June 26, 1928.

1,674,862

A. A. GORDON

LOOM DOBBY

Filed Aug. 6, 1926

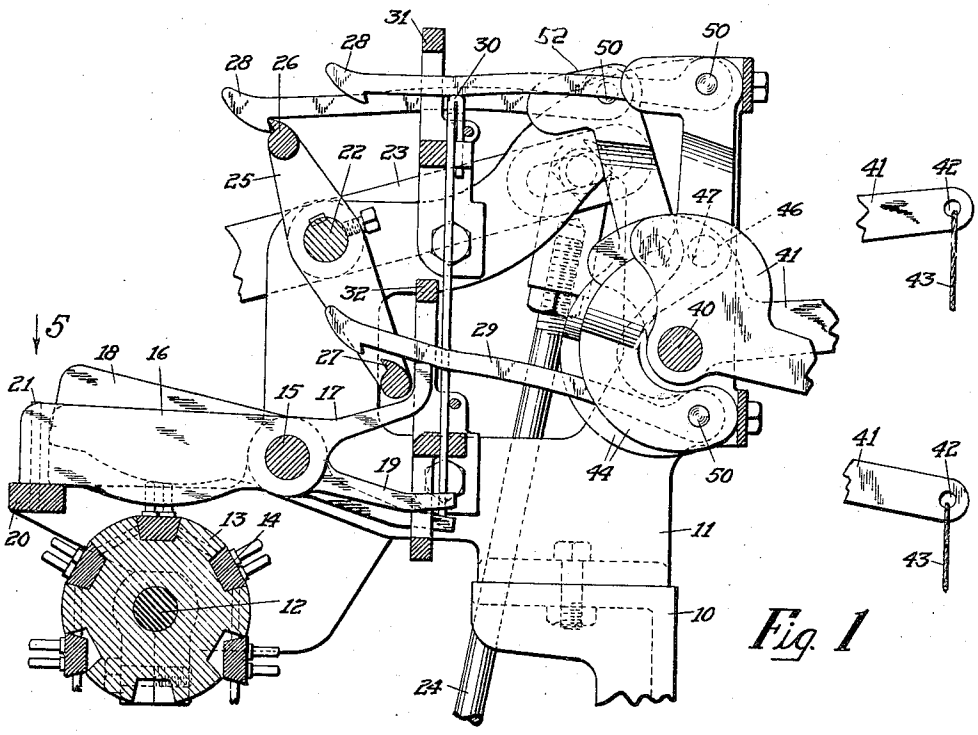


Fig. 1

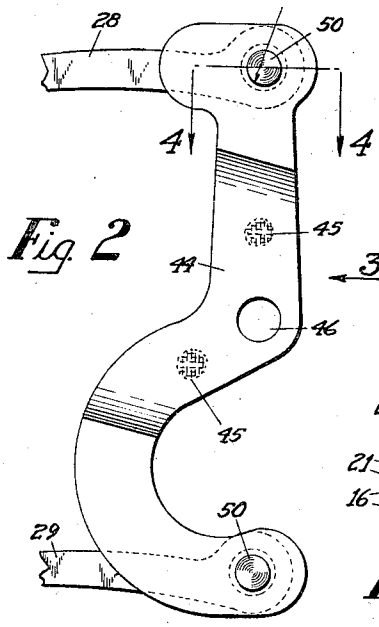


Fig. 2

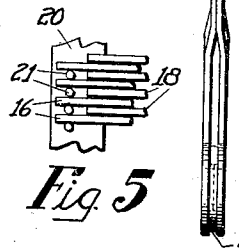


Fig. 5

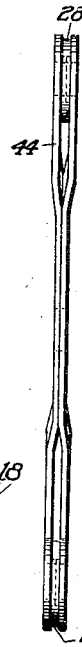


Fig. 3

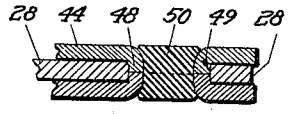


Fig. 4

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UNITED STATES PATENT OFFICE.

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LOOM DOBBY.

Application filed August 6, 1926. Serial No. 127,696.

This invention relates to improvements in dobbies for looms and it is the general object of the invention to provide a loom so constructed as to provide increased leverage between the dobby lever and the harness lever to the end that a greater shed can be produced with a minimum motion on the part of the dobby hooks and levers.

The invention relates more particularly to so-called name dobbies and is similar in some respects to the device shown in my previous Patent No. 1,060,977. Such mechanisms are much smaller than the usual dobby but the shed formed by the harness levers must of course be as large as that formed by the usual harness motions and it is a further object of my invention to improve upon the construction of so-called name dobbies by pivoting the levers which control the harness cords at a point intermediate the ends of the dobby levers, so that the motion of the dobby lever may be multiplied more than has been possible heretofore.

It is a further object of my invention to improve upon the connection between the dobby lever and the dobby hook by making the former of two substantially similar pressed steel parts having flared openings through which projects a solid stud and around which lies the hub of the dobby hook.

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 drawings wherein I have shown a convenient embodiment of my invention,

Fig. 1 is a vertical central section through a dobby constructed according to my invention,

Fig. 2 is an enlarged elevation of one of my improved dobby levers,

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

Fig. 4 is an enlarged horizontal section on line 4—4 of Fig. 2, and

Fig. 5 is a fragmentary top plan taken in the direction of arrow 5, Fig. 1.

Referring to the drawings it will be seen that I have provided a loom frame 10 which in the case of name dobbies is one of the arches of the loom and I have bolted or otherwise secured thereto a stand 11 having a shaft 12 rotatably supported thereon. Said shaft moves a pattern cylinder 13 which in turn advances the bars or links 14 of the pattern chain preferably every other pick of the loom, the dobby being of the so-called double index type. A fixed rod 15 is supported on the stand and has pivotally mounted thereon a number of dobby fingers certain of which as indicated at 16 are provided with upwardly extended arms 17 and others of which as indicated at 18 are provided with downwardly extending arms 19. Said dobby fingers are supported on their outer ends by a bar 20 secured to the stand 11 and having a plurality of separating wires 21 to keep the dobby fingers properly spaced.

A rocker shaft 22 is mounted for oscillation in the stand 11 and is keyed to a rocker arm 23 one end of which is connected to a vertically reciprocating actuator rod 24 receiving an operative movement every pick of the loom, being depressed on one pick and elevated on the next. A knife frame 25 is secured to the shaft 22 and is provided with upper and lower hook engaging knife edges 26 and 27, respectively, said edges moving about the shaft 22 and one of them having an idle stroke to the right as the other has an operative stroke to the left. Said knife edges engage the upper and lower hooks 28 and 29, respectively, when said hooks are in lowered position. Each upper hook is positioned vertically by means of a wire 30 the upper end of which supports the corresponding hook and the lower end of which rests on one of the arms 19. The lower hooks are positioned vertically by direct engagement with the arms 17. Said upper and lower hooks are guided by racks 31 and 32, respectively, secured to the dobby stand. The matter thus far described may be substantially as set forth in my aforesaid patent and forms no part of the present invention and reference may be had thereto for a further understanding of the structure already described.

My present improvements relate to the construction of the so-called dobby levers and the pivotal point of the harness levers and also the spacing of the fingers. In carrying out my invention I provide a rod 40 secured to the stand 11 and having mounted thereon a plurality of harness

levers 41. Each lever has an arm extending to the right as indicated in Fig. 1 and provided with an eye 42 which controls one or more warp threads by means of cords 43.

The dobby lever as shown more particularly in Figs. 2 and 3 is formed of a pair of similar parts 44, each part being offset adjacent both ends and being secured together in any approved manner as by the spot welding indicated at 45. The central portions of the parts 44 lie closely adjacent each other and are provided with aligning openings 46 through which extend the lugs 47 of the harness levers 41. One arm of each dobby lever extends upwardly and radially from the bearing 46 while the other is curved as shown in Fig. 2 so that the major portion of the space lying between the bearing 46 and the bottom of the lever is unoccupied by parts of the lever. The object of this construction as shown in Fig. 1 is to provide room for the rod 40 and the bearing portions of the harness levers 41. In this way the rod 40 can lie between the center of the dobby lever and one of the ends thereof. By this simple construction I am able to get the requisite shed without using the compound leverage which was necessary in the dobby shown in my aforesaid patent.

My invention further relates to an improved connection between the dobby hook and the dobby lever and by referring to Fig. 4 it will be seen that I have provided each portion 44 with an inwardly bent flange 48, the flanges of the two parts abutting each other to space the offset ends of the parts 44. These flanges are then passed through the openings 49 in the ends of the hooks, after which a rivet 50 is passed through the openings 51 left in the portions 44 when the flanges are punched out. The rivet is expanded to draw said portions together as indicated in Fig. 4.

The thickness of the hooks is somewhat less than the space lying between the offset portions 44 and for this reason said hooks are permitted a free movement about the flanges 48 as a pivot. By reason of the construction just described I am enabled to use a hook of uniform thickness and provide for its pivotal mounting merely by punching a hole therethrough, this construction differing from the usual form of hook which has a lug extending on each side thereof to be received by parallel spaced wings of the usual dobby lever.

In operation the rod 24 rocks the knives 26 and 27 back and forth and the latter will engage any of the hooks which happen to be in lowered position. As shown in Fig. 1 the first lever is unmoved because of the fact that the hooks connected thereto are both in raised position, but the lever behind it has had the upper portion thereof moved to the left by engagement of its hook with the knife edge 26. This motion produces a lifting movement of the corresponding harness lever 41 about the rod 40, which, as clearly shown in the drawings, will give a sufficient shed.

Still another feature of my invention is shown in Fig. 5, wherein it will be seen that there are fewer separating wires or pins 21 than usual in dobby construction. Alternate fingers, such as those indicated at 16, are of the usual length and there is a separating pin between each pair of such fingers. The other fingers 18 are shorter and are in alignment with the pins 21, being held in place by the longer fingers which in turn are positioned by the pins or wires 21. In this way I am able to guide the fingers by fewer wires than are ordinarily used. I have found in practice that one wire for every six fingers is sufficient to guide the fingers, and I do not wish to be limited to the particular arangement set forth herein.

The members 44 of the dobby lever are formed with ears 52 which as shown in Fig. 1 overlap when any lever has received its maximum movement relatively to its neighbors. This construction prevents one lever being caught on another and thus insures proper alignment of the dobby levers.

From the foregoing it will be seen that I have provided a dobby wherein the pivotal support for the harness levers lies at a point intermediate the ends of the dobby levers, thus shortening that arm of the harness lever which is operatively connected to the dobby so that the movement of the other arm of the harness lever which controls the warps may be correspondingly increased. It will further be seen that I have provided a simple pivotal connection between the dobby hook formed without laterally extending lugs and a two-part dobby lever so arranged that offset portions of the sheet metal parts which form the dobby lever form a bearing for the hook. Also the fingers are separated by a fewer number of pins or wires than have usually been employed by making certain of said fingers shorter than the others. Furthermore, the ears 52 serve to keep the dobby levers properly spaced and aligned.

Having thus described my invention it will be apparent 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, a pair of similarly formed members secured together, the ends of each member being offset and said ends having holes therethrough surrounded by flanges projecting from the members, the two members when assembled causing the flanges to abut each other having an opening to receive a hook pivotally

mounted on the flanges, and securing means passing through the holes to hold the flanges together, whereby said flanges form a pivotal support for the hook.

2. A lever for a loom dobby comprising a pair of similarly formed members secured together, said members being spaced adjacent the ends of the lever, flanges struck from adjacent parts of the members and extending toward each other and held together when the members are assembled, and a hook having a portion near the flanges with a transverse opening therein through which the flanges extend to form a pivotal support for the hooks.

3. A lever for a loom dobby formed of a pair of similarly formed sheet steel members, each member having an offset end and said ends defining a space when the members are assembled, a substantially circular flange struck from each member, the flanges being in alignment and located in the space between the offset ends, and a hook having a portion near the flanges with a transverse opening therein through which the flanges pass to form a pivotal connection between the dobby levers and the hooks.

4. A lever for a loom dobby formed of a pair of similarly formed sheet steel members, each member having an offset end and said ends defining a space when the members are assembled, a substantially circular flange struck from each member, the flanges being in alignment and located in the space between the offset ends, a hook having a portion near the flanges with a transverse opening therein through which the flanges pass to form a pivotal connection between the dobby levers and the hooks, and a rivet extending through the member and the flanges to hold the latter together.

In testimony whereof I have hereunto affixed my signature.

ALBERT A. GORDON.