Dec. 26, 1933. E. R. HOLMES 1,941,005

DOBBY LEVER FOR LOOMS

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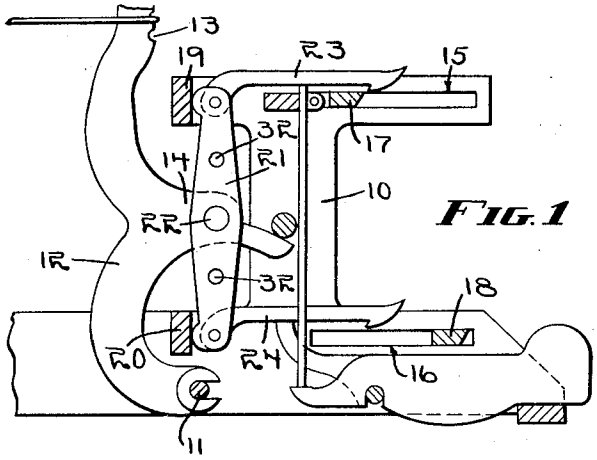
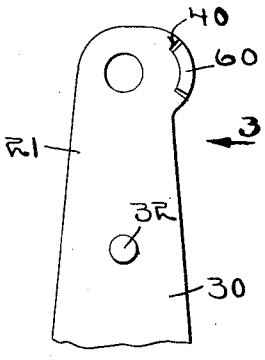


FIG. 1

FIG. 2



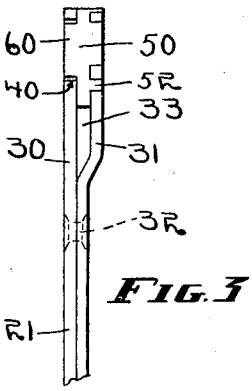


FIG. 3

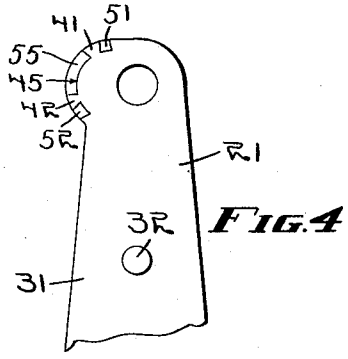


FIG. 4

FIG. 5

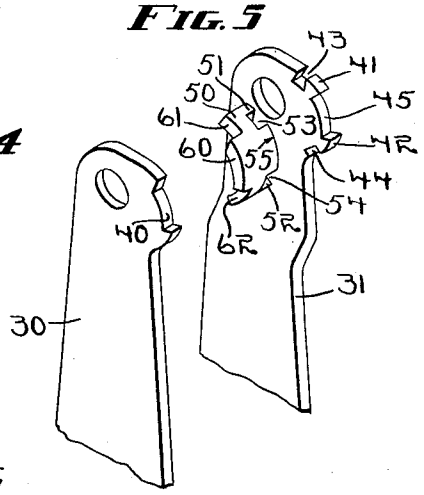


FIG. 8

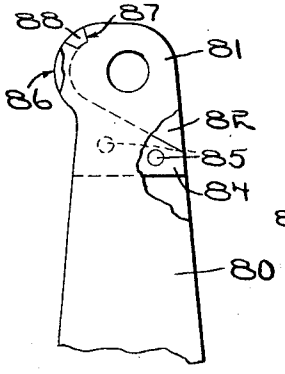


FIG. 7

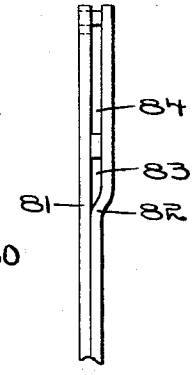
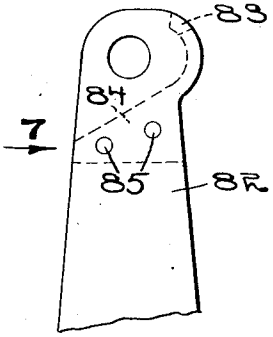


FIG. 6



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DOBBY LEVER FOR LOOMS

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Application July 3, 1931. Serial No. 548,604

7 Claims. (Cl. 139—74)

This invention relates to improvements in dobby levers for looms and it is the general object of the invention to provide a lever so constructed as to have improved wearing qualities.

In dobbies employing reciprocating knives the harness lifting jack is pivoted around a fixed center and has connection with the mid-point of a dobby lever held normally against cross girts. Hooks are pivoted to the upper and lower ends of the lever and the oppositely moving knives travel in fixed paths to engage any hook which is down. If the upper end of the lever is moved outwardly for instance, the lower end bears against the bottom girt as a fulcrum, but the fulcrum moves or slides along the girt because of the angular movement of the jack.

The dobby lever shown in my previous Patent No. 1,451,828 has a pair of spring members fastened together but with their ends spaced to receive a dobby hook. It is an important object of my present invention to provide additional bearing means carried by the lever and extending from one member to the other. In this connection the bearing means transmits the bearing strains to both lever forming members.

Where the strain placed upon the harness frames is large due to heavy warp the hooks are subject to wear and occasionally need replacement. Renewal of a defective hook is accomplished in the type of lever previously referred to by separating the spring ends, and it is another object of my present invention to provide a bearing surface of increased width which shall permit the separation of the ends of the members without requiring any manipulation of the bearing when said ends spring back together.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth in the claims.

In the accompanying drawing, wherein two forms of the invention are shown,

Fig. 1 is a vertical section through a dobby made according to my present invention,

Fig. 2 is a front elevation of the upper end of a dobby lever made according to my invention,

Fig. 3 is an end elevation taken in the direction of arrow 3, Fig. 2,

Fig. 4 is a view taken of the reverse side of the lever shown in Fig. 2,

Fig. 5 is a group view showing the component parts separated and indicating the method of their assembly,

Fig. 6 is a front elevation of a modified form of the invention,

Fig. 7 is an end elevation taken in the direction of arrow 7, Fig. 6, and

Fig. 8 is a rear elevation taken in the direction opposite to that in which Fig. 6 is taken.

Referring to Fig. 1, I have shown a dobby frame 10 having a fixed pivot 11 about which moves a harness jack 12. The latter has harness cord receiving notches or teeth 13 and has a substantially horizontally extending arm 14. The dobby has upper and lower slide guides 15 and 16, respectively, in which reciprocate in opposite directions top and bottom lifter knives 17 and 18, respectively. Top and bottom cross girts 19 and 20, respectively, are located in the usual position and are secured to the dobby frame so as to be fixed with respect to the loom.

A dobby lever 21 is pivoted as at 22 to the horizontal arm 14 of the jack and supports upper and lower hooks 23 and 24, respectively. Pattern mechanism not shown but well understood controls the position of said hooks so that certain of them will be down to be engaged by the knives while others will be raised to be clear of the latter. The dobby operates in the usual manner and except for the ends of the lever 21 may be of usual construction.

Referring particularly to Figs. 2 to 5, inclusive, I have shown the preferred form of my invention which includes a pair of steel spring members 30 and 31 held together by rivets 32, see Fig. 1, at points substantially removed from the ends of the lever. As shown in Fig. 3, one of said members has its end offset so as to define a hook receiving space 33. That part of the lever already described may be the same as shown in my prior Patent No. 1,451,828.

As shown in Fig. 5, the member 30 has one of its rounded edges provided with a notch 40 while the other member 31 is provided with lugs 41 and 42. Above the lug 41 is a notch 43 and similarly below lug 42 is a second notch 44, while the space between said lugs is removed to form an elongated notch 45.

A bearing member 50 has lugs 51 and 52 which are adapted to enter notches 43 and 44, respectively, and also has notches 53 and 54 which receive the lugs 41 and 42, respectively. The side 55 of the bearing enters the notch 45 in the lever member 31. The various lugs and their notches may be dovetailed to insure good holding engagement between the bearing means or member 50 and member 31.

The opposite side of the bearing member 50 is

provided with an elongated lug 60 which is adapted to lie within the notch 40, there being upper and lower stop surfaces 61 and 62, respectively, which engage the inner part of the member 50 adjacent the notch 40 to space said spring members so that they do not exert undue pressure on the hook the bearing of which is located between the members. The bearing element 50 bears against the bottom of notch 40 so as to transmit bearing strains to lever member 30.

The lugs and notches shown in Fig. 4 and in the right hand part of Fig. 5 serve as means for securing the bearing member 50 to the lever member 31 and the notch 40 has sufficient clearance with respect to the elongated lug 60 so that the latter may enter said notch after the ends of the lever member have been separated to receive the bearing of a hook. It is to be understood that both top and bottom ends of the lever can be formed substantially as set forth in Figs. 2 to 5, and that as the dobby levers move pivotally about one or the other of the girts 19 or 20, one of the members 50 will act to transmit pressure between the lever forming members and the corresponding girt.

In the modified form of the invention shown in Figs. 6, 7 and 8 I employ the same general type of dobby lever 80 having spring members 81 and 82 which are spaced to define a hook receiving opening 83. Secured to the member 82 is a bearing block 84 attached thereto by means of rivets 85. The block has an edge 86 which is curved so as to conform to the outline of the rounded adjacent parts of the members which define the end of the lever 80. The member 81 has a notch 87 which receives a lug 88 extending from the block 84, the modified form in this respect being similar to the preferred form in having a spring member having a bearing block secured thereto and the latter having a portion to engage the other lever member so that both of said members can share in supporting the strain to which the bearing member is subjected.

From the foregoing it will be seen that I have provided a dobby lever formed of two sheet metal parts to one of which is secured a bearing member, the latter having a part to project into a notch in the other member so that each of the lever forming members may support the bearing member. It will be seen that the preferred form provides a bearing of substantially the full width of the lever, and this bearing itself may be formed of sheet metal curved from a smooth surface to slide over the girts. In the modified form the space between the ends of the lever is bridged so as to give increased wearing surface. Furthermore, the bearing is secured to one sheet metal lever part and fits into a notch in the other part so that the lever ends may be readily spaced to receive a dobby hook and close easily to hold the hook in place. Parts of the bearing hold the lever ends spaced to prevent cramping of the hook. Since the bearing element is separate from the lever members it can be heat treated for hardness without destroying the resilience of the lever members.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In a dobby lever for looms having a cross girt, a pair of sheet metal members held together and having their adjacent ends spaced, and perforated to receive the bearing of a hook and a bearing element on one side of the lever to engage the girt and separate from said members and held to one of them and bridging the space between said ends and said element provided with a bearing surface having a width substantially equal to the distance between the opposite outside surfaces of said ends.

2. In a dobby lever for looms having a cross girt, a pair of sheet metal lever members held together and having their adjacent ends spaced, and perforated to receive the bearing of a hook a separate bearing element secured to one member and extending across the spaces between the spaced ends and engaging the other member, said element positioned to transmit bearing pressure directly from both members of the lever to the cross girt.

3. In a dobby lever for looms having a cross girt, a pair of sheet metal lever members held together and having their adjacent ends spaced, and perforated to receive the bearing of a hook a separate bearing element secured to one of said members and projecting laterally therefrom, the other member having a notch and said bearing member having an extension to extend into the notch and also having engagement with that part of said other member forming the bottom of the notch to transmit pressure directly to said other member.

4. In a dobby lever for looms having a cross girt, a pair of sheet metal lever members held together and having their adjacent ends spaced, and perforated to receive the bearing of a hook a bearing element separate from said members and secured to one of said members and projecting laterally therefrom, the other member having a notch and said bearing member having an extension to extend into the notch and also having engagement with that part of said other member forming the bottom of the notch, said bearing member extending across both of the lever forming members.

5. In a dobby lever for looms having a cross girt, a pair of sheet metal lever members held together and having their adjacent ends spaced, and perforated to receive the bearing of a hook a separate bearing element secured to one member and extending across the spaces between the spaced ends and engaging the other member, said element positioned to transmit bearing pressure to both members of the lever, one of said members being movable with respect to the other and the bearing member in a direction away from the latter to provide space for entry of a dobby hook, said bearing member and the other lever member being so formed as to re-establish strain-transmitting relations when said other lever member returns to its normal position after the hook is in position.

6. In a dobby lever for a loom having a cross girt and operating with a dobby hook, a pair of sheet metal lever members held together and having their adjacent ends spaced to receive a dobby hook bearing, a separate bearing element secured to one member and having a width greater than the width of the space between the member ends and engaging the edges of both members to communicate directly to each of said members forces exerted substantially parallel to the plane of the lever, said bearing element having means to limit movement of one member toward the other, thus preventing cramping of the dobby hook.

7. In a dobby lever for looms having a cross girt, a pair of sheet metal lever forming members held together and having their ends spaced from each other and perforated to receive the bearing of a hook, a bearing element secured to one member and extending across the space between the ends of the members and engaging the member to limit relative movement of said members toward each other, said bearing element normally having engagement with both of said members on the edges of the latter adjacent the cross girt to transmit pressure from each member to the cross girt.

ELBRIDGE R. HOLMES.