Oct. 12, 1937. F. CASABLANCAS 2,095,518

MECHANISM FOR SUSPENDING THE BOBBINS OF ROVING ON THE CREELS OF SPINNING MACHINES

Filed May 4, 1936 2 Sheets-Sheet 1

FIG. 1.

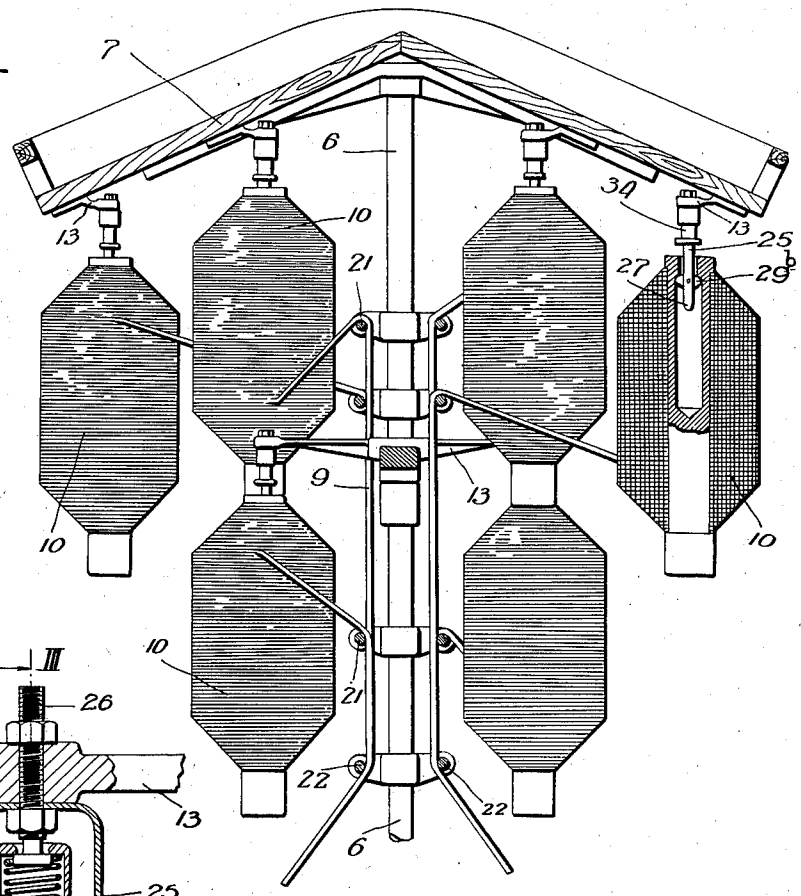
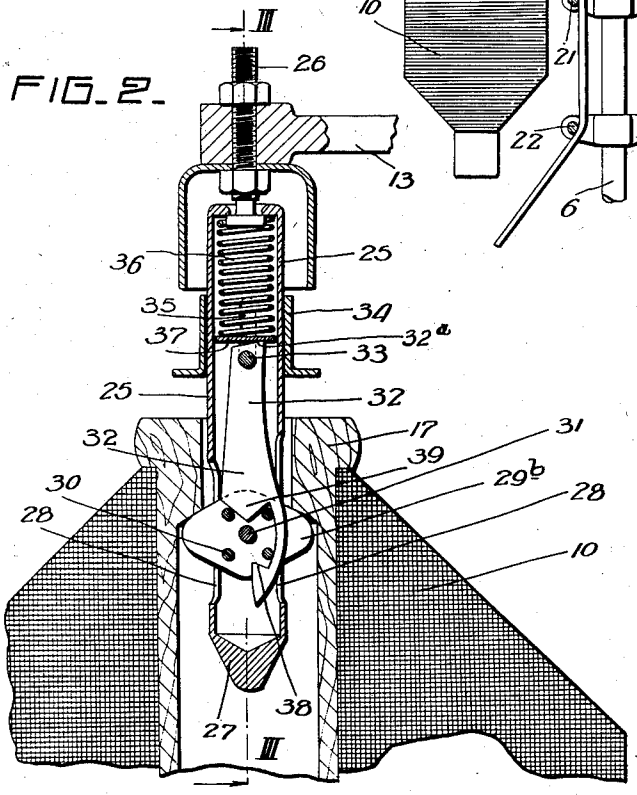


FIG. 2.



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FIG. 4.

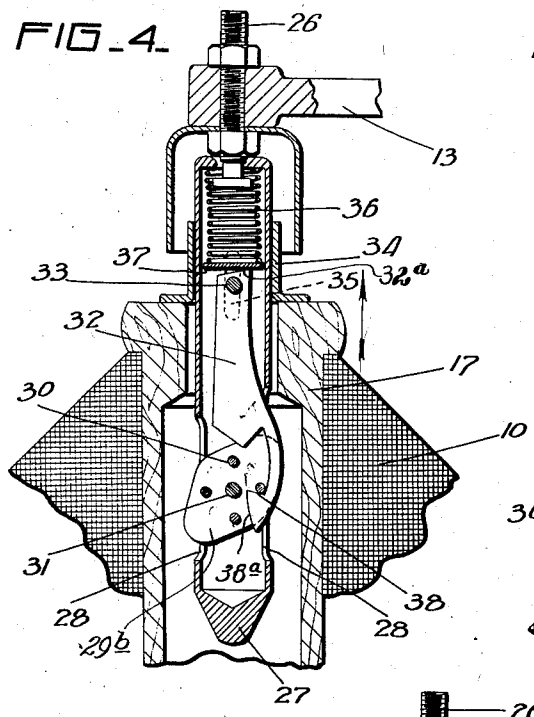


FIG. 5.

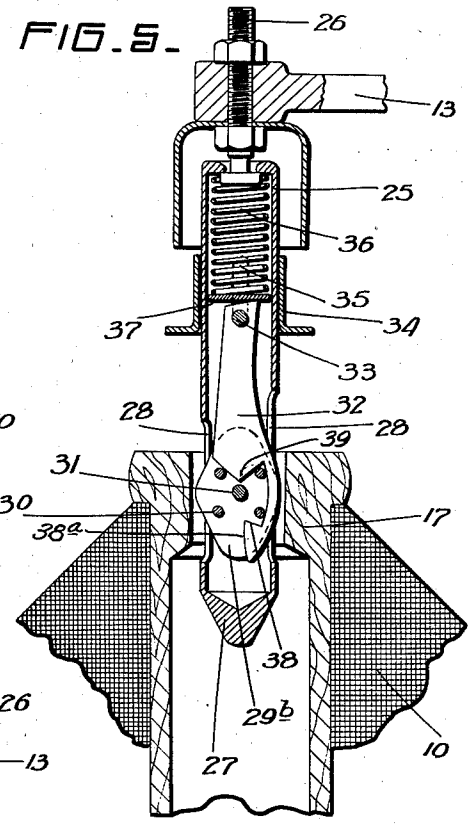
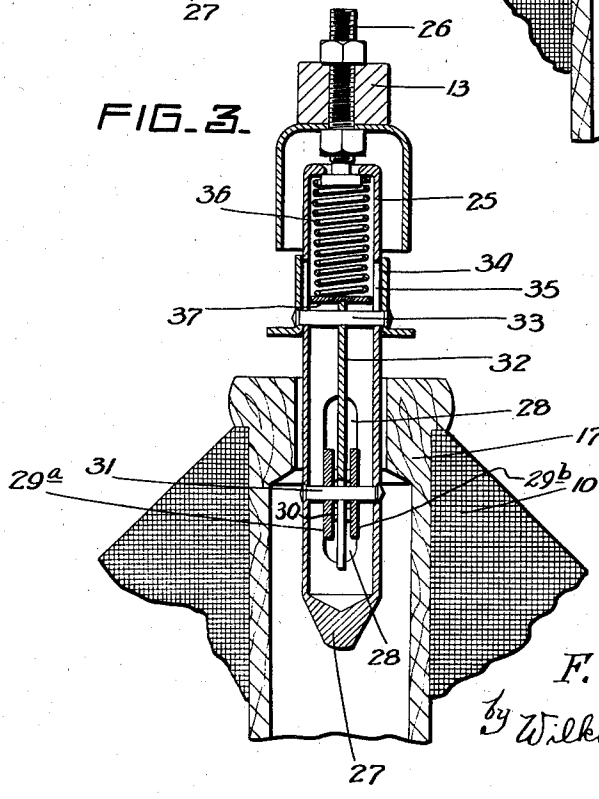


FIG. 3.



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MECHANISM FOR SUSPENDING THE BOBBINS OF ROVING ON THE CREELS OF SPINNING MACHINES

Fernando Casablancas, Sabadell, Spain

Application May 4, 1936, Serial No. 77,835
In Spain June 11, 1935

7 Claims. (Cl. 242—130)

The present invention refers to a mechanism for suspending the bobbins of roving or sliver, especially applicable to the creels of those spinning or preparing machines, in which the bobbins instead of being mounted on skewers supported on their foot or lower end, are suspended by their top end from some revolving supports mounted on the creel.

In the machines of this type already known, the creel or frame which holds the roving bobbins presents on the point corresponding to the position of each bobbin, small supports which form a suspension hoop revolving on a ball bearing and the bobbins are fitted on the said creel introducing in their interior part a skewer or bobbin carrier shaft which terminates on the lower part in a handle and on the top part in a hook and suspending this hook from the hoop of the creel. This mechanism however, presents the objection that as the hoops from which the bobbins are suspended revolve, seeing that they are mounted on a ball bearing, their position varies and at times they remain in such a position that it is not easy to hang on this hoop the hook of the skewer.

In order to avoid this trouble there has been proposed the arrangement in the supports, instead of the revolving hoop, a suspension piece for the bobbin, also revolving freely and formed by a cylindrical body of an appropriate diameter for introducing the same in the tube or nucleus of the bobbin and provided with some retaining springs which hold the bobbin. With this mechanism there is avoided having to introduce a skewer in the tube of the bobbin in order to suspend same, but as the springs must have sufficient force to sustain the weight of the bobbin, there results that in order to fit the bobbin in the supporting mechanism, the bobbin has to be handled with force, and this easily damages the rovings.

The suspension mechanism of my invention includes also a cylindrical body suspended from the creel in such a way that it can easily revolve and which is introduced in the tube of the bobbin in order to suspend it, but the retaining mechanism of the bobbin, in accordance with this invention, does not require more than a minimum force to work it. To this end, in the interior of the cylindrical body there is a bolt or retaining piece for the bobbin, consisting of a piece of elongated form which extends through two slots diametrically opposed in the surface of the cylindrical body. This retaining piece may take two positions, in one of which it remains horizontal forming projections on both sides of the cylindrical body for the suspension of the bobbin, whilst in the other it remains vertical and does not hardly project from the outside contour of the cylindrical body and in this position it is easy to place or withdraw the bobbin.

The movement of rotation of this retaining piece is obtained by means of a hook or ratchet forming part of an outside sleeve on the cylindrical body and which is driven by the same end of the bobbin tube in the movement of placing or withdrawing the same.

In the attached drawings there is shown as an example a creel with the suspension mechanism which is the object of this invention.

Figure 1 is an elevation in cross section of the creel of a spinning machine embodying the invention.

Figure 2 shows in vertical section the suspension mechanism fixed to the support arm of the creel and with a bobbin suspended from same.

Figure 3 is a vertical section through the line III—III of Figure 2, and

Figures 4 and 5 show the method of withdrawing the bobbin from the support.

As is seen in Fig. 1, the creel is preferably made up of vertical bars or stays **6** fixed in the central part of the machine, which support on the top part a covering **7** to which there are fixed in convenient points the supports **13** which hold the suspension mechanism of the bobbins **10**.

Underneath the covering, this creel has a longitudinal bar **9** also fixed to the stays **6** which in turn carries other support arms **13** for the suspension mechanisms of the bobbins, with the object of being able to arrange the bobbins in various lines or files.

The creel also carries some guide bars **21**, **22**, through which there pass the rovings which are unrolled from the bobbins **10** in order to direct themselves towards the lower part and pass to the mechanisms which have to work them.

The suspension mechanism which is the object of my invention is conveniently fixed to the creel, for example, by means of the supports **13** and includes a cylindrical piece **25** which is suspended in such a way that it can turn from a screw or pin **26** fixed to the arm or support **13**. The suspension of the piece **25** is effected as is shown in the drawings by means of a rim or border of the piece **25** which engages on the lower head of the screw **26** or also it can be done by means of any other convenient means, for example through a ball bearing if there should be desired to obtain a greater ease of rotation of the bobbin **10**.

The cylindrical body **25** which forms the covering of the suspension mechanism, finishes at

its lower end in a point 27 in order to facilitate the introduction of the bobbin and presents laterally two opposed slots 28 through which there projects a revolving bolt or retaining piece 29a, 29b which when it is in the position of Figure 1 keeps suspended the tube 17 of the bobbin 10 and when it is in the position of Figure 5 allows the passage of this tube for placing or withdrawing same.

As is seen in Figure 3 the bolt is made up preferably of two pieces 29a and 29b of stamped metallic sheet, arranged parallel one to the other with a slight separation, joined together by means of four rivets 30 and revolving freely around a shaft or central pin 31 fixed to the cover 25.

The positions of this bolt 29a, 29b are established by means of a pawl 32 pivoted around the shaft 33 which passing through longitudinal openings 35 of the cover 25 is fixed to an outside sleeve 34 which can slide on this cover. On the upper end of the pawl 32 which preferably is cut in an inclined form 32a, there acts a spring 36 by means of the disc 37 in such a way that this spring tends to maintain the pawl 32 and consequently the outer sleeve 34 coupled to it, in the lower position shown in Figures 2 and 3.

The pawl 32 forms in the lower part a hook 38 which on the pawl 32 rising acts on one of the rivets 30 in order to turn the bolt 29a, 29b and on top of this hook the pawl 32 presents a central salient 39 of angular form which when this pawl 32 is in the lower position engages with the two top rivets 30 in order to fix the position of the bolt 29a, 29b preventing this from moving accidentally.

As is easily seen from the foregoing description, when the bobbin is suspended from the mechanism as is shown in Figures 1 to 3; in order to withdraw the bobbin it is sufficient to take same by the lower part and lift it upon which the top end of the tube 17 of the bobbin meets with the lower rim of the sleeve 34 and pushes this sleeve upwards. Owing to this movement and as is shown in Figure 4, the pawl 32 makes the bolt 29a, 29b turn in order to put it vertical, in which position the bobbin is freed and can be withdrawn from the support. On withdrawing the bobbin, the tube 17 ceases to exert pressure on the sleeve 34 and this descends again with the pawl 32; the bolt 29a, 29b then becomes fixed in the vertical position as is shown in Figure 5.

In order to put in a bobbin this is done in exactly the same way, that is, the bobbin is put on when the mechanism is in the position of Figure 5, pushing slightly upwards, upon which the top end of the tube 17 moves the sleeve 34 and the pawl 32 makes the bolt 29a, 29b turn again in order to put it in the position of Figure 1.

Figure 2 shows the horizontal locking position of the bolt 29a, 29b. Figure 4 shows the bolt in a diagonal position in the act of being moved to the vertical unlocking position by the action of the pawl 32. Figure 5 illustrates the full vertical position of the bolt permitting the escape of the bobbin from the suspension device, and the insertion thereover of another bobbin.

In moving from the position indicated in Figure 4 to that indicated in Figure 5, the pawl 32 first moves upwardly to the upper limit of its movement and then again descends to the position shown in Figure 5. In its descent the beveled nose 38a of the hook will encounter the next adjacent lower pin or rivet 30 without in any way causing any retrograde rotation of the bolt in a clockwise direction. The engagement of the beveled or curved nose 38a with the lower right hand pin or rivet 30 will cause the pawl 32 to swing to the right on its suspension pivot 33 to permit the shouldered hook 38 to move outwardly about such pin or rivet and to clear the rivet so that the shoulder of the hook 38 can get beneath same as indicated in Figure 5. The camming action of the beveled nose 38a is yieldably resisted by the coil spring 36, the higher upper edge of the pawl 32 slightly lifting the plate 37 when the pawl 32 is thus swung to the right. Through the plate 37 the coil spring 36 exerts a constant yielding pressure on this higher upper edge of the pawl 32, yieldably urging the pawl 32 to swing in a clockwise direction about its fulcrum 33. Should there be any friction between the nose 38a and the pin tending to carry the bolt around in a retrograde clockwise direction with the pawl on the descending movement of the latter, any such rotation of the bolt will be prevented by reason of the projection 39 of the pawl entering between the two uppermost pins or rivets 30 of the bolt. The left hand inclined surface of the projection 39 will have a camming action on the upper left pin or rivet 30 tending to complete the counterclockwise movement of the bolt to its upper true vertical position if for any reason the hook 38 fails to accomplish the purpose which it initiated.

With this mechanism there is consequently avoided the necessity of threading previously a skewer in the interior of the tube of the bobbin, in order to hang this from the frame and in addition there is facilitated the operation of placing and taking out the bobbins, as the effort necessary for making the retaining bolt act is minimum and there is therefore no danger of damaging the rovings.

I claim:—

1. A device for suspending bobbins from the creels of spinning machines comprising a supporting member, a bolt movably carried by said supporting member and having oppositely projecting parts movable to a substantially horizontal position to support the bobbin and movable to a substantially vertical position to free the bobbin from the suspending device, actuating means for said bolt movable up and down on said supporting member and carried by said supporting member, means for yieldably urging said actuating means downwardly, and means positioned to be encountered by the bobbin for lifting said actuating means.

2. A device for suspending bobbins from the creels of spinning machines comprising a supporting member carried by the creel, a bolt rotatable on said supporting member and having oppositely projecting parts adapted in the substantially horizontal position thereof to engage and support the bobbin and in the substantially vertical position of said parts to free the bobbin from its suspending device, spaced pins distributed around the center of movement of said bolt, an escapement member movably carried by said supporting member and having operative engagement with said pins to cause said bolt to rotate through substantially a quarter turn on each lifting movement of said escapement member, said escapement member having means to restrain the bolt against rotation on the downward movement of said escapement member, a sleeve carried by said supporting member and slidable with respect thereto, said sleeve being coupled to move said escapement member and

positioned to be engaged and moved by said bobbin, and means for yieldably urging said sleeve and escapement member downwardly.

3. A device for suspending bobbins from the creels of spinning machines comprising a supporting member carried by the creel, a rotary bolt supported by said supporting member and having oppositely projecting parts engageable in the substantially horizontal position thereof with the bobbin to support the same and in the substantially vertical position of said parts to free the bobbin from its suspending device, an escapement member carried by said supporting member but having a limited movement with respect thereto and having operative connection to said bolt for rotating the bolt through substantially a quarter turn on each movement of the escapement member in one direction, an external operating member fixed to move with said escapement member but having a limited movement with respect to said supporting member and positioned to be engaged and moved by said bobbin in the act of placing the bobbin on the suspending device, said external operating member acting to move the escapement member in one direction, and yieldable means for returning the escapement member in the opposite direction.

4. A device for suspending bobbins from the creels of spinning machines comprising a tubular support rotatably hung from the creel having a lower inclined nose and slots in its side walls, a bolt pivoted in said tubular support and having opposite parts adapted in the horizontal position to project out through said slots and support the bobbin, said bolt being rotatable to a vertical position of said parts where the parts lie substantially within said hollow support to free the bobbin from its suspending device, an escapement member movably carried within said hollow support and having operative connection to rotate said bolt through substantially a quarter turn on every lifting movement of said escapement member and for holding said bolt against rotation on every downward returning movement of said escapement member, yieldable means in said hollow support to urge the escapement member downwardly, and an external member directly coupled to said escapement member and having a sliding movement up and down upon said hollow support, said external member having a part arranged in the path of a bobbin whereby the bobbin acting through external member may lift the escapement member.

5. A device for suspending bobbins from the creels of spinning machines comprising a support on the creel receivable in the tube of a bobbin, a movable bolt carried by said support and having oppositely projecting parts for engaging and supporting the bobbin, an escapement member pivotally and slidably carried by said support and having connection to move said bolt to a horizontal position with said parts projecting and forming a support for the bobbin and to a vertical position in which said parts are free of the bobbin, yieldable means for urging said escapement member to a lower position on the support and at the same time tending to swing said escapement member toward its connection with said bolt, and an external operating member positioned in the path of the bobbin and having a sliding movement on said support, said external operating member being connected to said escapement member.

6. A mechanism for suspending bobbins from the creels of spinning machines comprising a support, a bolt rotatably carried by said support and having oppositely projecting parts for supporting the bobbin in one angular position of the bolt, said bolt having four pins spaced about the pivotal center of the bolt, an escapement member movably carried by said support and having a hook engageable successively under said pins to lift the pins and rotate the bolt, and an operating member in the path of the bobbin fixedly connected to said escapement member and movable up and down relatively to said support.

7. A device for suspending bobbins from the creels of spinning machines comprising a support, a bolt rotatably mounted on the support and having pins thereon distributed in spaced relation to one another about the pivotal center of the bolt, an escapement member movably carried by said support and having a hook to engage beneath and lift said pins with consequent rotation of said bolt, said escapement member also having a projecting portion to enter the space between two adjacent pins to restrain the bolt from rotation on the return movement of said escapement member.

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