Oct. 11, 1932. J. H. LARMUTH 1,882,152

WINDING, STRANDING, COILING, LAPPING, OR THE LIKE MACHINE

Filed Feb. 25, 1931 2 Sheets-Sheet 1

Fig. 1.

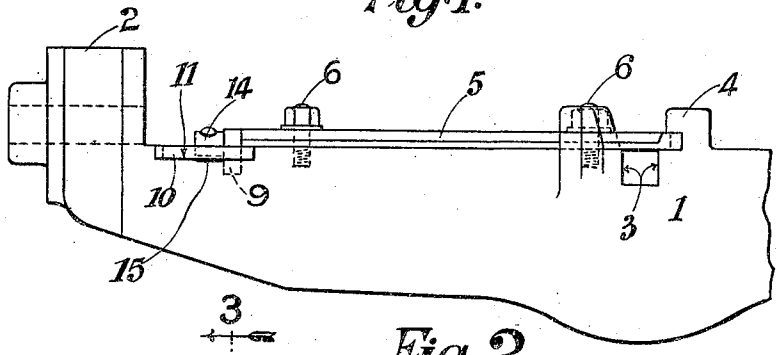


Fig. 2.

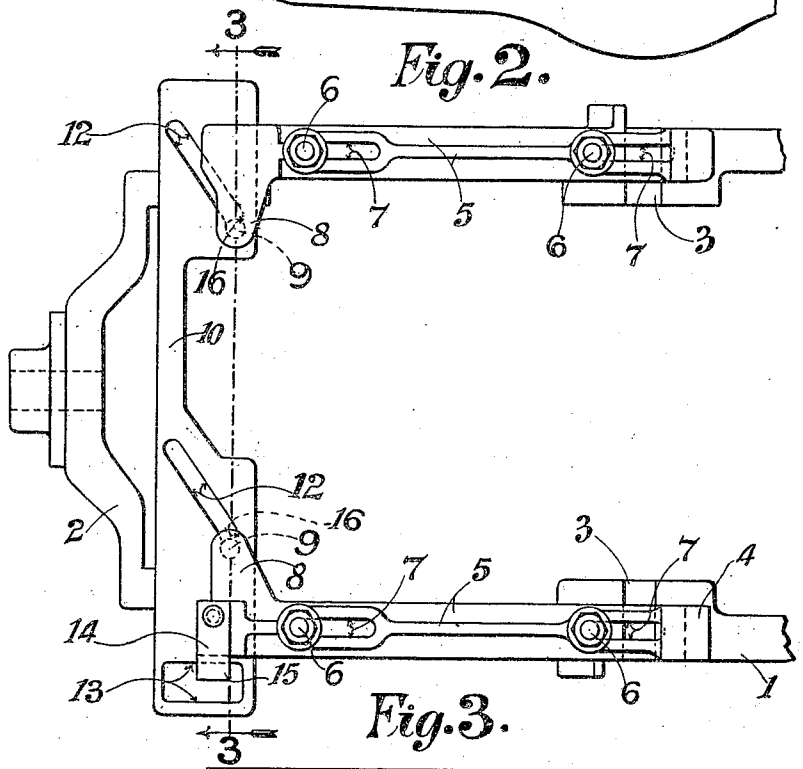
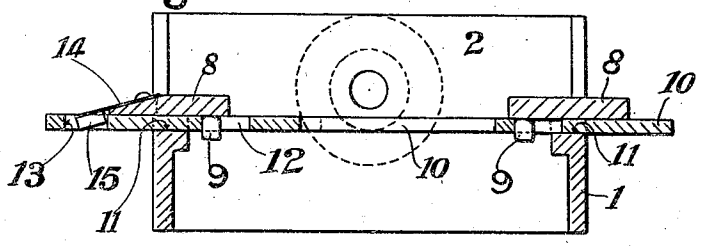


Fig. 3.



Inventor.

John Hamilton Larmuth

per Ferdinand Brooker Bonhardt

Attorney.

Oct. 11, 1932. J. H. LARMUTH 1,882,152

WINDING, STRANDING, COILING, LAPPING, OR THE LIKE MACHINE

Filed Feb. 25, 1931 2 Sheets-Sheet 2

Fig. 4.

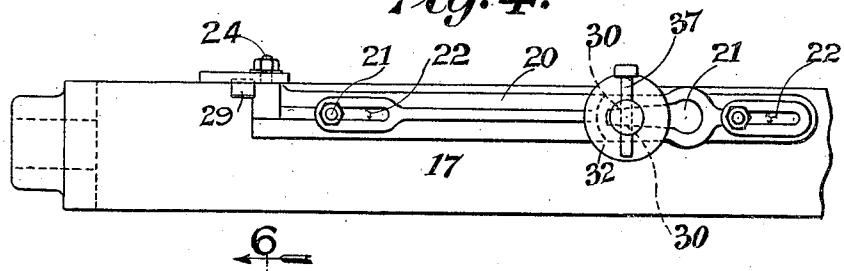


Fig. 5.

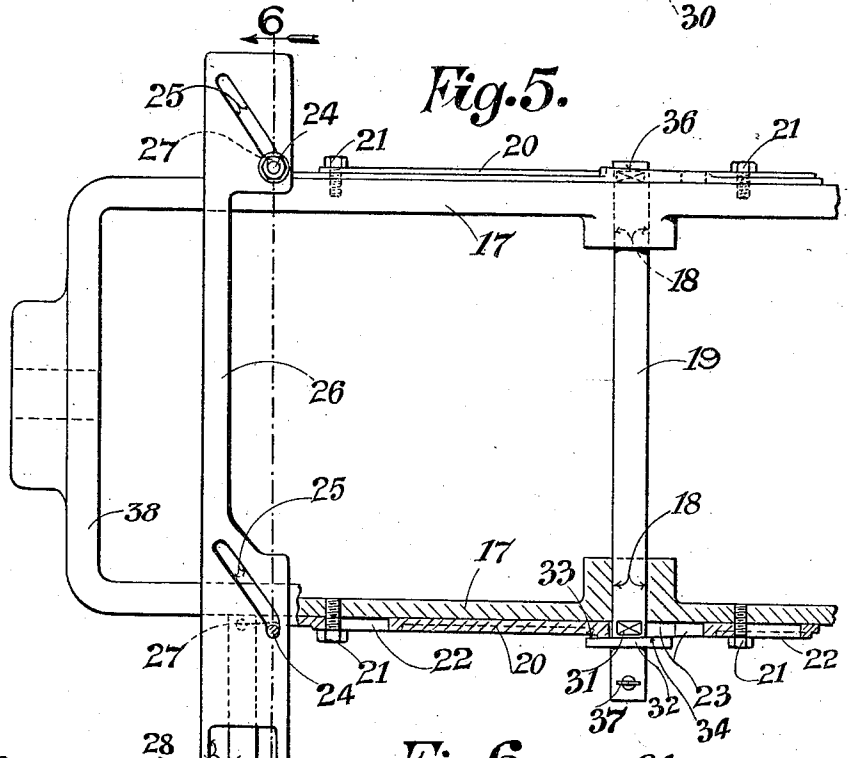


Fig. 6.

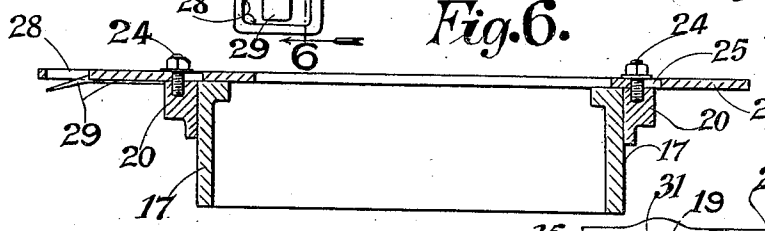
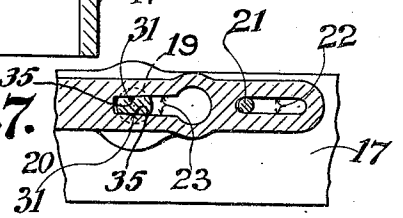


Fig. 7.



Inventor:
John Hamilton Larmuth.
per Ferdinand Brooker Bonhardt
Attorney.

Patented Oct. 11, 1932 1,882,152

UNITED STATES PATENT OFFICE

JOHN HAMILTON LARMUTH, OF UPPER COLWYN BAY, WALES

WINDING, STRANDING, COILING, LAPPING OR THE LIKE MACHINE

Application filed February 25, 1931, Serial No. 518,153, and in Great Britain March 15, 1930.

This invention relates to winding, stranding, coiling, lapping or the like machines wherein bobbins are mounted on spindles supported in slots or holes provided in the cradles or frames of the machines and the main object thereof is to facilitate the locking of the said spindles in the cradles or frames and the unlocking of the said spindles from the said cradles or frames.

I attain this and another object which will hereinafter appear, by means of the mechanism shown in the accompanying drawings and as hereinafter claimed. In the drawings—

Figure 1 is a fragmentary side elevation part of a bobbin cradle of a winding, stranding, coiling, lapping or the like machine and illustrates one construction.

Figure 2 is a fragmentary plan view thereof.

Figure 3 is a view in vertical section taken on line 3—3 of Figure 2.

Figure 4 is a fragmentary side elevation of part of a bobbin cradle of a winding, stranding, coiling, lapping or the like machine and illustrates another construction.

Figure 5 is a fragmentary plan view thereof, partly in section.

Figure 6 is a view in vertical section taken on line 6—6 of Figure 5.

Figure 7 is a fragmentary side view in vertical section and serves to illustrate a detail.

Referring to the drawings, in the construction shown in Figures 1 to 3, as applied by way of example to a machine provided with bobbin cradles each comprising two side parts 1 connected together by two end parts, of which one end part 2 is shown, and the bobbin rotating in the space surrounded by the side and end parts on a spindle having squared or round ends which engage in and rest on the bottom of cross slots 3 provided in the side parts 1 and having open tops situated in the upper surfaces of the side parts 1, I provide at one side of the top of each slot an undercut catch piece 4 which may be integral with the said side part 1 and projects upwardly from the upper surface thereof. At the other side of each slot 3 I provide a locking slide 5 which slides on the upper surface of the corresponding side part 1 and is guided by two studs 6 which are provided with nuts and project through slots 7 in the locking slide and screw into the side part 1.

That end of each locking slide 5 which is nearer the slot 3 is adapted to engage the recess in the corresponding undercut catch piece 4 when the slide is projected. The slides 5 are shown in the projected positions. The other end of each locking slide is provided with a lateral extension 8 which has a downwardly projecting pin 9.

A cross slide 10 is provided beneath the last named ends of the locking slides 5 and extends across the cradle from one side part 1 to the other and is accommodated in cross depressions 11 in the side parts 1. The cross slide 10 has two slots 12 arranged at an angle to the direction of its movement and each slot 12 is engaged by one of the pins 9 on locking slides 5. The cross slide 10 has an aperture 13 at one or both ends to enable it to be gripped more readily by the hand. The apertured ends may be bent upwards or not, as desired.

On one or both of the locking slides 5 there is a laterally projecting spring 14 provided with a thickened end 15 forming a shoulder adapted to engage one side of the corresponding aperture 13 in the cross slide 10.

In operation, to open the slots 3 for the reception of a spindle, the thickened end 15 of the spring 14 is pushed upwards out of the aperture 13 and the cross slide 10 is pulled and thus one side surface of each of the slots 12 therein is caused to act on the corresponding pin 9 to move it laterally of the slide 10 and therefore move the locking slide 5 along the corresponding side part 1 and cause its locking end to be withdrawn from above the open tops of the spindle slots 3 in side parts 1. The slots are thus free to have the square ends of the spindle dropped into them. When the said ends are in position in the said slots, one flat of each end is flush with the upper surface of the corresponding side part 1.

The cross slide 10 is then pushed in the opposite direction and the other side surface 12 of each slot therein then acts on the corre-

sponding pin 9 to project its locking slide 5 and cause the locking end thereof to pass over the open top of the spindle slot 3 and into the shown position in engagement with the catch piece 4. A single movement of the cross slide 10 thus causes the open tops of both of the spindle slots 3 to be securely closed against the escape of the spindle therefrom. The bolts 6 and their nuts on the one hand and the catch pieces 4 on the other hand form a very strong and reliable resistance against the breaking of the locking slides 5 away from the top of the spindle slots 3, which is particularly important when the cradle is intended to be rotated.

The thickened end 15 of the said spring 14 automatically engages the aperture 13 in the cross slide 10 and prevents movement thereof in the unlocking direction until again disengaged by hand.

By a single movement of the cross slide 10 in the first named or unlocking direction, both locking slides 5 are withdrawn from above the upper ends of spindle slots 3 and thus free the spindle for removal.

The end 16 of each of the slots in the cross slide 10, as shown, may be formed parallel with the direction of movement, the pins 9 entering the ends 16 when the locking slides 5 have been fully projected, whereby any tendency of the locking slides 5 to force the cross slide 10 in the unlocking direction is defeated.

In the construction shown in Figures 4 to 7, as applied by way of example to a cradle which consists of two side parts 17 connected together by two end parts of which one end part 38 is shown and having holes 18 through which the bobbin spindle 19 is threaded for the purpose of mounting it in the cradle, I provide on the outer side surface of each side part 17 a locking slide 20 mounted and guided at each side of the corresponding spindle hole 18 by headed screws 21 extending through longitudinal slots 22 in the slide and screwed into the said side parts 17. Each locking slide 20 has a key-hole 23 adapted to move across the outer orifice of the spindle hole 18.

Each slide 20 also has an upwardly projecting pin 24 which is in the form of a stud provided with a nut and which engages one of two slots 25 provided in a cross slide 26 mounted and guided on the upper surfaces of the side parts 17. The slots 25 are at an angle to the direction of movement of the cross slide 26 and may each have an end 27 which is parallel with the said direction.

The cross slide 26 is provided at one end with an aperture 28 for its more convenient manipulation and one of the locking slides 20 is provided with a spring catch 29 adapted to engage one side of the aperture 28.

The spindle 19 is provided at each end with two cross slots 30 the bottoms 31 of which are at a slight angle to each other. One end of the spindle 19 is also provided with an integral collar 32. The end 33 of the collar 32 is inclined and there is a corresponding incline 34 on the side of the slide 20. The sides 35 of the slots 30 at the opposite end of the spindles are also inclined and a correspondingly inclined face 36 is also provided on the other slide 20. The sides of narrower parts of the key-hole slots 23 may taper towards the closed end thereof.

The operation is similar to that hereinbefore described in so far as the cross slide 26 moves the locking slides 20 through the medium of the pins 24 and slots 25 and the catch 29 locks the cross slide 26 in the locking position.

To insert the spindle 19 in the cradle, the cross slide 26 is moved to bring the locking slides 20 simultaneously into positions where the enlarged ends of their key-hole slots 23 register with the spindle holes 18 in the side parts 17. That end of the spindle 19 which is not provided with a collar is then threaded through the key-hole slots 23 and holes 18 and incidentally through the bobbin until the collar 32 abuts against the outer side of one of the locking slides 20. The spindle 19 is brought by means of a tommy pin 37 fixed to the spindle and having a head into an angular position where the cross slots 30 therein will permit the narrower parts of the key-hole slots 23 to be engaged by the spindle 19 and the converging bottoms 31 of the cross-slots 30 face the said narrower parts. The cross slide 26 is then moved to displace simultaneously both of the locking slides 20 and cause the said narrower parts to be engaged by the spindle 19. As the narrower parts are engaged by the spindle 19, the mutually inclined bottoms 31 of the cross slots in the spindle and the taper of the key-hole slots cause a wedging or binding action to take place and thereby ensure a firm and rigid connection of the parts. Also the inclined surfaces 34 and 36 cooperate with the inclined surfaces 33 and 35 respectively to bind the spindle against axial movement or slackness. The spring catch 29 then automatically secures the cross slide 26 in the locking position. Thus the spindle 19 is maintained against axial movement. To release the spindle 19, the spring catch 29 is first released, and then the cross slide 26 is moved in opposite direction to displace the locking slides 20 into positions where the enlarged ends of the key-hole slots 23 register with the spindle holes 18.

The locking slides 20 in addition to locking the spindle 19 axially and against rotation also cause the weight of the bobbin, to be distributed between both side parts at all times, and particularly where the cradle is intended to rotate.

I claim—

1. In a winding, stranding, coiling, lapping or the like machine, a bobbin carrying mem-

ber, a bobbin spindle supported therein, locking slides mounted on the bobbin carrying member to slide at right angles to the axis of the bobbin spindle, an operating slide mounted on the bobbin carrying member to slide parallel with the said axis, slanting surfaces on the operating slide, and projections on the locking slides and acted on by the slanting surfaces which thereby slide the locking slides into bobbin spindle locking and unlocking positions on actuation of operating slide in the requisite direction.

2. A winding, stranding, coiling, lapping or the like machine according to claim 1 wherein the slanting surfaces join surfaces which are parallel with the axis of the bobbin spindle and act on the said projection and prevent movement of the locking slides when the operating slide is in locking position.

3. In a winding, stranding, coiling, lapping or the like machine, a bobbin carrying member having bobbin spindle holes, a bobbin spindle mounted in the said holes, cross slots in the bobbin spindle, locking members provided on the bobbin carrying member and engaging the cross slots in one position, and an actuating member provided on the bobbin carrying member for moving the locking members into and out of the engaging position.

4. A winding, stranding, coiling, lapping or the like machine according to claim 3, wherein the cross slots in the bobbin spindle are provided with inclined bottoms which are acted on by the two locking members which thereby bind the spindle laterally in position when the said members are in the locking position.

5. A winding, stranding, coiling, lapping or the like machine according to claim 3, wherein a fixed collar is provided on the bobbin spindle and a flat, inclined surface is provided on the said collar and is acted on by one of the two locking members which bind the spindle longitudinally in position when the said members are in the locking positions.

In testimony whereof, I have signed my name to this specification at Manchester in the county of Lancaster, England, this 22nd day of January, 1931.

JOHN HAMILTON LARMUTH.