

Aug. 4, 1936.

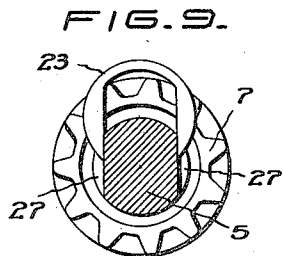
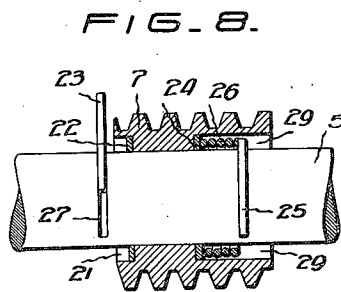
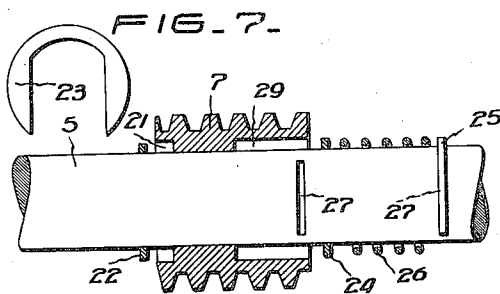
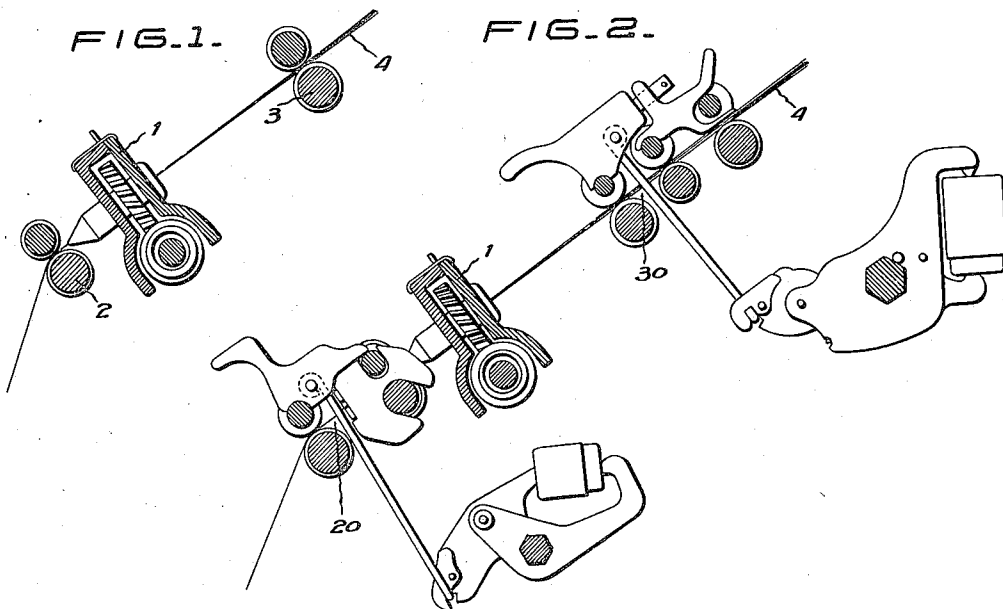
F. CASABLANCAS

2,049,945

FALSE TWIST MECHANISM FOR TEXTILE ROVINGS

Filed Nov. 23, 1933

3 Sheets-Sheet 1



Inventor
Fernando Casablanco
by Wilkinson & Mawhinney
Attorneys.

Aug. 4, 1936.

F. CASABLANCAS

2,049,945

FALSE TWIST MECHANISM FOR TEXTILE ROVINGS

Filed Nov. 23, 1933

3 Sheets-Sheet 2

FIG. 3.

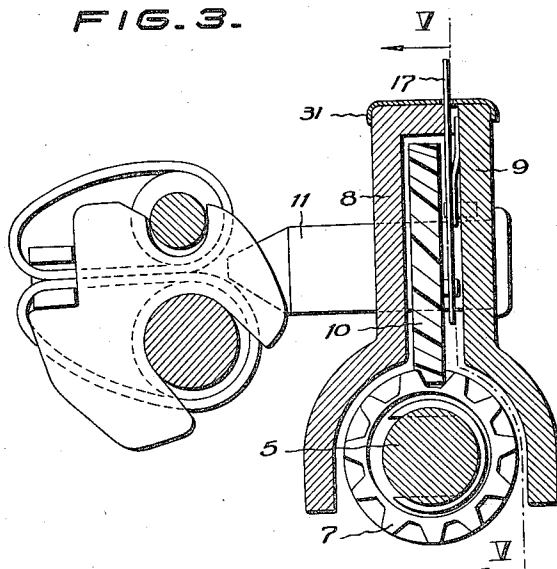
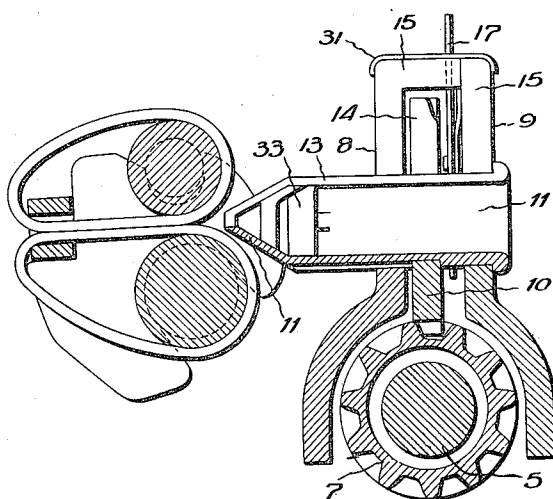


FIG. 4.



Inventor
Fernando Casablanca
by Wilkinson & Mawhinney
Attorneys.

Aug. 4, 1936.

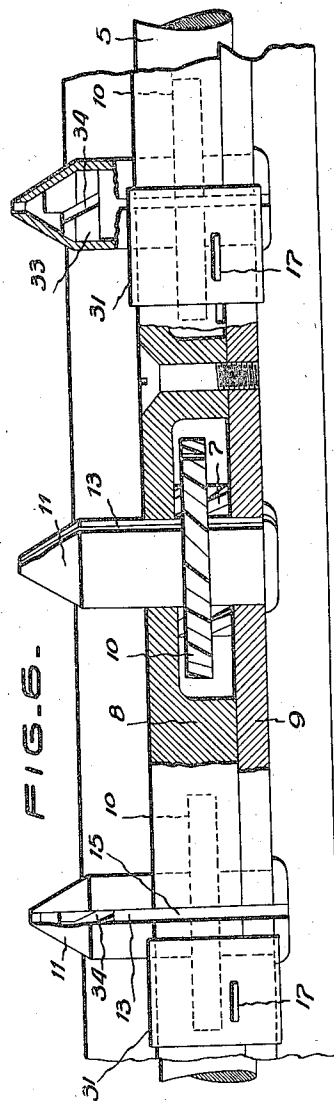
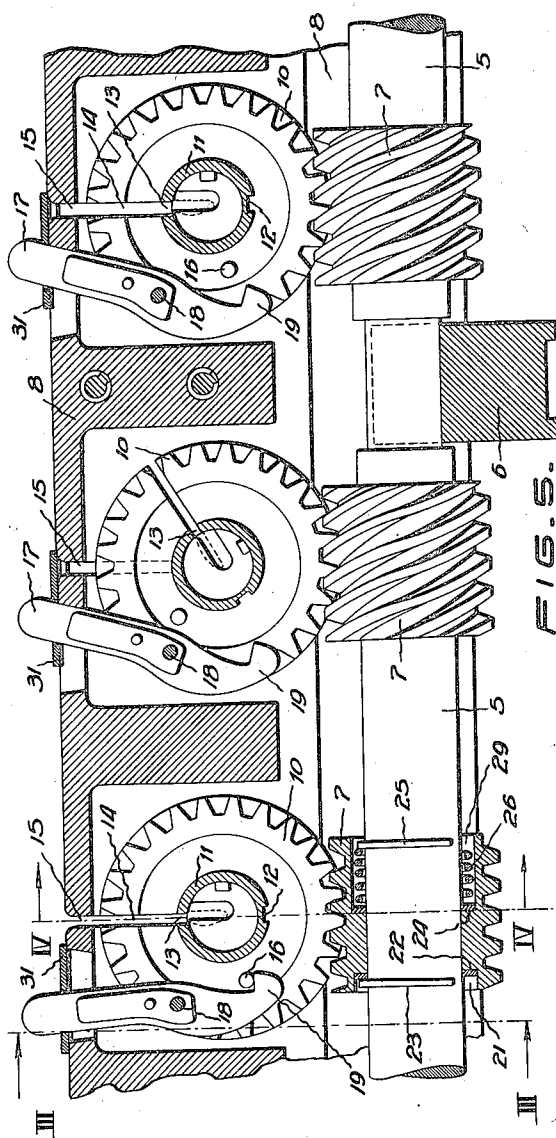
F. CASABLANCAS

2,049,945

FALSE TWIST MECHANISM FOR TEXTILE ROVINGS

Filed Nov. 23, 1933

3 Sheets-Sheet 3



Inventor
Fernando Casablanca
by Wilkinson & Mawhinney
Attorneys.

UNITED STATES PATENT OFFICE

2,049,945

FALSE TWIST MECHANISM FOR
TEXTILE ROVINGS

Fernando Casablancas, Sabadell, Spain

Application November 23, 1933, Serial No. 699,450
In Spain December 13, 1932

6 Claims. (Cl. 19—154)

The object of this invention is a false twist mechanism to give a false twist to the sliver or roving while it is being drawn. This false twist mechanism is applicable in a general way to all cases of drawing with a false twist, but it is particularly appropriate for the spinning machines in which are combined several drawing mechanisms in succession with a false twist tube or mechanism interposed between them in such a way that the sliver or roving, passing only once through the machine, is drawn several times and receives a false twist.

This modern type of spinning machines permits the obtaining of an extraordinary and very regular drawing but it is necessary for the false twist mechanism to comply with certain conditions so as to permit of convenient handling of the machine and particularly so as to permit of easy introduction of the roving into the twist tube and into the front drawing mechanism when the machine is started up or when for any reason the roving breaks.

The false twist mechanism of my invention fulfills all of these conditions, since it permits of easy insertion of the roving, and after the roving has been inserted into the twist tube allows the roving to be easily conveyed to the rollers or belts of the front drawing mechanism.

This mechanism comprises for each roving (or for each two rovings in the case of spinning with double roving) one false twist tube composed of a cylindrical tube with a conical point through the interior of which the roving is made to pass, this tube having in its interior a member which causes friction with the roving, with the object of imparting to the latter while passing through the tube the rotating motion of the tube.

The twist tubes corresponding to the different rovings are all mounted on a bar or frame which extends upon the whole length of the machine and they receive a rotating motion by means of helical gearing for which purpose each of the tubes is joined to a helical wheel and below the bar or frame is arranged along the length of the machine a shaft, positively driven, bearing at appropriate intervals a series of helical pinions each of which engages with the helical wheel of a false twist tube.

In order to facilitate the insertion of the roving, the false twist tube has a longitudinal slot and in the same way the helical wheel joined to the tube and the bar or frame are also slotted. The movement of the false twist tube and of the toothed wheel joined to it can be stopped at will in such a position that their slot corre-

sponds with the slot on the bar or frame, with the object of facilitating the introduction of the roving into the tube. In order to permit this stopping of the tube the helical pinions are mounted on the lower shaft with the interposition of a friction coupling in such a way that when one tube with its helical wheel is stopped, the helical pinion corresponding stops likewise, but the shaft continues to rotate and to drive the remaining tubes.

In the enclosed drawings is represented the false twist mechanism of this invention.

Figure 1 represents schematically in cross-section the application of this false twist mechanism between two pairs of rollers which effect the drawing of the roving.

Figure 2 represents, also schematically, the application to a spinning machine with double drawing mechanism.

Figure 3 is a cross-section of the mechanism through the line III—III of Figure 5.

Figure 4 is another similar section through the line IV—IV of Figure 5.

Figure 5 is a longitudinal section through the line V—V of Figure 3, one of the pinions being shown in section.

Figure 6 is a plan view with certain parts in section, and

Figure 7, 8, and 9 are details of the friction coupling joining the helical pinions to the shaft.

In Figure 1 there is represented schematically a simple drawing machine with false twist, comprising the false twist mechanism 1 interposed between two pairs of rollers 2 and 3 which effect the drawing of the roving 4.

In Figure 2 there is represented, likewise schematically, the false twist mechanism 1 applied to a spinning machine comprising two drawing mechanisms: the front one 20 being a high draft mechanism, with endless belts, of known type and the others a rear drawing mechanism 30 which is represented as being composed of a mechanism with three pairs of rollers. In this machine the roving 4 undergoes three successive drawings: the first drawing in the rear mechanism 30, a second drawing simultaneously with false twist from the front rollers of the mechanism 30 to the belts or rear rollers of the mechanism 20, and a third drawing in this front mechanism 20.

The false twist mechanism comprises a bar, enclosure or frame 8—9, which extends throughout the length of the machine and supports the twist tubes 11 and an under shaft 5, which also runs the

whole length of the machine and bears helical pinions 7 to operate these twist tubes.

The bar or frame 8-9 is constructed in two parts which can be separated in order to mount the interior mechanism and bears at intervals corresponding to the distance between two adjacent rovings the false twist tubes 11. Each of these false twist tubes is joined to a helical toothed wheel 10 and this in its turn receives its motion from a helical pinion 7 mounted on the shaft 5.

The shaft 5 is mounted on bearings 6 of any suitable arrangement so that it may turn but not slide longitudinally while on the other hand the frame 8-9 is mounted in such a way that it can undergo a reciprocating movement transverse to the direction of the roving, following the movement of the rear roving guide-bar. In order to permit of this reciprocating movement of the frame 8-9, the pinions 7 have a relatively great length so that even when the frame moves and the wheels 10 are displaced longitudinally in relation to the pinions 7, these wheels continue to engage with the said pinions 7.

The false twist tubes 11 are simply housed in suitable apertures in the frame 8-9 in such a way that they can rotate and slide axially in the said apertures. In the example of construction shown in the drawings these tubes 11 are of cylindrical form, with conical points, and in their interior have fixed near to their points the pieces 33 which block the tubes leaving only an inclined or curved groove 34 for the passage of the roving so that the latter when passing through the tube is subjected to friction and follows the rotating motion of the tube.

Each of these tubes 11 is joined to the corresponding wheel 10 by a tongue and groove joint 12 which permits the tube 11 to slide axially in relation to the wheel but on the other hand both parts move together as far as the rotating motion is concerned.

In order to permit of the insertion of the roving into the twist tube 11, the latter has a longitudinal slot at 13 and the wheel 10 joined to the tube has also a radial slot 14 so that when the tube is joined to the wheel these two slots coincide. In its turn the bar or frame 8-9 also has a slot 15 corresponding to each of the false twist tubes so that when the three slots 13, 14, and 15 coincide the roving can readily be introduced through the slot 15 into the interior of the twist tube 11.

In order to hold the tube and the wheel in the position where their slots coincide with the slot 15 there is arranged on one of the faces of the wheel a projection or pin 16 and on the frame there is arranged for each false twist tube a lever 17 rotating around a shaft or pin 18, and ending at its lower end in the form of a hook 19 arranged in such a way that if the lever is swung over as shown in the left-hand side of Figure 5, the hook 19 is brought into the path of the projection 16 and when owing to the rotating motion of the wheel 10 this projection strikes against the hook 19, the wheel is held in position and the slot in the said wheel and that of the tube coincide with the slot 15 in the frame 8. When any of the wheels and its twist tube is stopped, the shaft 5 continues to rotate, but the pinion 7 corresponding to the wheel in question is stopped owing to the friction coupling by means of which it is mounted on the shaft 5.

With the lever 17 there can be combined as shown in the drawings a small sliding cover 31 which in normal working position closes the slot

15, but on the other hand when the lever 17 is moved to stop the wheel and the twist tube, this slot is opened so as to enable the passage of the roving. The fitting of this sliding cover 31 is for the purpose of avoiding the possibility of the operator's inserting the roving through the slot 15 if the wheel 10 and the twist tube 11 are not stopped in the position where their slots coincide with the slot 15.

In the left-hand part of Figure 5 and in Figures 7 to 9 there is shown the friction coupling that is used to mount the pinions 7 on the shaft 5. As can be seen from these figures, the pinion 7 has at one of its ends a small opening 21 in which can be housed a washer of fibre or other similar material, 22, and the retention washer 23, while at the other end the pinion 7 has another deeper opening or groove 29 in which, apart from the friction washer 24 and the retention washer 25, there is housed a spring 26, the whole remaining in the position shown in Figure 5. The retention washers 23 and 25 which are open, or more precisely are of horse-shoe shape, are fixed on the shaft 5, the two prongs of each washer fitting into two upright grooves 27, diametrically opposite, formed in the shaft 5.

The spring 26 supported against the retention washer 25 exerts pressure on the friction washer 24 and then applies the other friction washer 22 against the retention washer 23, thus establishing between the shaft 5 and the pinion 7 a friction sufficient to drive this pinion 7 normally and thus to drive the wheel 10 and the twist wheel 11. But if the motion of the wheel 10 and of the twist tube 11 is stopped, as shown in the left-hand part of Figure 5, then the pinion 7 is also stopped and thanks to the friction coupling the shaft 5 although continuing to drive all of the other pinions 7, slips round inside the one that is stopped.

In order to mount the pinions 7 on the shaft 5, the procedure is as shown in Figures 7 to 9. For each of the pinions the open washer 25 is first inserted in the groove 27 corresponding and then the spring 26, the friction washer 24, the pinion 7 and the other friction washer 22 are pushed on to the shaft 5. The pinion is slipped along to the right as shown in Figure 8, depressing the spring 26 until the other grooves 27 are exposed and then the other open washer 23 is inserted in these grooves 27, as is shown in Figures 8 and 9. Upon releasing the pinion 7 the spring 26 forces the latter towards the left and it remains in the position shown in Figure 5 where both of the washers 23 and 25 are housed in the internal grooves 21 and 29 of the pinion and in consequence are prevented from becoming unfastened despite the fact that they are open washers. This arrangement permits the construction of the shaft 5 without 60 projections so that all of the pinions 7 and the parts forming the friction coupling can be put on from either of the ends of the shaft 5.

I claim:—

1. A false twist mechanism for textile rovings comprising a plurality of false twist tubes, a toothed gear connected to each of said tubes to rotate therewith, a frame to support said gears, a driving shaft, a toothed pinion to mesh with each of said gears, a frictional connection between said shaft and each of said pinions to rotate the same with said gears, and means supported on said frame operative to contact with said gears for selectively stopping any of the same with the tube connected thereto along with the pinion for driv-

ing the same without preventing the continued operation of the other false twist tubes.

2. A false twist mechanism for textile rovings comprising a false twist tube, a rotatable member connected to rotate therewith, the said tube and rotatable member each having a radial slot, a frame to support the rotatable member with said tube and provided with a slot, a driving shaft, a driving member frictionally connected upon the shaft to drive said rotatable member, and means supported upon said frame operative to contact with the rotatable member to stop the rotation of said member and the tube with their slots in alinement with the slot in the frame and to also stop said driving member without stopping the rotation of the shaft.

3. A false twist mechanism for textile rovings comprising a false twist tube, a rotatable member connected to rotate therewith, the said tube and rotatable member each provided with a radial slot, a frame to support said tube and rotatable member and provided with a slot, a driving shaft, a pinion frictionally connected upon the shaft to drive the rotatable member, a pin fixed to said rotatable member, and a lever pivotally mounted to said frame and having a hooked end spaced from said pin, the said lever operable to swing the hooked end into engagement with said pin to stop the movement of said rotatable member and the tube with their slots in alinement with the slot in the frame and to also stop said pinion without stopping the rotation of the shaft.

4. A false twist mechanism for textile rovings comprising a false twist tube, a rotatable member connected to rotate therewith, the said tube and rotatable member each provided with a radial slot, a frame having a top and spaced front and rear walls to support said rotatable member, the said frame cut transversely to provide a slot across the top and downwardly along the front and rear walls, and cut longitudinally to provide a slot upon the top spaced from the other slot, a driving shaft, a driving member frictionally connected upon the shaft to drive said rotatable member, a pin fixed to said rotatable member, a lever pivotally mounted upon the frame with a hooked end spaced from said pin and having its

other end project through said longitudinally extending slot in the frame to permit movement of said lever to stop the rotatable member and tube with their slots in alinement with the transversely extending slot in the frame without stopping the driving shaft, and a guard plate carried by the lever to slide therewith upon the top of the frame to close the transversely extending slot when the parts are positioned to operate and to open said slot in stopped position.

5. A false twist mechanism for textile rovings comprising a false twist tube, a driven toothed wheel surrounding said tube and coupled fixedly to same, a driving shaft which extends for all the length of the machine, a toothed driving wheel mounted on this driving shaft to mesh with the said driven toothed wheel for rotating the same and having an axial recess in the interior of this toothed driving wheel, and a friction coupling lodged in the said axial recess for coupling the driving shaft with the toothed driving wheel, to cause this wheel to normally rotate and to permit the same to be stopped without preventing the continued rotation of the driving shaft by stopping the movement of the driven toothed wheel together with the twist tube.

6. A false twist mechanism for textile rovings comprising a false twist tube, a driven toothed wheel which surrounds said tube and is coupled to same by a slot and key joint, a frame to support said twist tube and said toothed wheel, a lower driving shaft, a toothed driving wheel mounted on this driving shaft and meshing with the driven toothed wheel, a friction coupling for coupling the said toothed driving wheel with the said driving shaft, slots which coincide in the twist tube and in the driven toothed wheel which surrounds it, a slot in the frame, means for stopping the movement of the driven toothed wheel and of the twist tube in such a position that their slots coincide with the slot of the frame and a sliding cover on the top part of the frame which normally keeps closed the slot of the frame and leaves it uncovered when the means for stopping the twist tube come into action.

FERNANDO CASABLANCAS.