PATENT SPECIFICATION (11) 1302863

DRAWINGS ATTACHED

(21) Application No. 34672/69 (22) Filed 9 July 1969

(23) Complete Specification filed 25 June 1970

(44) Complete Specification published 10 Jan. 1973

(51) International Classification B65H 49/06

(52) Index at acceptance D1J E

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(54) IMPROVEMENTS IN OR RELATING TO HOLDERS FOR BOBBINS IN SPINNING AND PREPARATORY MACHINES

(71) We, CASABLANCAS LIMITED, a British Company, of Bolton Street, Salford 3, Manchester, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to holders for bobbins in spinning and preparatory machines.

Bobbin holders are conventionally carried in creels on hollow rails, commonly of triangular section with the apexes at the top and the bases slotted. A screw of the bobbin holder passes through the slot and engages with a nut disposed within the rail section. In some cases it is possible loosely to assemble the nut and the screw off the creel and then to slide the assembly along the creel rail from one end of the machine, but in most cases pillars and other supports prevent such sliding and the assembling has to be done in approximately the right position. This involves pushing the nut through the slot of the rail in approximately the right position and then engaging the screw with this floating and inaccessible nut. It will be appreciated that is is a difficult and time consuming procedure.

According to the present invention there is provided a bobbin holder and an associated suspension member for suspending the bobbin holder from a creel rail having a slotted base, the bobbin holder and the suspension member being connected together to form a unit that can be releasably attached to such a creel rail without disassembling the unit; the suspension member having a head with a shank extending therefrom and said head and said shank being of a configuration such that said head can be passed into the creel rail through the slot in the base thereof and the unit rotated to move said head into position to straddle the slot, and such that the slot-straddling position of said head is determined either by engagement of said shank with opposed edges of the slot, or by engagement of said head with opposed inner faces of the creel rail, such engagement preventing rotation of said head beyond its slot-straddling position; the connection of said shank to the bobbin holder being such that further rotation of a part of the bobbin holder engaged with said shank after the head has reached its slot-straddling position brings about relative movement of said bobbin holder part and the head to clamp the unit to the creel rail.

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings, in which:—

Figure 1 is an elevational view, partly in section, of a bobbin holder and associated suspension member forming a unit that can be secured to a creel rail,

Figure 2 is a mainly sectional elevation of the upper part of the bobbin holder and the associated suspension member of Figure 1 shown, in Figure 2, secured to one form of creel rail,

Figure 3 is a mainly sectional elevation similar to Figure 2 but showing the bobbin holder and suspension member unit secured to a second form of creel rail,

Figure 4 is a mainly sectional elevation similar to Figure 3 but showing a brake support mounted between the bobbin holder and the creel rail,

Figure 5 is an elevation of a carrier of the bobbin holder of Figures 1 to 4,

Figure 6 is a sectional elevation of a cap of the bobbin holder,

Figures 7, 8 and 9 are respectively front, plan and side views of the suspension member of Figures 1 to 4,

Figure 10 is a sectional view of the suspension member taken on the line X—X of Figure 9, a head of the member being omitted,

Figure 11 is a sectional side view, on

a larger scale than Figures 7 to 10, of part of the suspension member,

Figure 12 is a sectional plan view of the suspension member part of Figure 11 taken on the line XII—XII of Figure 11, and

Figure 13 is a sectional view of a skirt of the bobbin holder and associated suspension member, this skirt also being shown in part in Figure 1 but being omitted from the remaining Figures.

The upper end of the spindle 1 of the bobbin holder shown in Figure 1 is rotatably and swingably attached to the carrier 2 of the bobbin holder (shown best in Figure 5) through the intermediary of a ball bearing 3 having an outer skirted race member 4 which is secured to the spindle 1. The inner race member 5 of the ball bearing 3 is engaged with a lower, domed, end 2A of the carrier 2 so as to be capable of swinging with respect thereto. The carrier 2 projects upwardly through the outer race member 4 to terminate in a head 6, there being a neck 7 between the head 6 and a cylindrical shoulder 2B of the carrier. The bobbin holder also includes the cap 8 (best shown in Figure 6) for protecting the ball bearing 3 from fly and dust, the upper part of this cap 8 being formed as a nut 9 for retaining the cap in position. The carrier 2 extends through a circular aperture 10 formed at the inner end of the part of the cap 8 that is formed as the nut 9, the shoulder 2B being disposed in this aperture. Around the base of the cap 8 there is a flange 8A that receives an internal rim 20 of an annular skirt 21 (Figure 13) which when attached to the cap 8 as shown in Figure 1 increases the effective size of the cap and serves for preventing ingress of rovings or fly to the inner parts of the bobbin holder.

The suspension member 11 (shown best in Figures 7 to 12) is of substantially T-configuration. The free end portion 12 of the shank of the member 11 is threaded at 13 for engaging with the nut 9, the nut 9 and threaded portion 12 constituting a threaded connection serving for releasably securing the suspension member to the bobbin holder. Within the portion 12 there is formed a recess 14 for receiving the head 6 of the carrier 2, the recess 14 opening through the curved wall of the portion 12 so that the head 6 can be inserted into the recess 14.

The head 15 of the suspension member 11 is slim enough, as viewed from the side, to pass through the slot 16 or 16′ in the base of the triangular sectioned creel rail 17 or 17′ (Figures 2 or 3 and 4 respectively), or through the slot 16″ in the base of a rectangular sectioned creel rail 17″ (Figure 1), but wide enough, as viewed from the front, to straddle this slit 16 or 16′ or 16″. Between the head 15 and the free end portion 12, the cross-sectional configuration of an unthreaded portion 18 of the shank of the member 11 is of substantially rhomboidal form (see Figure 10).

The bobbin holder and suspension member unit, with the spindle in position on the carrier 2 and the carrier 2 extending through the aperture 10 in the cap 8, is assembled by first pushing the head 6 of the carrier 2 into the recess 14 of the suspension member 11, the cap 8 being maintained clear of the portion 12. Next the cap 8 is moved along the carrier 2 until the nut 9 engages the threaded portion 12 whereupon the cap 8 is partially screwed onto the threaded portion 12. The assembled bobbin holder and suspension member unit can now be suspended from the creel rail 17 or 17′ or 17″. First the head 15 of the suspension member 11 is passed through the slot 16 or 16′ or 16″ and then the cap 8 is rotated to tighten the nut 9. This tends to rotate the member 11 and to clamp the base of the creel rail between the head 15 and the cap 8. The member 11 rotates until either the shank of the member 11 engages the longitudinal edges of the slot 16 or 16′ or 16″, or the head 15 engages the opposed inner faces of the creel rail. This engagement prevents further rotation of the member 11 so that further rotation of the cap finally tightens the nut 9 so that the base of the creel rail is firmly clamped between the top of the cap 8 and the lower face of the head 15 of the member 11. It will be noted that the nut 9 also serves to close the part of the recess 14 that opens through the curved wall of the portion 12. Thus the head 6 of the carrier 2 is retained in the recess 14. There is a minimal clearance between the cylindrical shoulder 2B of the carrier 2 and the rim of the circular aperture 10 of the cap 8, whereby the carrier is held in line with the central axis of the bobbin holder.

As shown in Figure 4, a brake support 19 can be mounted at any desired position around the bobbin holder, the support being clamped between the cap 8 and the creel rail 17 and 17′. It is to be noted here that the thread 13 (Figure 7 and 9) is sufficiently long for both the brake support 19 and a thick creel base to be accommodated.

It will be appreciated that the bobbin holder and associated suspension member described above in detail can be mounted in any creel rail having an interior sufficiently large to accommodate the head 15 of the suspension member 11, and a slot wide enough to allow the head 15 to be passed therethrough but narrow enough to be straddled by the head 15, the interior dimensions of the creel rail and its slot being such that either the longitudinal edges of the slot will be engaged by the portion 18 of the shank of the suspension member 11, or the opposed inner faces of the creel rail will be

engaged by the head 15, after the head has been passed through the slot and the suspension member rotated. The position at which the bobbin holder and associated suspension member is secured along the creel rail can be selected as desired. It is to be noted that in the assembled condition, the bobbin holder and suspension member, and brake support where provided, from a single unit. It will be appreciated that since the portion 18 of the shank of the member 11 is unthreaded it can have a configuration that is strong and yet narrow enough to be passed through the slots in the creel rail. The threaded portion of the shank of the member 11 can have a length such that the unit can be attached to creel rails of a large range of thicknesses.

WHAT WE CLAIM IS:—

1. A bobbin holder and an associated suspension member for suspending the bobbin holder from a creel rail having a slotted base, the bobbin holder and the suspension member being connected together to form a unit that can be releasably attached to such a creel rail without disassembling the unit; the suspension member having a head with a shank extending therefrom and said head and said shank being of a configuration such that said head can be passed into the creel rail through the slot in the base thereof and the unit rotated to move said head into position to straddle the slot, and such that the slot-straddling position of said head is determined either by engagement of said shank with opposed edges of the slot, or by engagement of said head with opposed inner faces of the creel rail, such engagement preventing rotation of said head beyond its slot-straddling position; the connection of said shank to the bobbin holder being such that further rotation of a part of the bobbin holder engaged with said shank after the head has reached its slot-straddling position brings about relative movement of said bobbin holder part and the head to clamp the unit to the creel rail.

2. A bobbin holder and an associated suspension member as claimed in claim 1, wherein said shank has an unthreaded portion adjacent said head and a threaded portion remote from said head and that is engaged in a correspondingly threaded portion of the bobbin holder, the arrangement being such that rotation of said correspondingly threaded portion of the bobbin holder relative to the suspension member with said head disposed in its slot-straddling position tightens the threaded connection between the bobbin holder and the suspension member to effect said clamping of the unit to the creel rail.

3. A bobbin holder and an associated suspension member as claimed in claim 2, wherein said correspondingly threaded portion of the bobbin holder is a nut formed in a cap of the bobbin holder, which cap surrounds a carrier of the bobbin holder, this carrier having rotatably and swingably attached to it the end of the spindle of the bobbin holder that is uppermost in use.

4. A bobbin holder and an associated suspension member as claimed in claim 3, wherein a recess is provided within the shank of the suspension member, the recess being open laterally for receiving a head of said carrier, and the recess being open in the direction away from the head of the suspension member to allow a neck of the carrier but not the head thereof to pass through, whereby said carrier can be releasably connected to the suspension member by locating the head of the carrier in said recess; said nut, in the assembled unit, serving to close the lateral opening of the recess.

5. A bobbin holder and an associated suspension member as claimed in claim 4, wherein the end of the carrier remote from the head thereof swingably supports the inner race of a ball bearing, the outer race of which is secured to said spindle.

6. A bobbin holder and an associated suspension member as claimed in claim 3, 4 or 5, wherein the rim of the cap remote from said nut is adapted to support a skirt that serves to increase the effective size of the cap.

7. A bobbin holder and an associated suspension member as claimed in any one of claims 2 to 6, wherein said suspension member is of substantially T-configuration and said unthreaded shank portion has a cross-sectional configuration that is of substantially rhomboidal form.

8. A bobbin holder and an associated suspension member substantially as hereinbefore described with reference to the accompanying drawings.

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Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1973.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.

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6. A bobbin holder and an associated suspension member as claimed in claim 3, 4 or 5, wherein the rim of the cap remote from said nut is adapted to support a skirt that serves to increase the effective size of the cap.

7. A bobbin holder and an associated suspension member as claimed in any one of claims 2 to 6, wherein said suspension member is of substantially T-configuration and said unthreaded shank portion has a cross-sectional configuration that is of substantially rhomboidal form.

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