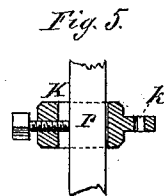
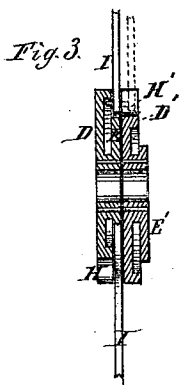
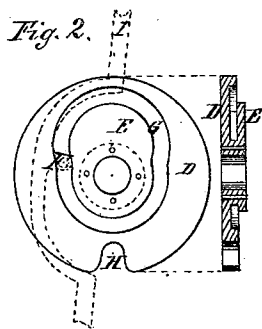
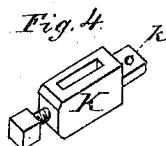
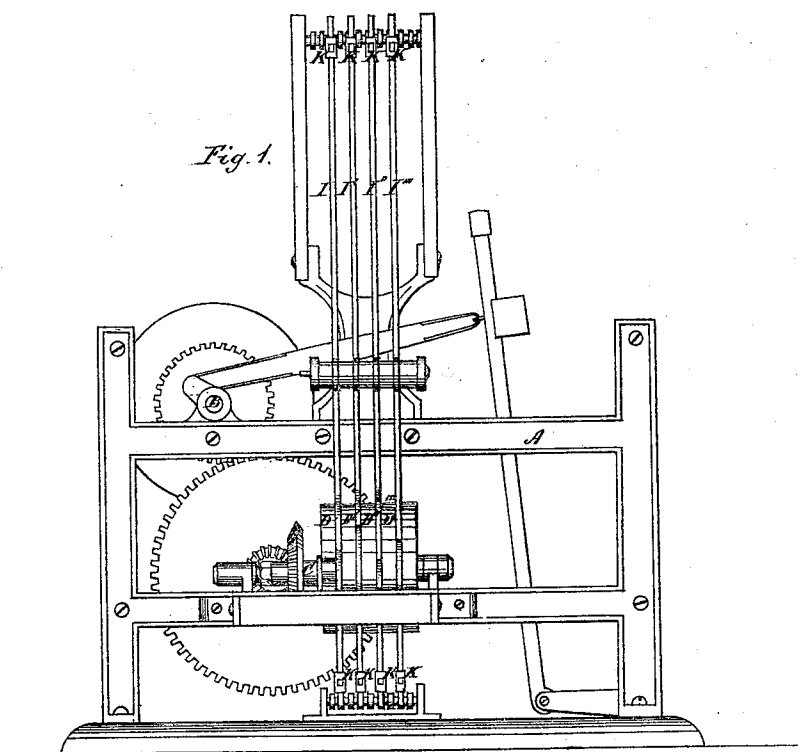


L. M. Gilbert,

Loom.

No. 106,802.

Patented Aug 30, 1870.



Witnesses:  
H. J. Pretz  
J. H. Beale,

Lucian M. Gilbert Inventor

by Crosby, Halsted & Gould  
Jrs Attorneys.

# United States Patent Office.

LUCIEN M. GILBERT, OF COW RUN, OHIO.

Letters Patent No. 106,809, dated August 30, 1870.

## IMPROVEMENT IN LOOM.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LUCIEN M. GILBERT, of Cow Run, in the county of Washington and State of Ohio, have invented certain Improvements in Looms; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improvements relate to an improved construction of the cam-disks and cams which actuate the heddle levers.

Figure 1 is an end view of a loom with my improvements applied thereto.

Figure 2 shows a face view of one of the cam-disks or plates, and the cam and endless groove, and also an edge view of the same, the heddle-lever being partly shown in dotted lines.

Figure 3 is an edge view, showing the position of the lever relatively to its cam, and the position of its pin in the groove, and also showing in dotted lines the position of the pin when moved laterally with its lever, the notch or opening in the next adjacent disk or plate which permits this lateral movement being also shown at *a* in each of the plates in figs 2 and 3.

Figures 4 and 5 illustrate, in perspective and in section, respectively, the adjustable eye for varying the throw of the harness.

In order to permit the introduction and removal of the heddles into and from the space provided for each one between two adjacent cam-plates, it has heretofore been the practice to make a side cut or outlet in the cam-groove, so that, at a certain point in its revolution, the pin or roller on the side of the lever might be slipped out of the groove. This is objectionable, inasmuch as the break in the continuity of the groove had the tendency to permit the pin to be pulled from the groove and the lever to be damaged and made inoperative, while the loom was in operation. And, without such broken groove, a single lever could not be removed, because the space provided between the cam-plates would not admit of straining the lever laterally to force the pin out of the groove, and so set free the lever.

The only remedy in such case, either to introduce or remove a lever, was to unscrew and loosen the whole group or system of cam-plates.

By my improved construction, as hereinafter described, I am enabled, while grouping together in a compact manner as many levers and their cam-plates as by any other known mode, also to make the cam-grooves endless or continuous, that is, without any break or side-cut whatever, and yet to be able with perfect facility at any time to introduce or remove any one of the heddle-levers without any change or de-

rangement of the system of cam-plates, or loosening or shifting any one of the system.

A is the frame of the loom.

B, the driving-shaft, having proper connections, as shown, with the shaft C, on which are supported and carried the cam-disks and cams.

Each disk, D D' D'', &c., may be integral with its cam E E' E'', &c., or they may be separately made, and afterward secured to each other.

The cam-piece is made to stand out in relief from the face of the disk, so that its periphery shall bear directly upon the projection F' of the lever in which the pin is secured, while the pin itself enters the grooved space between the edge of the cam and the edge of the excavation made in the disk.

This mode of construction allows of giving to these edges perfect finish, trueness, and smoothness, not readily attainable when a narrow cam-groove is cut in the face of a disk, for the separate cam can be finished to any degree desired before affixing it to the disk, and the disk itself can have that portion of its face between its edge which is to come in contact with the pin and its center, cut away to any distance, to facilitate the proper smoothing and turning of such edge, it being only desirable to leave at the center enough of the disk for securely attaching to it the cam-piece.

It will thus be seen that, when put together, the inner face of the cam-piece is in the same plane with the outer face of the disk, and also that there is a continuity of groove G, which has no break or interruption in it from which the pin can accidentally escape. But, in order to provide a means by which the lever may be removed without moving or loosening any of the disks or cams, I cut in the disks at the side opposite the most eccentric portion of the groove, a notch, H, which serves to admit the projection F' of that lever which is operated by the cam of the next adjacent disk.

To remove or put to place a lever, it is only necessary, therefore, to turn a disk (say E', fig. 3) until its notch H' comes round to and coincides with the projection F' of lever I; the pin of such lever is then free to be pushed into or out of its appropriate groove, as may be desired. When in place, the edge of projection F runs on the edge of the cam-piece E.

The notch H need not necessarily be cut, as shown, entirely through the whole thickness of the disk, but may be sunk or cut into it merely far enough to permit the lever to be shifted for removal.

Instead of cutting such notch, the disk may have a segment or one side cut entirely away, or so much only of a disk may be employed as may be found necessary to construct therein the continuous groove; the lever being, in such construction, inserted and removed precisely as above described, by shifting the projection

F into the part so cut away from the next adjacent disk.

I am thus enabled to save weight and metal, and still practice my invention successfully.

The adjustable eye for varying the throw of the harness is shown at K, which is a piece having an oblong slot adapted to receive the end of the heddle-lever, and large enough to admit of its being shifted to any desired position up or down the same. It is provided with a threaded hole and a set-screw, as seen, whereby it may be adjusted with perfect nicety wherever wanted, and securely held to its adjusted position without risk of becoming displaced.

The cord is permanently tied to the device by means of the small hole *k*, and need never be untied for the purpose of varying the throw.

By this device I dispense with all need of making a series of notches in the outer edges of the lever, and attain a facility and accuracy of adjustment not attainable by the use of such notches, into which the cord

itself, or a loop thereon, has been lodged; for, by such notches, no adjustment can be had at any point between the notches, as the cord or loop must rest in one of them, and in such construction also the point of connection is liable at any time to be accidentally deranged.

By this device the hold is fixed and positive, and the piece K may be slidden to any desired position.

I claim—

A loom cam, having a slot or recess in the edge of the disk to permit the removal of an adjacent lever, and a continuous unbroken cam-groove to give motion to its own lever, substantially as shown and described.

Also, the combination of the lever I and its projection F, and pin, with the recessed disk D, and continuous groove G, as and for the purpose described.

LUCIEN M. GILBERT.

Witnesses:

T. M. ALLEN,  
WM. A. BRENNAN.