

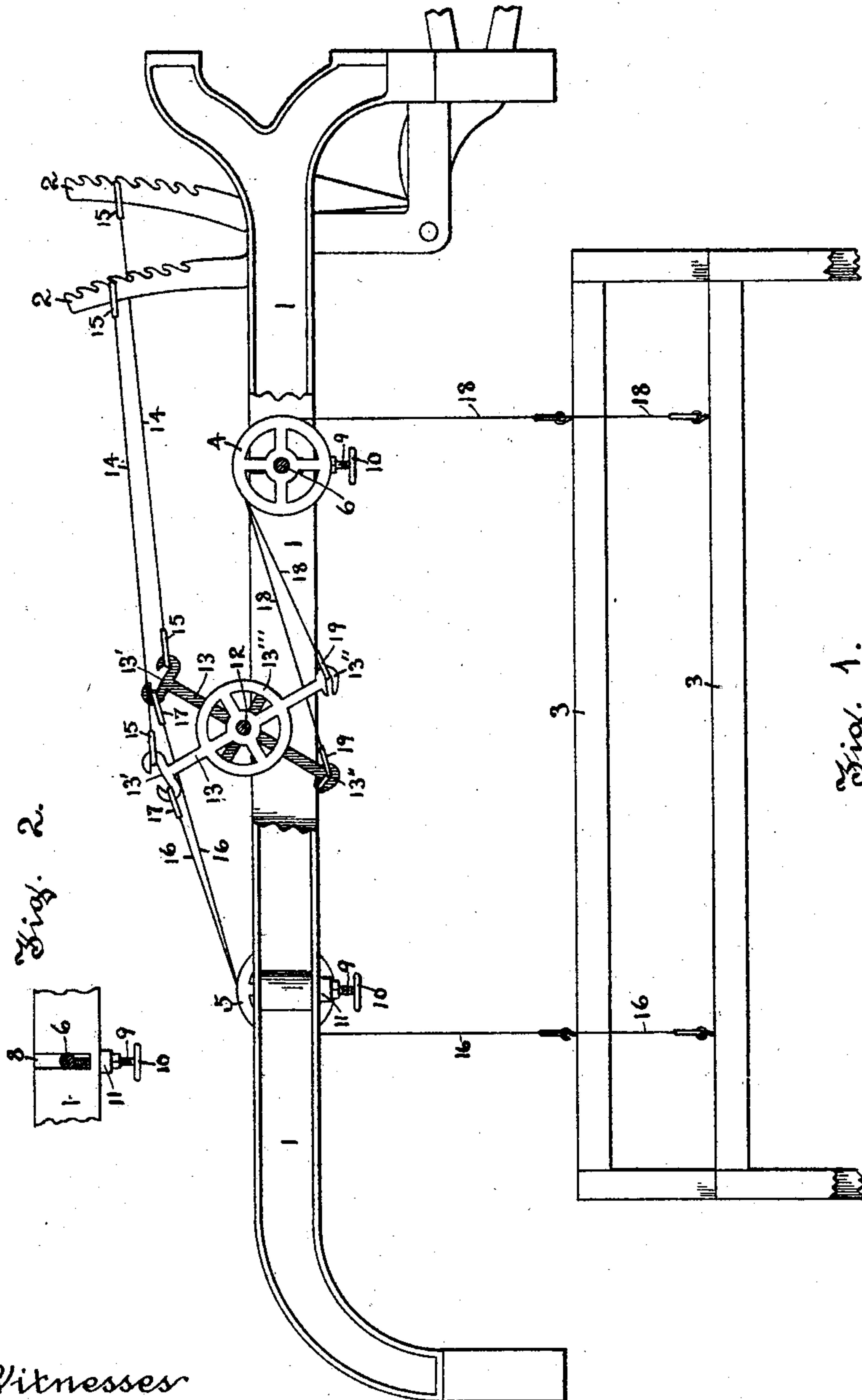
(No Model.)

2 Sheets—Sheet 1.

G. F. HUTCHINS.
SHEDDING MECHANISM FOR LOOMS.

No. 605,825.

Patented June 14, 1898.



Witnesses
A. Whiting
M. J. Galvin

Inventor
George F. Hutchins
By his Attorney
John C. Dewey

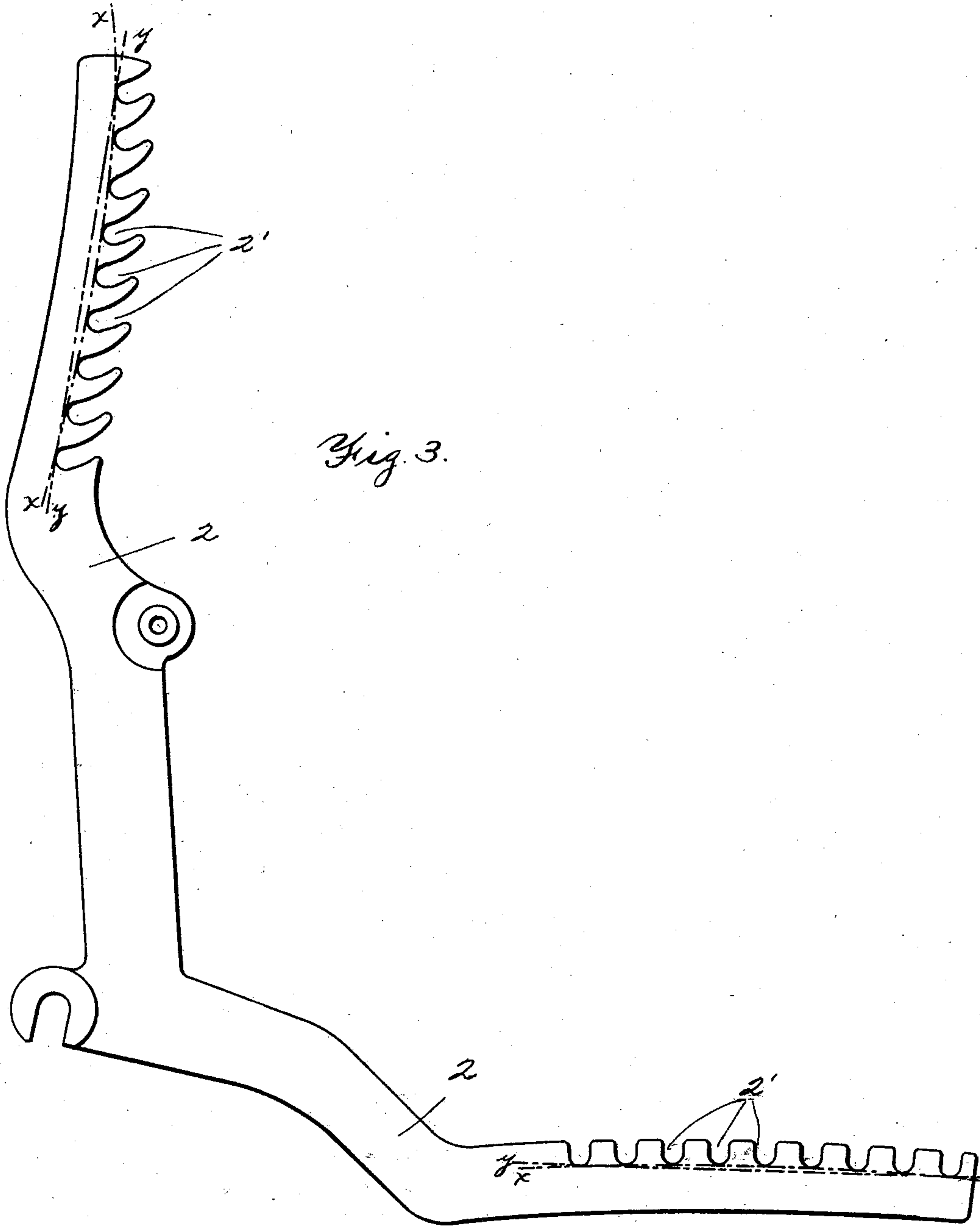
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SHEDDING MECHANISM FOR LOOMS.

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Patented June 14, 1898.



Witnesses
S. A. Kinley
M. J. Galvin

Inventor
George F. Hutchins
By his Attorney
John C. Dewey—

UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO
THE CROMPTON & KNOWLES LOOM WORKS, OF SAME PLACE.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 605,825, dated June 14, 1898.

Application filed February 10, 1897. Serial No. 622,812. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Shedding Mechanism for Looms, of which the following is a specification.

My invention relates to shedding mechanism for looms, or the mechanism intermediate the harness levers or jacks and the top of the harness-frames through which said frames are raised and lowered; and the object of my invention is to provide an improved shedding mechanism by means of which equal travel of each end of the harness-frame will be obtained and the top of the harness-frame will always extend in a horizontal plane whether in its raised or lowered position.

In the ordinary construction of the shedding mechanism the harness levers or jacks have straight notched arms to which the connectors leading to the harness-sheaves are attached. In my improved construction I make the arms of the jack curved instead of straight, and the series of notches in each arm extend in a curved line instead of a straight line, as will be hereinafter fully described.

Referring to the drawings, Figure 1 shows the upper portion or arches of a loom-frame, partially broken away, with my improvements applied thereto, two harness levers or jacks and the upper part of two harness-frames being shown; and Fig. 2 is a detail showing the manner of adjusting the shaft which carries the sheaves. Fig. 3 shows, on an enlarged scale, one of the angular harness levers or jacks shown in Fig. 1 detached, with the lower notched arm complete.

In the accompanying drawings, 1 are the arches or upper portion of a loom-frame.

2 are the angular harness levers or jacks, centrally pivoted on a rod 2'. The harness-levers 2 have the upright arms with notched inner edges and the horizontal arms with notched inner edges, which are connected by cords to the harness-frames 3, the upper portions only of which are shown in the drawings. The angular harness levers or jacks 2 have the end portions thereof where the

notches 2' extend curved instead of straight, so that the inner ends of the series of notches 2' in each arm of the lever 2 will lie in a curved line x between the two end notches instead of a straight line y , as shown in Fig. 3.

Two sets of sheaves 4 and 5 extend between the front and rear arch 1, and each set is mounted and turns loosely on a shaft 6, which extends at each end in a vertical groove or recess 8 in the inner side of the arch. (See Fig. 2.) An adjusting-screw 9, provided with a hand-wheel 10, turns in a boss 11 on the arch, and the upper end of said screw extends under and engages the end of the shaft 6.

It will be understood that there is an adjusting-screw 9 at each end of the shafts 6 on the front and rear arch 1, and that by turning said screws up or down the shafts 6 and sheaves 4 and 5 thereon are adjusted in a vertical plane, as desired.

Between the two sets of sheaves 4 and 5 a shaft 12 is supported on the front and rear arch and extends parallel to, but preferably in a plane above, the two shafts 6. On the shaft 12 are centrally mounted, to turn loosely thereon, two-armed levers 13. The number of said levers corresponds to the number of sheaves in each set of sheaves 4 and 5. The two-armed levers 13 are provided in this instance at their upper ends with two oppositely-extending hooks or open-end slots 13' and at their lower ends in this instance with one hook or open-end slot 13''.

The levers 13 intermediate their ends are provided with the circular or disk portion 13''', which makes the lever stiffer and more rigid and furnishes a surface for two contiguous levers to slide on as said levers are moved in opposite directions. The diameter of the circular portion 13''' is preferably a little greater than one-third and less than one-half the length of the lever 13; but the circular portion is small enough so as not to interfere with or come in contact with the connection attached to the lower end of said lever when the lower end is moved to the left, as shown in Fig. 2.

From each harness lever or jack 2 a connection 14 extends to the upper end 13' of the lever 13. Said connection 14 is preferably

provided with a metal loop or link 15 at each end, which fits over the notched end of the harness-lever and over the hook next to the harness-lever on the lever 13. A second connection 16, provided with a loop or link 17, which fits over the other hook on the upper end of the lever 13, leads over the top and outer edge of a sheave of the outer set 5 and is connected at its other end to the top of a harness-frame 3 near the end thereof. A third connection 18, provided with a loop or link 19, which fits over the hook on the lower end of the lever 13, leads over the top and outer edge of a sheave of the inner set of sheaves 4 and is connected at its other end to the top of a harness-frame 3 near the end thereof.

The curvature of the notched edge of the upright arm of the harness-levers 2, above referred to, when the upright portions of said levers are in their central position—that is, midway between their right and left extreme position—corresponds to the arc of a circle, the center or axis of which is the point of connection between the connection 14 and the two-armed lever 13 when the upper part of said lever is in its central position—that is, midway between the extreme right and left position shown in Fig. 2.

By making the notched edges of the harness-levers 2 curved, as above described, each notch in the upright arm of the lever (when the upright arm of the lever is in its central position) is at the same distance from the point of connection between the connection 14 and the two-armed lever 13, (when said lever is in its central position,) and the lower arm of the two-armed lever 13 must move equal distances from a vertical line drawn through the pivot of said lever and so maintain equal angles of the connections from said lever relative to the sheaves and lift the harness-frame the same distance at each end of the frame without regard to what notch 2' in the upright arm of the lever 2 the link 15 on the connection 14 engages.

In the case of straight upright arms of harness-levers the distance between the upper and lower notches and the point of connection of the connection 14 with the upper arm of the two-armed lever 13 will vary and the angles formed by the connections with the sheaves will vary, so that the harnesses will not lift evenly unless the straps or connections 14 are of different lengths for the different notches.

The advantages of making the upright arms

of the harness-levers 2 curved, as above described, instead of straight will be readily appreciated by those skilled in the art.

It is not necessary to have connections 14 from the harness-levers of different lengths for the different notches. The same connection may be used from the top notch as well as from the bottom notch or any intermediate notch, the distance from each to the point of connection of the connector 14 with the upper arm of the two-armed lever being the same.

It will be understood that the details of construction of my shedding mechanism may be varied, if desired. It is not necessary to have open-end slots or hooks on the levers 13. They may have simply openings or holes therein, through which the connections are passed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, the combination with a harness lever or jack, having its upright notched edge curved, two sheaves mounted on shafts in the loom-arches, and a harness-frame, of a two-armed lever centrally pivoted intermediate said sheaves, and a connection between the harness-lever and the upper end of the two-armed lever, a second connection from said upper end leading over a sheave to the harness-frame, and a third connection from the lower end of said two-armed lever leading over a sheave to the harness-frame, substantially as shown and described.

2. In a shedding mechanism for looms, the combination with the harness-frame, two sheaves supported between the arches, connections from said frame, leading over the outer edges of said sheaves to the lower and upper arm of a two-armed lever centrally pivoted between the loom-arches intermediate said sheaves, and having a circular portion intermediate its ends, and a connection from said lever to the harness lever or jack, of said harness lever or jack, having a curved notched edge, the curvature of which, at the central position of the harness lever or jack, corresponds to the arc of a circle, the center of which is at the point of connection, between the connection leading from the harness-lever and the two-armed lever, when said two-armed lever is in its central position, substantially as shown and described.

GEORGE F. HUTCHINS.

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