JACK BAR FOR FLAT KNITTING MACHINES
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This invention relates to knitting machinery and more particularly to a jack bar intended to be used in flat knitting machines of the type such as are commonly used in the manufacture of full fashioned hosiery of every description, the main object of such jack bar being that of accommodating and guiding the movement of the jacks adapted to actuate the sinkers.

The jacks are mounted in the jack bar between individual guide plates held in place by a suitably milled bottom rail and by comb-like positioning rails also suitably milled or cut out. There have been usually provided two positioning rails, viz. one of them arranged in front of the guide plates and another one behind them, approximately above the middle portion of said guide plates. The positioning rails have been usually arranged freely in front of and behind the jack bar, their only attachment being at the side wall of such jack bar.

Experience has shown that where troubles in sinker operation occur as, for example, where the sinkers become jammed between their guide members, the additional load thrown on the sinker may cause the positioning rails above mentioned to be distorted. These rails are usually made of relatively thin stock because of limitations of space. The distortion of the rails may be followed by the displacement of the guide plates from their respective cut-outs or slots in the positioning rails, resulting in a serious jam or smash-up of the machine.

The primary object of this invention is to provide a jack bar which is formed so that when the rails are stressed more than usually, they will not be bent.

A further object of the invention is to provide the guide plates with suitable extensions firmly holding or retaining the positioning rails and these extensions acting as hooks which provide additional support to prevent outward as well as inward springing of the rails, so that any distortion of said rails is precluded.

With these and other objects in view this invention will be further explained in detail with reference to the accompanying drawings.

Fig. 1 shows in cross section my improved jack bar in its application to a knitting machine of the type referred to above.

Fig. 2 is a front elevation of a jack bar constructed in accordance with this my invention represented at a reduced scale.

Fig. 3 is a corresponding plan view.

In order to show the position occupied by the jack bar in a machine there are represented on Fig. 1 a head 1, sinkers 2, a sinker head bottom bar 3, and a sinker head cap bar 4. Furthermore a spring block 5 carrying springs 6 is shown.

The bottom rail of the jack bar is designated by reference number 7. Said rail forms together with the side members 8 of the jack bar a rigid frame. The side members 8 are also adapted to support a fulcrum bar 9 carrying the jacks 10.

Between the individual jacks 10 there are arranged guide plates 11 retained in the transverse grooves 12 of the bottom rail 7 by means of a cover piece 20. The guide plates 11 are also engaged by their extension 13 in a correspondingly milled longitudinal cut-out or groove 14 of the said bottom rail. The guide plates are further retained by positioning rails 15, 16 and 18 arranged in front and at the rear of said guide plates substantially above the middle portion thereof. The rail 19 as shown in Fig. 1, is located at about the middle portion, but extends substantially above a line through the center of the guide plates to provide a support for the same immediately below the path of movement of the slur-cock cam 21. Also said rails are correspondingly milled, thus firmly securing the guide plates 11 in a direction longitudinal to the jack bar. As better to be seen from Fig. 1 the positioning rails 16 and 18 are arranged in intermediate proximity above and below the slur cocks represented diagrammatically on said figure and denoted by reference number 21, said slur cocks moving on their guide rail 22 represented in cross section. In this way the guide plates 11 are firmly supported in those places where they are particularly exposed to stresses or injury.

In order to prevent any fiction of the positioning rails 16, 18 and 19 the guide plates 11 have formed thereon hook-like extensions 17, 19 and 23 firmly holding said positioning rails and thus rendering impossible any bending of said rails which might tend to release or free the guide plates from their supporting slots.

From the foregoing it will be seen that the present invention provides a jack bar in which the rails retaining the guide plates are rigidly held by suitable hook-like extensions formed on said plates, so that said positioning rails will not be bent even if subject to unusual stresses.

As will be evident from Fig. 1 of the drawing a number of additional structural changes and improvements have been made in order to provide a practicable and easily assembled jack bar unit having the advantages of increased rigidity of construction above outlined. One such improvement consists in the provision of an entirely dif-

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JACK BAR FOR FLAT KNITTING MACHINES

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ferent pivotal support for the jacks from those ordinarily employed. With the present construction, the jacks are provided with closed bearing surfaces which are sleeved on the fulcrum shaft. This construction and arrangement of the jack pivot bearings eliminates the necessity for the use of the usual locking bar. With the more usual constructions such a locking bar engages with aruncate locking surfaces formed on the jacks, and serves to hold the slotted pivot bearing surfaces with which the jacks would ordinarily be provided in engagement with the fulcrum shaft. Applicant's positioning rail takes the place of this locking bar, and since it does not have the locking function above described, may be and preferably is located at a considerably higher level with respect to the pivotal axis of the jacks, that is, directly beneath the path of movement of the slur-cock 21. The location of the positioning rails 16, 19 and 10 herein employed, together with the improved form of supporting pivot, permits the jacks to be readily assembled or removed from the jack bar. For removal of the jacks, it is necessary only to remove the pivot shaft 9 axially. For re-assembling the parts, it is necessary only to thread the sinkers successively onto the bar as it is thrust into place. With the more usual construction of the sinking bar, removal of the sinkers is effected by first removing the locking bar above referred to. The present construction wherein it is unnecessary to remove the positioning rail 19 to release the jacks, compares favorably as to ease of assembly with the prior art constructions in which it has been attempted to provide additional support for the guide plates or punchings, by slotting the locking bar. With such a construction, it has been found a very difficult matter to replace the locking bar, for the reason that it is necessary to accurately align all of the approximately 200 guide plates before the locking bar can be fitted into place.

It will be understood that the present invention may be embodied in other specific forms as those illustrated and described above without departing from the spirit thereof. The illustrated embodiment has to be considered as an illustrative and not restrictive one, the scope of the invention being indicated in the appended claims.

What I claim is:
1. In a flat knitting machine having sinkers, jacks for advancing the sinkers, and a slur-cock cam having a traversing path of movement for actuating the jacks, a jack head unit including a bottom rail, side members at each end of the head unit, guide plates separating individual jacks formed with hook-like extensions, positioning rails to receive said guide plates and arranged for locking engagement within said hook-like extensions, said rails including one such rail supporting the forward side of each guide plate, and two such rails being arranged to support the rear side of each of said guide plates at opposite sides of the path followed by the slur-cock cam.

2. In a sinker jack head for flat knitting machines having a traversing slur-cock cam, a series of individually movable jacks arranged to be acted upon by the slur-cock cam, guide plates separating individual jacks, and slotted positioning rails for the guide plates, said guide plates having hook-like projections to engage with and lock the rails in position.

3. In a sinker jack head for flat knitting machines having a traversing slur-cock cam, a series of individually movable jacks arranged to be acted upon by the slur-cock cam, guide plates separating individual jacks, and slotted positioning rails for the guide plates, said guide plates having hook-like projections to engage with and lock the rails in position.

4. In a flat knitting machine having jacks for advancing the sinkers, and a slur-cock cam having a traversing path of movement for actuating the sinkers, and sinkers for flat knitting machines having a traversing slur-cock cam, a series of individually movable jacks arranged to be acted upon by the slur-cock cam, guide plates separating individual jacks, and slotted positioning rails for the guide plates, said guide plates having hook-like projections to engage with and lock the rails in position.

5. In a flat knitting machine having jacks for advancing the sinkers, and a slur-cock cam having a traversing path of movement for actuating the sinkers, and sinkers for flat knitting machines having a traversing slur-cock cam, a series of individually movable jacks arranged to be acted upon by the slur-cock cam, guide plates separating individual jacks, and slotted positioning rails for the guide plates, said guide plates having hook-like projections to engage with and lock the rails in position.

6. In a flat knitting machine having jacks for advancing the sinkers, and a slur-cock cam having a traversing path of movement for actuating the sinkers, and sinkers for flat knitting machines having a traversing slur-cock cam, a series of individually movable jacks arranged to be acted upon by the slur-cock cam, guide plates separating individual jacks, and slotted positioning rails for the guide plates, said guide plates having hook-like projections to engage with and lock the rails in position.

7. A flat knitting machine having jacks for advancing the sinkers, and a slur-cock cam having a traversing path of movement for actuating the sinkers, and sinkers for flat knitting machines having a traversing slur-cock cam, a series of individually movable jacks arranged to be acted upon by the slur-cock cam, guide plates separating individual jacks, and slotted positioning rails for the guide plates, said guide plates having hook-like projections to engage with and lock the rails in position.

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