

No. 743,675.

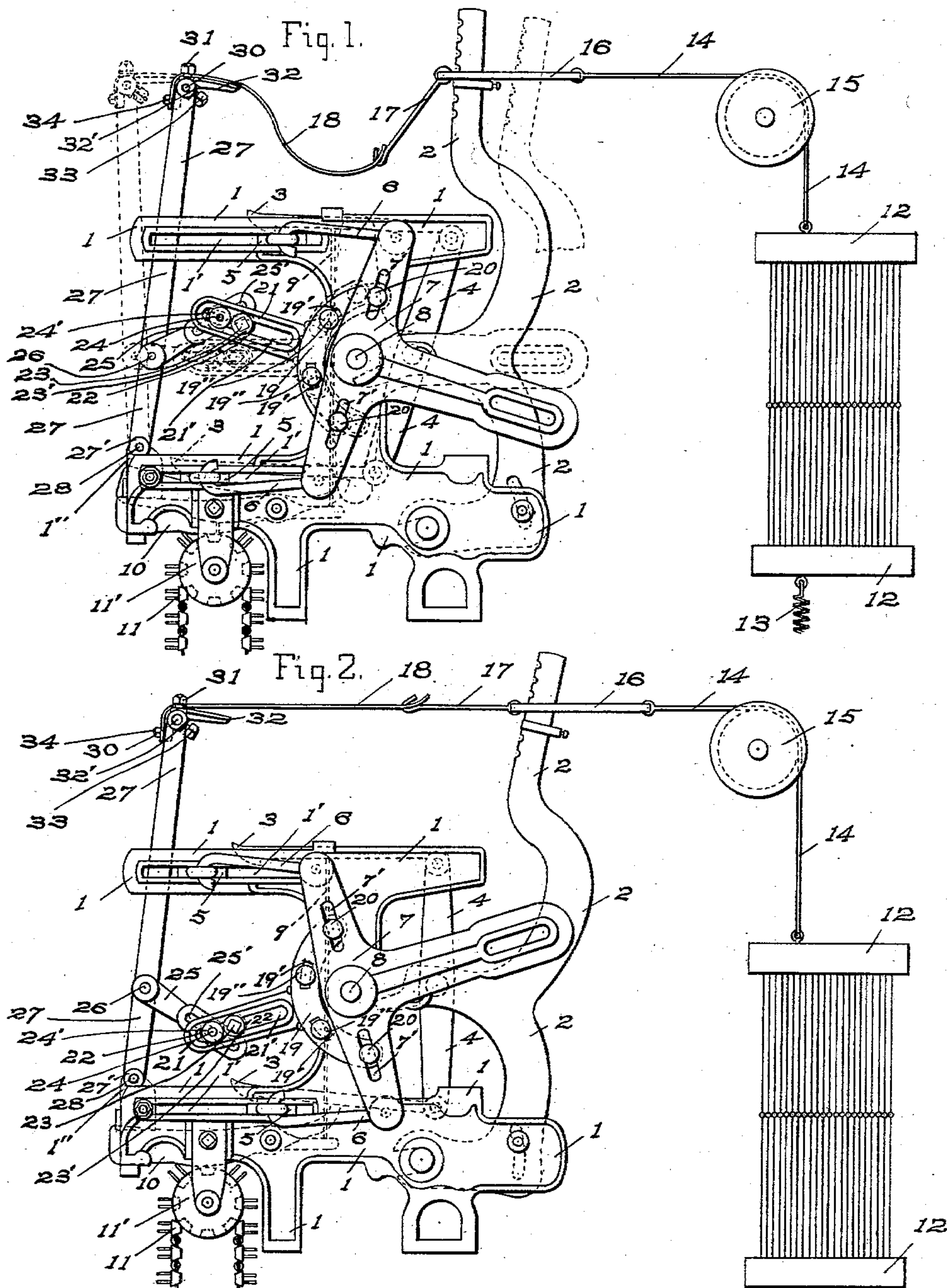
PATENTED NOV. 10, 1903.

H. BARDSLEY.
LENO MOTION FOR LOOM DOBBIES.

APPLICATION FILED MAR. 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1



Witnesses;
H. M. Rugg.
M. O. Coan.

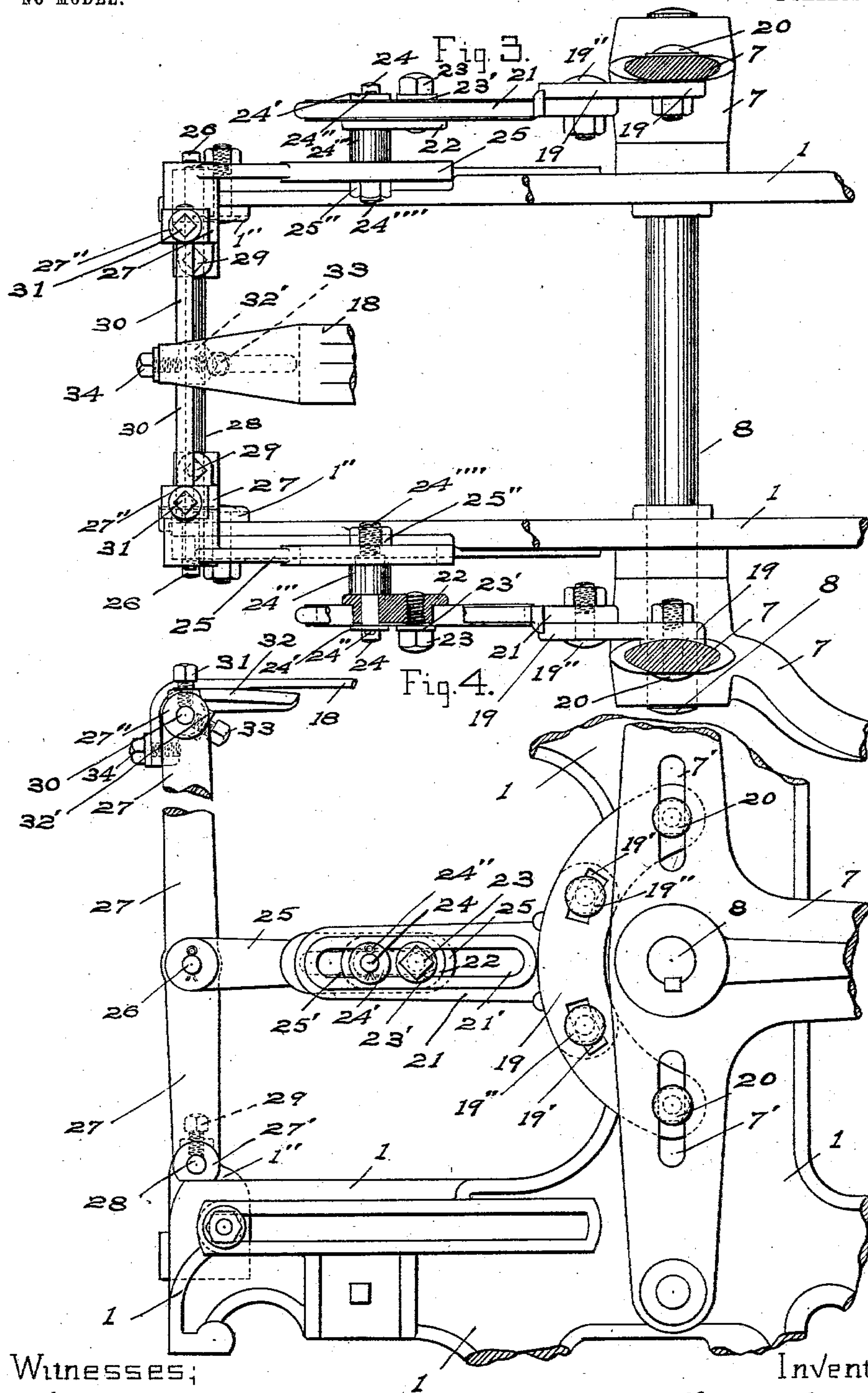
Inventor;
Henry Bardsley
By John S. Dewey Att'y.

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Witnesses:

H. M. Rugg.
W. Hoar.

Inventor:

Henry Bardsley

By

By *John L. Dewey* Att'y.

UNITED STATES PATENT OFFICE.

HENRY BARDSLEY, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO
CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSA-
CHUSETTS, A CORPORATION OF MASSACHUSETTS.

LENO-MOTION FOR LOOM-DOBBIES.

SPECIFICATION forming part of Letters Patent No. 743,675, dated November 10, 1903.

Application filed March 25, 1903. Serial No. 149,582. (No model.)

To all whom it may concern:

Be it known that I, HENRY BARDSLEY, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Leno-Motions for Loom-Dobbies, of which the following is a specification.

My invention relates to a leno-motion for a loom-dobby, and more particularly to improvements in my leno-motion shown and described in my United States Letters Patent No. 586,753, to which reference is hereby made.

The object of my invention is to improve upon and simplify the construction of my patented leno-motion and to reduce the number of parts thereof and to provide for readily attaching the motion to or detaching it from an ordinary loom-dobby.

My invention consists in certain novel features of construction of my improvements, as will be hereinafter fully described.

It is well understood by those skilled in the art that in weaving leno it is necessary that certain of the warp-threads should be given a half-and-return movement during the cross-weaving—that is, a movement which will carry such warp-threads from one extreme plane of the normally open shed to an intermediate or middle point and then back again to the original plane. When not used in cross-weaving, the warp-threads are carried from one extreme plane of the shed to the other extreme plane thereof by their harnesses, the same as the other warp-threads.

In my improvements shown and described herein, as well as in my patented leno-motion above referred to, I provide mechanism to operate in connection with the parts of an ordinary loom-dobby to cause a half-and-return movement of the required warp-threads during the cross-weaving without interfering with the operation of the ordinary parts of the dobbie to cause a full movement of the same warp-threads when the cross-weaving is not required.

I have only shown in the drawings sufficient portions of a loom-dobby with my improvements in leno-motion applied thereto to en-

able those skilled in the art to which my improvements belong to make and use the same.

Referring to the drawings, Figure 1 shows a side view of a loom-dobby of well-known form with my improvements in leno-motion applied thereto and a harness-frame and connections. Broken lines show parts of the mechanism in a different position. Fig. 2 corresponds to Fig. 1, but shows some of the parts in a different position. Fig. 3 is a plan and partial-section view, on an enlarged scale, of some of the parts shown in Figs. 1 and 2; and Fig. 4 is a side view of the parts shown in Fig. 3.

In the accompanying drawings, 1 is the dobbie-frame, having pivotally supported thereon in the ordinary way the harness-levers 2, operated through the hooks 3 on the centrally-pivoted jack-levers 4, and the lifters 5, moving in slots 1' in the frame 1 and connected by links 6 with the rocker 7, fast on the rocker-shaft 8, all in the well-known way.

The engagement of the hooks 3 with the lifters 5 is controlled by the wires or needles 9 and the fingers or levers 10, operated by the pattern-chain 11 on the revolving pattern-chain barrel 11', all in the usual and well-known way.

The harness-frame 12 has a spring 13 attached to its lower edge and is connected at its upper edge by a cord 14 passing over a pulley or sheave 15 to one end of the elongated loop or link 16, through which passes the upper end of the harness-lever 2. The other end of the link 16 is connected by a wire 17 with the end of a leather strap 18, to be hereinafter described.

I will now describe my improvements in leno-motion combined with the ordinary parts of a well-known form of loom-dobby above described.

The rocker 7 has therein longitudinal slots 7', and a segment 19 is removably and adjustably secured at its ends to said rocker 7 by bolts 20 extending through the slots 7', as shown. The segment 19 has therein elongated curved slots 19', and the curved end of a lever 21 is adjustably secured to said segment 19 by bolts 19'' extending through said

slots 19'. The lever 21 has an elongated slot 21' therein, into which extends an adjusting-plate 22, (see Fig. 3,) which is secured in its adjusted position by a set-screw 23. A washer 23' on said set-screw 23 bears on the edges of the slot 21'.

Loosely mounted in the adjusting-plate 22 is one end of a stud 24, having a washer 24' thereon and a split pin 24'' therein and having an enlarged portion 24''' and the threaded end 24'''' extending through an elongated slot 25' in one end of a link 25 and secured therein by a nut 25''. (See Fig. 3.) The link 25 is pivoted on a pin 26 on a swinging lever 27.

The lever 27 has a hub 27' at its lower end, which is mounted on one end of a rock-shaft 28 and secured thereon by a set-screw 29. (See Figs. 3 and 4.) The rock-shaft 28 is mounted in stands 1'' on the frame 1. On

the opposite end of the rock-shaft 28 is fast a second swinging lever 27, corresponding to the lever 27 above described, and through hubs 27'' on the upper ends of the two levers 27 extends a rod 30, which is secured at each end in said hubs 27'' by a set-screw 31. The two levers 27, fast on the rock-shaft 28, with the connecting-rod 30 form a swinging frame.

A guide and holder 32 for the end of the strap 18 has a hub 32' thereon secured on the rod 30 by a set-screw 33. (See Fig. 4.) The end of the strap 18 is secured to the holder 32 by a set-screw 34.

By means of the adjusting-plate 22 the amount of motion imparted to the swinging levers 27 may be regulated.

If desired, the parts of my leno-motion forming the intermediate connections between the rocker 7 and the lever 27 (shown in Fig. 4 and above described) may be duplicated on the other side of the dobby-frame, as shown in Fig. 3, and this may be necessary in heavy weaving.

The operation of my improvements will be readily understood by those skilled in the art, and briefly is as follows: The holder 32, to which the strap 18 is secured, may be attached at any desired point on the rod 30 of the leno-motion, and the strap 18 may be connected with the desired number of harness-levers and harnesses, ordinarily four, as shown in my said patent. When the harness-levers 2, connected with the leno-motion, are operated in the ordinary way in a loom-dobby by the engagement of their connected hooks 3 with the lifters 5 to receive their full outward movement called for by the pattern-chain 11, the engagement of said levers with the outer ends of the link 16 of the harness-frame connections transmits to the harness-frames the full movement, which carries the warp-threads from the lower plane of the shed to the upper plane thereof. While the harness-lever remains in its outer or highest position (shown by full lines in Fig. 1) there is no action on the harness-lever and the harness-frame connected therewith by the leno-motion, for the reason

that the levers 27, which operate through the strap 18 to move the harness-levers and lift the harness-frames connected therewith, have only half the amount of travel that the lifters 5 have. When the outward movement of one of the harness-levers is not called for, said lever remains stationary in its innermost position, as shown by broken lines in Fig. 1, and the length of the opening in the elongated link 16 permits said link and the connections intermediate the swinging levers 27 and the harness-frame to move in unison and the harness-frame to be raised through the movement of the leno-motion to the position shown by broken lines in Fig. 1 and to be lowered through the movement of the leno-motion to the position shown by full lines in Fig. 2. It will be seen that as the rocker 7 oscillates it moves the lever 21 and link 25, carrying the pivot-stud 24, which connects said lever and link, above and below a horizontal line passing through the pivotal support of the rocker 7 and the link 25, as shown by full lines in Figs. 1 and 2. It follows that a complete movement of the rocker 7 in either direction causes a complete movement or oscillation of the swinging levers 27 of the leno-motion and the required half-and-return movement of the harness-frames connected therewith, the elongated links 6 moving back and forth relatively to the harness jacks or levers 2 in their inner positions—that is, while the ordinary lifter 5 of the dobby is making a complete movement in one direction the swinging levers 27 of the leno-motion will make a half-movement and return, as shown in Figs. 1 and 2, to communicate a half-and-return motion to certain of the harness-frames and warp-threads which are controlled thereby during the cross-weaving.

It will be understood that the details of construction of my improvements may be varied, if desired.

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-frame, a harness-lever, connections from the frame to the lever, said connections including a slotted link embracing the harness-lever, a jack, hooks thereon, a rocker, lifters, and links connecting said rocker and lifters, of a leno-motion attachment to communicate a half-and-return movement to the harness-frame, said attachment comprising a segment adjustably attached to the rocker, a lever adjustably attached to the segment, and an adjusting-plate carried by this lever, a swinging lever, a link connecting the adjusting-plate and the swinging lever, and connections between the swinging lever and the loop embracing the harness-lever, substantially as shown and described.

2. In a loom, the combination with a harness-frame, a harness-lever, connections from the frame to the lever, said connections in-

cluding a slotted link embracing the harness-lever, a jack, hooks thereon, a rocker, lifters, and links connecting said rocker and lifters, of a leno-motion attachment to communicate
5 a half-and-return movement to the harness-frame, said attachment comprising a segment removably attached to the rocker, a lever removably attached to the segment, and an adjusting-plate carried by this lever, a swing-

ing lever, a link connecting the adjusting-plate and the swinging lever, and connections between the swinging lever and the loop embracing the harness-lever, substantially as shown and described.

HENRY BARDSLEY.

Witnesses:

J. C. DEWEY,

M. HAAS.