Jan. 19, 1932. A. D. WATERS 1,841,923

DOBBY FOR LOOMS

Filed July 26, 1929

Fig. 2

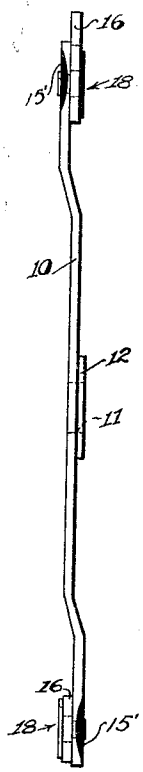


Fig. 1

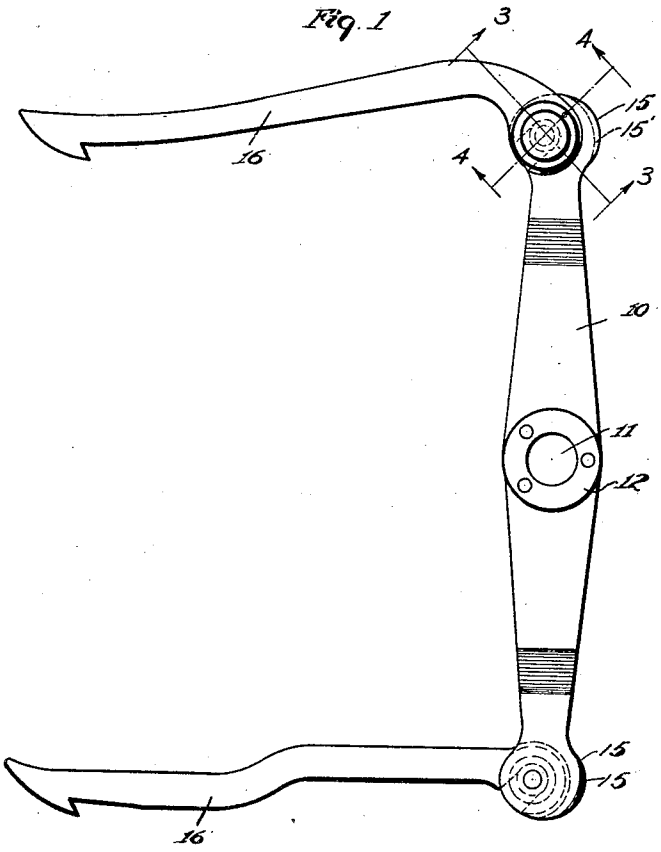


Fig. 3

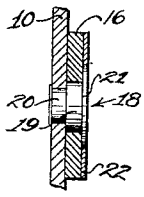


Fig. 4

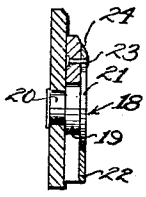


Fig. 5

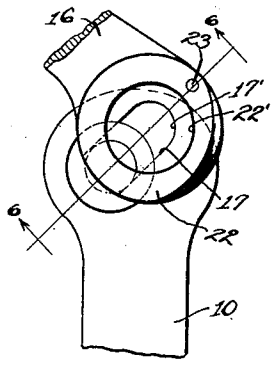
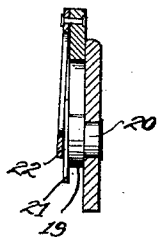


Fig. 6



Inventor
Archibald D. Waters

By H. Clay Lindsey

Attorney

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UNITED STATES PATENT OFFICE

ARCHIEBALD D. WATERS, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE STANLEY WORKS, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT

DOBBY FOR LOOMS

Application filed July 26, 1929. Serial No. 381,203.

This invention relates to dobbies for looms, and has particular reference to the dobby- or back-levers and the hooks carried thereby.

It has been the usual practice to make the back- or jack-levers from malleable iron, a practice which is objectionable from numerous standpoints and, particularly, from the standpoint of cost, it being necessary, after the levers are cast, to anneal them, reshape or bend them, and finish them, operations which materially increase the cost of production.

It has been proposed to make the back-levers and hooks from rolled steel, but, so far as I am aware, such structures have never been put into actual practice because the proposed arrangements were expensive in manufacture and open to numerous objections in use. In the proposed arrangements, the back-levers are each composed of two strips welded or otherwise secured together so that the levers are not only expensive to make but they are heavy and bulky.

Furthermore, so far as I am aware, dobby levers, as heretofore actually used or as proposed to be constructed of rolled steel, have always been provided at each end with a fork, and these forks were adapted to receive the ends of the levers. This arrangement is open to numerous objections, among which may be mentioned the difficulty of assembling the hooks onto the levers and taking the hooks off of the levers, it being understood by those familiar with the art that a large number of these levers are used in each dobby and the levers are positioned close together.

The aim of the present invention is to provide an improved arrangement wherein the above and other objections incident to structures heretofore used or proposed to be used are eliminated.

More particularly, in accordance with the present invention, each back-lever is formed from a single stamping of cold rolled steel of desired gauge, and each of the hooks is also formed from a stamping of rolled steel preferably of the same gauge as that of the lever. Thus, the cost of manufacturing these parts is materially reduced, as the necessity of machining the parts after they have been stamped, annealing them or shaping them, is eliminated, and there is no necessity of going through the various operations in making several parts and uniting them together by welding, rivets or the like. Also, by proceeding in accordance with the present invention, the parts are made of such size as to eliminate unnecessary bulkiness.

A further object of the invention is to provide an improved arrangement whereby the hooks may be very quickly and easily assembled onto and taken off of the back-levers. The hooks are so pivoted to the levers and held in relation thereto that the hooks have a free swinging movement, while, at the same time, they are securely held in place, wobbling and loose movement is to a large extent avoided, and wear between the parts is reduced to a minimum.

A further aim of the invention is to provide a cheap, strong and neat appearing arrangement which will have a long life without requiring frequent adjustment, repairs and replacements.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawings, wherein is shown one of the many embodiments which the present invention may take:

Figure 1 is a side elevational view of a back-lever and a pair of hooks connected thereto;

Fig. 2 is a rear edge view thereof;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a like view taken on line 4—4 of Fig. 1;

Fig. 5 is a detail view showing the operation of positioning the hook on (or removing it from) the back lever; and

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5.

Referring to the drawings in detail, 10 designates a back-lever which is formed by stamping out a blank from a sheet of cold rolled steel of the desired gauge. This lever consists of a single stamping, the ends of which are offset in opposite directions for purposes well understood. The lever has, at its intermediate portion, an opening 11 adapted to receive the pivot projection extending from the harness-jack and which is not shown as it may be of the usual construction. If desired, a wearing washer 12 may be riveted to the lever so as to increase the bearing surface between the lever and the pivot projection. At each end of the lever is a bulge or projection 15 adapted to engage against the usual girts, it being understood that when one of the hooks is pulled, the lever 10 will pivot or swing around the projection 15 at the other end of the lever. Each of the bulges 15 may have one of its corners bevelled, as at 15′, so as to prevent catching in the event of interference between adjacent levers.

The hooks are designated by the numerals 16. Each of these hooks is preferably made by stamping out from a sheet of rolled steel a blank of the shape illustrated. Each lever has, at its pivoted end, a notch 17, the inner end of which is rounded, as at 17′, the diameter of the rounded portion being equivalent to the width of the notch. This notch is disposed at an angle to the length of the lever so that, in operation, the tendency is to hold the wall of the notch in engagement with the pivot member for the lever. The pivot member is designated generally by the numeral 18 and, in the present instance, is in the form of a stud secured to the lever. This stud has a pivot or bearing portion 19 corresponding generally in diameter to the width of the notch 17 so that the walls of this notch have a fairly close fit on the portion 19 while, at the same time, the lever is free to rock. The stud has a reduced end portion 20 adapted to fit in an opening in the lever 10, and the end of this portion 20 may be headed over so as to hold the stud in place. The other end of the stud has an annular head or flange 21 which is adapted to overhang the edge of the notch 17 when the parts are assembled as shown in Figs. 1, 2 and 3. The length of the pivot portion 19, that is, the distance between the head 21 and the opposing face of the lever 10, is substantially equal to the thickness of the hook 16 so that, when the parts are assembled, the hook is held against lateral or wobbling movement, there being, of course, sufficient clearance between the parts to avoid undue binding.

For the purpose of securing the parts in assembled relation, there is provided a spring retaining member for closing the open end of the notch. This retaining member may take various forms, but it is here shown as comprising a ring-like washer 22 of relatively thin gauge and composed of tempered spring steel. The retaining washer may be suitably secured in place so that that portion which closes the open end of the notch may be sprung laterally. In the present instance, the washer is secured in place by a rivet 23 located diametrically opposite the open end of the notch. The washer has an opening 22′ of substantially the same diameter as the head 21 so that the head may fit more or less closely in this opening. Also, by preference, the thickness or gauge of the washer is equivalent to the thickness of the head 21 so that, when the parts are assembled, the outer faces of the head and washer are substantially flush. If desired, the washer and hook may be bevelled, as at 24, so as to prevent possible interference between adjacent assemblies.

With the above described construction, the hooks may be very quickly and readily assembled on, and disassembled from, the levers without taking down the dobby. To assemble a hook on the lever, it is merely necessary to spring the free end of the retaining washer 22 laterally away from the hook and then insert the stud 19 into the notch, the head 21 riding under the washer, as shown in Figs. 5 and 6. It is only necessary to hold the spring in the flexed position shown in Figs. 5 and 6 until the head 21 is inserted between the washer and the hook. The pivot may then be slid into the closed end of the notch, whereupon the retainer will spring into the position shown in Figs. 3 and 4 and in which position it surrounds the head 21. The washer now holds the pivot stud in proper position in the notch and accidental displacement cannot take place. As previously stated, the notch is so inclined with respect to the length of the hook that the bearing engagement is between the stud and the wall of the notch 17, there being little or no wearing engagement between the head and the washer. If it is desired to remove a hook from the lever, for purposes of repair or replacement, this may be very easily done by merely springing the washer away from the hook and then moving the hook bodily in the direction of the length of the notch 17. The spring washer 22 may be moved from retaining position merely by the operator engaging his finger nail underneath the washer and pressing the washer slightly outwardly.

It will be observed that my improved construction is very simple in arrangement, may be cheaply manufactured, has a long and useful life, and the parts may be readily assembled and disassembled.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from

the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. In a device of the character described, a back-lever provided with a pivot, a hook having at its pivoted end a notch adapted to receive said pivot, and means embodied in the hook for closing the open end of said notch to hold said pivot in place and said means being moved into and out of holding position without disconnecting the same from said hook.

2. In a device of the character described, a back-lever provided with a pivot, a hook having a notch leading from one edge thereof and terminating in a curved bearing adapted to receive said pivot, said pivot being insertible into the open end of said notch, and means for closing the open end of said notch to hold said pivot in position therein, said means being permanently connected to said hook and having a portion movable into and out of interlocking relation to said pivot without disturbing the connection between said means and hook.

3. In a device of the character described, a back-lever having a pivot provided with a round bearing portion and a shoulder at each end of said bearing portion, a hook having at its pivoted end a notch opening into one edge thereof, said notch being adapted to receive said bearing portion and the edge of said notch being engaged between said shoulders, and a resilient member for closing the open end of said notch to hold said pivot in place.

4. In a device of the character described, a back-lever having a pivot provided with a bearing portion and a shoulder at each end thereof, a hook having at its pivoted end a notch opening into one edge thereof and extending at an angle to the length of the hook, said notch being adapted to receive said bearing portion and the edge of said notch being engaged between said shoulders, and a resilient member secured to the outer face of said hook and normally engaging behind said pivot.

5. In a device of the character described, a back-lever provided with a laterally projecting pivot member, a hook provided at its pivoted end with a notch opening into one edge thereof, said pivot member being inserted through the open end of said notch and extending laterally beyond said hook, and a spring member connected to the outer face of said hook and normally lying behind the projecting end of said pivot member for holding the parts in assembled relation.

6. In a device of the character described, a back-lever having a laterally extending stud provided with a bearing portion and a head, a hook having a notch opening into one edge thereof and adapted to receive said bearing portion, said head being adapted to overlie the edge of said notch, and a spring member carried by said hook and normally engaging behind said head for holding said stud in said notch.

7. In a device of the character described, a back-lever having a laterally extending stud provided with a bearing portion and a head, a hook having a notch opening into one edge thereof and having a curved inner end corresponding to said bearing portion, and a spring secured to the outer face of said hook and having a portion normally lying in the plane of and behind said head, said portion being springable laterally away from said hook to permit the stud to be slid out of said notch.

8. In a device of the character described, a back-lever having a laterally extending stud, a hook having at its pivoted end a notch adapted to receive said stud, and a ring-like resilient retainer carried by said hook and adapted to receive the outer end of said stud.

9. In a device of the character described, a back-lever having a pivot provided with a bearing portion and a shoulder at each end thereof, a hook having at its pivoted end a notch opening into one edge thereof, said notch being adapted to receive said bearing portion and the edge of said notch being engaged between said shoulders, and a ring-like resilient washer secured to said hook and normally surrounding the outer end of said pivot.

10. In a device of the character described, a back-lever having a laterally extending stud provided with a bearing portion and a head, a hook having a notch opening into one edge thereof and adapted to receive said bearing portion, said head being adapted to overlie the edge of said notch, and a ring-like resilient washer secured to said hook and surrounding said head, the portion of said washer bridging said notch being movable laterally away from the hook to permit the stud to be slid out of the notch.

11. In a device of the character described, a back-lever having a laterally extending stud provided with a bearing portion and a round head, a hook having a notch extending at an angle to the length of the hook and from one edge thereof, said head being adapted to overlie the edge of said notch, and a thin resilient ring-like member secured to said hook beyond the closed end of said notch and normally surrounding said head.

12. In a device of the character described, a back lever provided with a pivot, a hook having at its pivoted end a notch adapted to receive said pivot, and means carried by and connected to one side of said hook adjacent said notch and adapted to be moved into and out of interlocking relation with said pivot.

13. In a device of the character described, a back lever provided with a pivot, a hook having a notch leading from one edge thereof and terminating in a curved bearing adapted to receive said pivot, said pivot being insertible into the open end of said notch, and means carried by and movable laterally relative to said hook for closing the open end of said notch to hold said pivot in position therein.

14. In a device of the character described, a back lever provided with a laterally projecting pivot member, a hook provided at its pivoted end with a notch opening into one edge thereof, said pivot member being inserted through the open end of said notch and extending laterally beyond said hook, and means connected to the outer face of said hook and normally lying behind the projecting end of said pivot member for holding the parts in assembled relation.

15. In a device of the character described, a back lever having a laterally extending stud provided with a bearing portion and a head, a hook having a notch opening into one edge thereof and adapted to receive said bearing portion, said head being adapted to overlie the edge of said notch, and a member carried by said hook and normally engaging behind said head for holding said stud in said notch, said member having a portion movable out of locking engagement with said stud.

16. In a device of the character described, a back lever provided with a laterally projecting pivot member, a hook element having a single hooked portion at one end provided with a notch open at one edge, said pivot member being inserted through the open end of said notch and extending laterally beyond said hooked portion, means carried by said hook element adapted to interlock with the projecting end of said pivot member and having a portion movable laterally of the hook element, and means for preventing lateral movement of the hook element on the pivot member when the parts are engaged.

ARCHIEBALD D. WATERS.