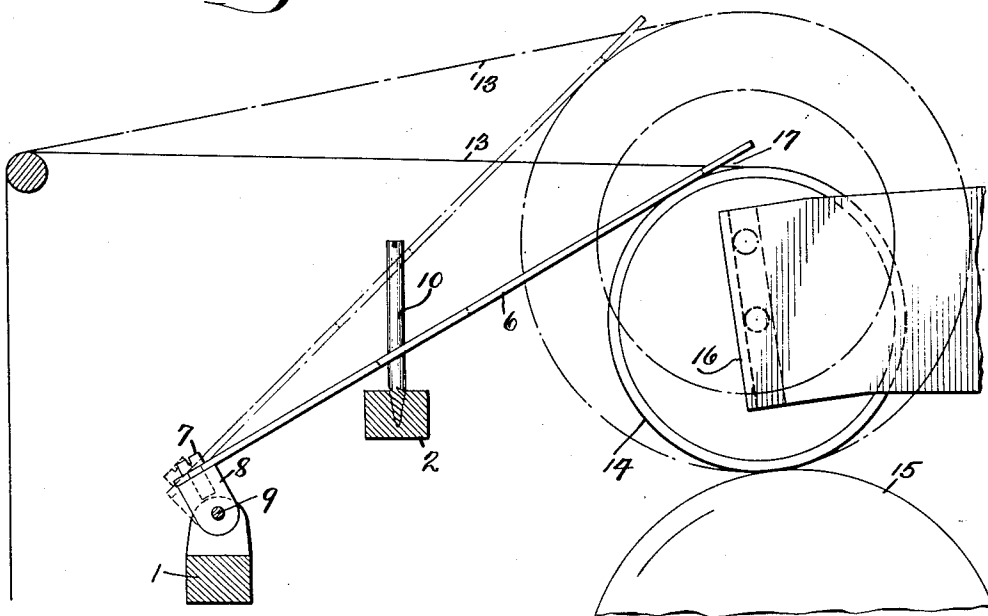
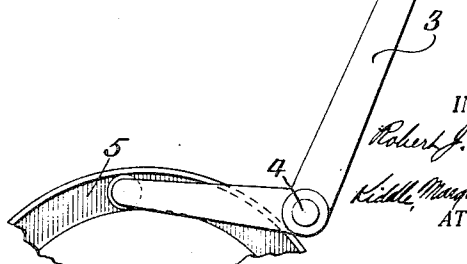


Fig. 2.



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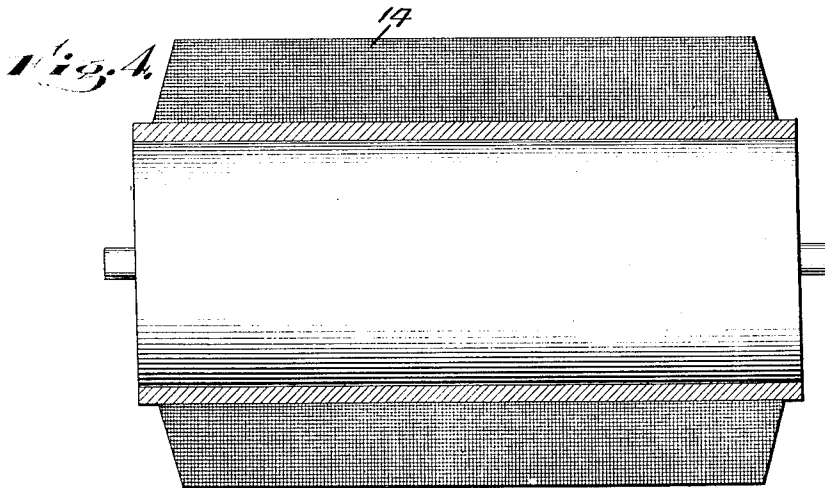
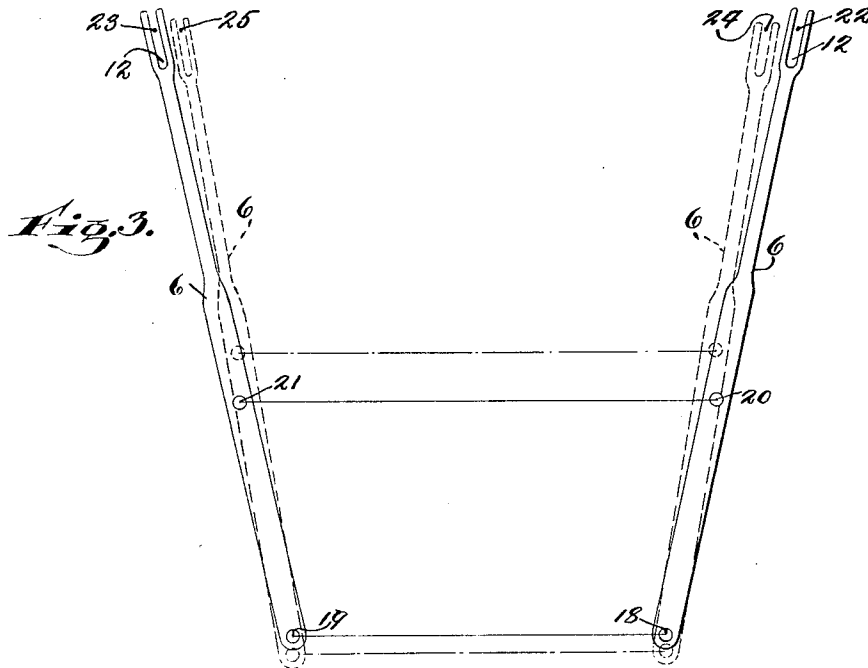
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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TRAVERSE MOTION

Application filed October 15, 1930. Serial No. 488,801.

This invention relates to an improvement in traverse mechanism adapted for use on twist-ers, doublers, redraw frames, etc.

One of the objects of the invention is the provision of traverse mechanism to use in connection with the winding of bobbins and producing a bobbin with a conical end as distinguished from a square end. This is of advantage in that in handling and shipping the threads do not fall over the corner of the bobbin to cause breakage. At present shipment from throwster to user is done on wooden bobbins. It is believed that bobbins produced by the apparatus of the present invention can be shipped on paper tubes, an advantage from an economic standpoint.

Inasmuch as the various types of machine to which traverse motions are applied are well known, it is deemed unnecessary to show in the present application anything more than the traverse motion itself together with the mechanism by which it is caused to function.

In the drawings:

Fig. 1 is a part sectional elevational view of an embodiment of my invention;

Fig. 2 is a front elevation of the mechanism of Fig. 1;

Fig. 3 is a diagram to bring out certain features of the invention; and

Fig. 4 is a view showing the type of bobbin produced by my improved apparatus.

Referring to the drawings in detail: 1 designates an outer traverse bar and 2 an inner traverse bar of a twister, doubler or other type of machine to which my improved motion may be applied. The traverse bars are connected to a cam operated lever 3 which is pivoted at 4 and adapted through a cam track 5, to be rocked on its pivot. From Fig. 2 it will be seen that the inner traverse bar 2 is connected to the outer end of the cam lever 3, while the outer traverse bar 1 is connected to the cam lever intermediate the pivot 4 and the point of connection of the inner traverse bar to the lever. It will be apparent, therefore, that movement of the cam lever 3 about its pivot will impart a rectilinear motion to the bars 1 and 2, the bar 2 moving a greater distance than the bar 1 due to the

fact that the distance between its point of connection to the cam lever and the pivot of the cam lever is greater than the distance between the point of connection of the bar 1 to the lever 3 and the pivot of the cam lever.

6 designates a thread guide arm. The outer end of this guide arm, i. e., the end remote from the bobbin being wound is attached by a screw 7 to a block 8 pivoted at 9 on the outer traverse bar 1. This permits of the inner end of the guide arm, i. e. the end adjacent the bobbin to rise as the diameter of the bobbin increases, the block 8 pivoting on the bar 1, while the connection of the guide arm to the block 8 by screw 7 permits the guide arm to have a rotary motion to enable the inner end of the guide arm to traverse the bobbin.

The inner traverse bar 2 carries a pin 10 which passes through a slot 11 provided in the guide arm, intermediate its ends, which establishes an operative connection between the traverse bar 2 and the guide arm.

The inner end of the thread guide arm is forked as shown at 12 to receive the thread 13 which is being wound.

14 designates the bobbin, shown as being actuated by take-up roller 15 in the usual way. 16 designates the guides for the gudgeon of the bobbin holder. This is usual construction.

It will be appreciated that at the beginning of the winding of the bobbin the bobbin will be in the full line position of Fig. 1 and that as the diameter of the bobbin increases the same will be raised to the dotted line position of this figure.

It will be appreciated also that as the diameter of the bobbin increases it is necessary for the inner end of guide arm 6 to raise so as to accommodate itself to this increased diameter of the bobbin.

In operation, in the low or empty position of the bobbin, the thread is guided to the bobbin at 17 and the action of the cam 5 upon the cam lever 3 will move the outer traverse bar 1 together with the pivotal connection of the guide arm 6 thereto a constant distance, to wit, from the point designated 18 in Fig. 3 to the point designated 19 in the

same figure. The pin 10 which is carried by the inner traverse bar 2 as above pointed out will move a constant distance also, as from the point 20 in Fig. 3 to the point 21 in the same figure. This distance is greater, however, than the distance between the points 18 and 19, due to the fact that the travel of the bar 2 is greater than that of the bar 1.

The inner end of the guide arm at first travels from the point 22 to the point 23 on Fig. 3 as will be understood.

As the bobbin fills up, the inner end of the guide arm 6 moves upwardly due to the increasing diameter of the bobbin, this pivoting of the guide arm being permitted by the pivoted connection of the block 8 to the traverse bar 1. This pivotal movement of the guide arm, however, alters the position of the pin 10 carried by the bar 2 with respect to its location in the slot 11 of the guide arm. Consequently while the travel of the traverse bars 1 and 2 remains constant, the travel of the inner or guiding end of the guide arm will shorten as the bobbin diameter increases, due to the raising of the guiding end of the arm to bring the pin 10 nearer the inner end of the guide arm. In other words, the travel of the inner end of the guide arm 6 at the start of winding the bobbin may be assumed as from the point 22 to the point 23 on Fig. 3, while at the completion of the operation the travel is only from the point 24 to point 25 on the same figure. It will be appreciated, therefore, that the bobbin will be formed with conical ends as shown in Fig. 4.

It will be appreciated that in producing the bobbin of this invention the ends of each layer of thread are substantially the same distance from the center of the bobbin. In other words, the thread is centrally disposed on the bobbin tube. Headless bobbins have been produced prior to this invention with rounded ends more or less conical but these bobbins have been produced by using a traverse cam of constant stroke and an auxiliary cam usually operated by differential gearing which causes the traverse bar to increase its normal stroke by small amounts and then gradually decrease again. With such devices each layer of threads practically touches the bobbin tube at one end or the other and therefore it is not suitable for reeling.

While I have described one embodiment of my invention it is to be understood that changes may be made therein within the purview of my invention.

What I claim is:

1. A traverse motion comprising in combination a pair of traverse bars, a cam operated lever for reciprocating said bars, said bars being attached to said lever at different distances from the fulcrum thereof, a thread guide arm mounted for rotary and pivotal motion on one of said bars, and a

pin carried by the other of said bars and extending through a slot in said guide arm for imparting rotary motion to said arm, the position of the pin in the guide arm shifting with increase in the diameter of the bobbin.

2. A traverse motion comprising in combination an inner traverse bar and an outer traverse arm, a cam operated lever attached to both bars for effecting reciprocation of the same, the travel of the inner bar exceeding the travel of the outer bar, a guide arm pivoted to the outer traverse arm, and a slot and pin connection between the inner bar and arm, whereby as the guide arm pivots on the outer bar due to the increasing diameter of the bobbin the rotary travel of the guide arm due to the action of the inner traverse bar will gradually decrease.

3. A traverse motion comprising in combination a thread guiding arm, a traverse bar, a pivot for attaching the arm to the traverse bar, the axis of said pivot being parallel with the line of movement of the traverse bar, a second traverse bar, a slot and pin connection between said second bar and said arm, and means for imparting a rectilinear motion simultaneously to said bars, the motion of one bar exceeding that of the other.

4. A traverse motion comprising in combination a thread guiding arm, a traverse bar, means for reciprocating said bar, a pivotal connection between said bar and arm permitting said arm to pivot about a pivot whose axis is parallel to the line of movement of the traverse bar, a connection between said arm and its pivot permitting said arm to have a motion of rotation, and a second traverse bar operatively connected to said arm, the first bar imparting a motion of translation to the arm, the second bar a motion of rotation.

This specification signed this 10th day of October, 1930.

ROBERT J. BARTHOLOMEW.