

No. 650,737.

Patented May 29, 1900.

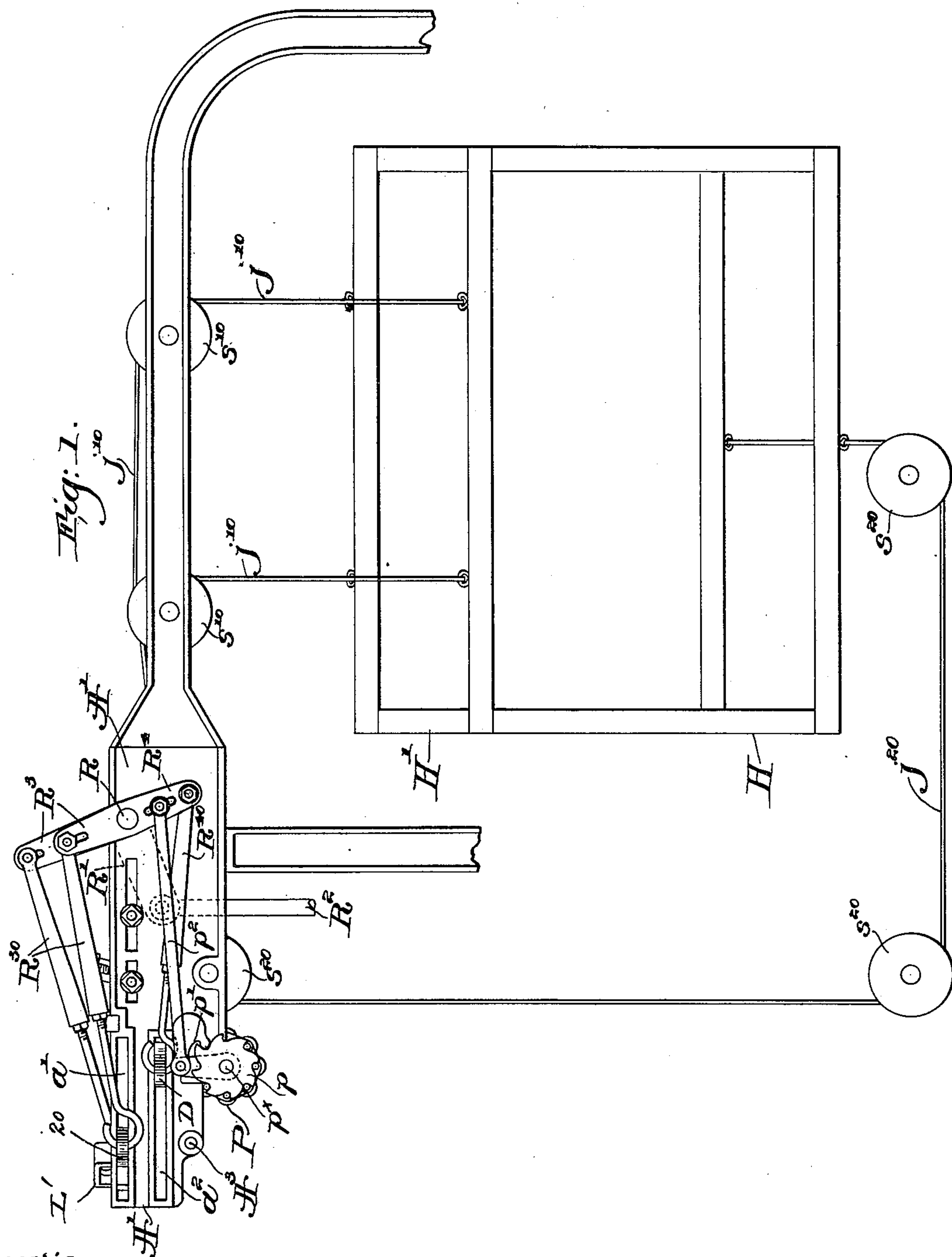
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SHEDDING MECHANISM FOR LOOMS.

(Application filed Aug. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses,
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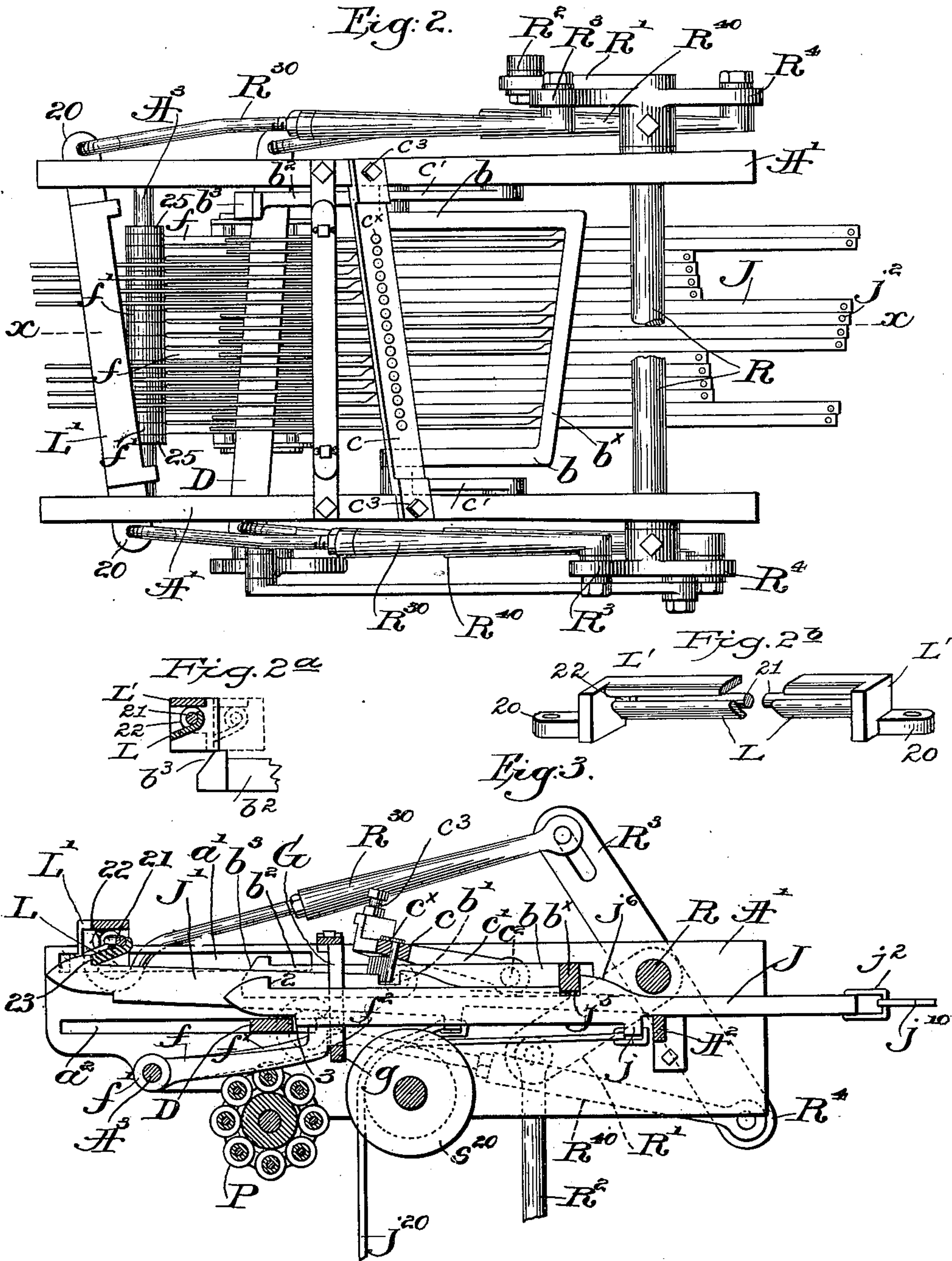
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UNITED STATES PATENT OFFICE.

ERNEST TEBBS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
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SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 650,737, dated May 29, 1900.

Application filed August 25, 1899. Serial No. 728,412. (No model.)

To all whom it may concern:

Be it known that I, ERNEST TEBBS, a citizen of the United States, and a resident of Philadelphia, (Frankford,) county of Philadelphia, State of Pennsylvania, have invented an Improvement in Shedding Mechanism for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to fancy-loom where-in the movement of the harnesses is controlled by a pattern-surface acting through sliding jacks which are operated by lifter and depressor bars; and in accordance therewith my present invention has for its objects the simplification and reduction in number of the parts of the shedding mechanism, the positive actuation of the harnesses on each stroke, and the locking of the jacks to positively maintain the shed open until released by the operation of the pattern-surface reducing the friction on the warp-threads.

I have herein shown my invention as embodied in an open-shed motion, and I have dispensed with an evener-bar, as only the jacks necessary to make the pattern in the fabric are moved.

Various novel features of my invention will be hereinafter described, and particularly pointed out in the following claims.

Figure 1 represents in front elevation a shedding mechanism embodying my invention, two harnesses being shown with the shed open. Fig. 2 is a top or plan view, enlarged, of the dobby or shedding mechanism, shown at the left of Fig. 1. Fig. 2^a is a transverse sectional detail taken through the lifter-carrier at the time the latter is operating to release the locking means for the depressed jacks. Fig. 2^b is a perspective detail, centrally broken, of the lifter-carrier and the lifter viewed from its inner side; and Fig. 3 is a longitudinal sectional view thereof on the line *x x*, Fig. 2.

The arch A of the loom has mounted upon it the dobby or shedding mechanism proper, carried by a frame comprising side plates A' A', connected rigidly by a cross-girth A² and rod A³, the side plates having horizontal slots

or guideways *a' a'* therein, the latter for the depressor-bar D, while the former and uppermost of the slots receive the projecting ears 20 of the lifter-bar carrier L', said carrier being shown best in Figs. 2, 2^a, 2^b, and 3 as a species of bridge between the ears and having a rod 21 extended across it below its top.

The lifter-bar L has bearings 22, which embrace the rod 21, by means of which said lifter-bar is pivotally mounted on the carrier.

A rock-shaft R, mounted in the plates A', has fast thereon an arm R', pivotally connected by a link R² with the usual dobby-actuating mechanism, (not shown,) whereby the shaft R is rocked back and forth for each pick of the loom, the rock-shaft having rigidly-attached rocker-arms R³ R⁴, which act through the links R³⁰ R⁴⁰ to reciprocate the lifter and depressor bars, respectively.

The jack-bars or jacks J are each made with a shoulder 2 on its upper edge and an opposite shoulder 3 on its lower edge, near its outer end, and with a depending hooked lug *j* nearer its inner end, to which the bottom harness connection *j*²⁰ is attached, the upper harness connection *j*¹⁰ being attached to a hook or eye *j*² at the inner end of the jack, so that a harness member H is positively connected at top and bottom with a jack, the connections passing over suitable sheaves *s*¹⁰ *s*²⁰, Fig. 1. The jacks rest and slide at their inner ends upon the cross-girth A², which is at the inner side of the lugs *j*, (see Fig. 3,) and at their outer ends the jacks are each supported by one of a series of rocking fingers *f* the hubs *f'* of which are mounted side by side on the cross-rod A³, collars 25, fast on the rod at the ends of the series of fingers, preventing their lateral displacement. (See Fig. 2.) The jacks pass between the upright bars of a grating G, Fig. 3, the bottom cross-bar *g* of the grating serving as a rest for the shouldered tips *f*² of such of the fingers as are permitted to drop by the pattern-surface P, which may be of any desired construction and arranged to raise such fingers as correspond to jacks which are to be acted upon by the lifter-bar. In Fig. 3 only two jacks are shown, for the sake of clearness, the jack J being in its retracted position and its harness

member H lowered, while the jack J' is extended and its harness member H', Fig. 1, raised, it being understood, however, that all of the jacks are counterparts of each other.

5 The finger f^x , controlling the jack j' , is shown as raised by the pattern-surface to elevate the jack, so that its shoulder 2 is in the path of the lifter-bar, while the finger f of jack J is lowered, resting on the bar g , so that the

10 shoulder 3 of that jack is in the path of the depressor-bar D, the jacks lying between the paths of said bars. The change of the pattern-surface takes place as the lifter-bar moves in and the depressor-bar out, as will

15 be evident by reference to Fig. 1, a ratchet-wheel p on the pattern-actuating shaft p^x being at such time engaged by a pawl p' , connected with one of the rocker-arms R^4 by a link p^2 , so that the jacks of the harnesses which

20 are to be lifted will be elevated by their fingers before the lifter L begins its outward stroke and the jacks of the harnesses which are to be depressed will be lowered to bring their shoulders 3 into the path of the depressor

25 D. It will be manifest that so long as a finger is raised by the pattern-surface—as, for instance, the finger f^x , Fig. 3—so long will its jack be lifted at its outer end, so that it cannot be moved inward by the depressor, and

30 I have provided independent means for locking lifted or depressed jacks, meaning thereby jacks which have been acted upon by either the lifter or the depressor, in position until the pattern is changed.

35 Referring now to Figs. 2 and 3, rocker-arms b , fulcrumed at b' on the side plates A' , are connected by a locking-bar b^x , which extends across the jacks near the rock-shaft R and which enters a locking-notch j^5 in the

40 upper edge of each jack when such jack is depressed, the jack being enlarged back of the notch to form a cam-surface j^6 , which temporarily lifts the locking-bar b^x when a jack is depressed and then permits the bar to fall

45 into the notch j^5 , locking the jack in depressed position. One of the supporting-arms b has an outwardly-prolonged portion b^2 inclined or cam-faced at its extremity at b^3 (see Figs. 2 and 3) in the path of and engaged by the adjacent end of the carrier L'

50 within the sides of the frame when said carrier has completed about two-thirds of its inward stroke, such engagement of the bottom edge of the carrier end with the cam-face b^3 depressing the part b^2 and lifting the locking-

55 bar b^x clear of the notches and cam portions j^6 of the depressed jacks, releasing them, while the change of pattern effects the selection of the jacks to be lifted and lowers the jacks to

60 be acted upon by the depressor. The locking-bar b^x is held inoperative by the engagement of the carrier L' and the cam-face b^3 until the lifter-bar L has on its outward stroke moved all the jacks selected to be lifted far

65 enough to carry their locking-notches j^5 beyond the locking-bar, after which the prolongation b^2 is released by the carrier, and

said bar moves into operative position, locking all of the jacks which were to remain in. A second bar c , extended above the jacks and supported in arms c' , fulcrumed on the plates A' at c^2 , is provided with a series of holes, into which headed locking-pins c^x are loosely inserted—a pin for each jack—the pins being long enough to enter the locking-notches of

70 jacks in lifted position, (see Fig. 3,) the bar c having adjusting-screws c^3 at its ends to rest upon the plates A' and regulate the plane in which the lower ends of the locking-pins shall lie. When the lifter engages and moves a

80 jack outward, the appropriate pin c^x is lifted and rests upon the upper edge of the jack until the locking-notch j^5 is brought beneath the pin, which latter thereupon drops into the notch and locks the jack in lifted position

85 so long as its finger maintains it elevated. If such jack is to be depressed, the change of pattern lowers it into the plane of the jack J, Fig. 3, and out of range or control of its locking-pin, so that the next inward stroke

90 of the depressor D will move the jack inward and depress its harness member. Thus I provide independent locking devices which operate to positively hold the shed open until the pattern changes, thereby reducing the

95 friction on the warps, each locking device operating by itself to fulfil its own proper function.

As only the jacks necessary to make the pattern in the fabric are moved, I dispense

100 with an evener-bar; but when the weaver wishes to draw in warp-threads she will raise the bar c when the lifter-bar is at the opposite end of its stroke from that shown in

Fig. 3, and by pressing upon the tops of the

105 lifted harnesses they will all descend to the lower position, evening them as desired.

When the parts are in the position shown in the drawings, the shed is open. In the opposite positions of lifter and depressor bars

110 all changes would have been made ready for the next pick.

The shedding mechanism described is strong and durable, it has very few working parts, and the movements thereof and of the har-

115 nesses are positive and direct.

The construction herein shown may be modified or changed in various particulars without departing from the spirit and scope of my invention.

120

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

1. A series of notched jacks each connected with a harness-frame and adapted to actuate

125 the same positively in both directions, a depressor, and a lifter, the jacks moving between them, a pattern-surface to select and lift those jacks which are to be engaged by the lifter, and independent locking means to

130 directly engage and maintain locked both the depressed and the lifted jacks.

2. A series of notched jacks each connected with and to actuate positively a harness-frame

in both directions, a depressor, and a lifter, the jacks moving between them, a pattern-surface to select and lift those jacks which are to be engaged by the lifter, locking means for the depressed jacks, controlled by or through movement of the lifter, and independent locking means for the lifted jacks, such jacks as are permitted to drop by the pattern-surface being thereby released from said latter locking means.

3. A series of horizontally-movable notched jacks each connected with and to actuate positively a harness-frame in both directions, each jack having a single locking-notch, independent locking devices to coöperate separately and directly with the locking-notches, according as the jack is lifted or depressed, to positively maintain the jack in one or the other position, a lifter, a depressor, a pattern mechanism to effect engagement of a jack with either the lifter or the depressor, and means to change the pattern before the lifter begins its active stroke.

4. A series of horizontally-movable notched jacks each connected with and to actuate positively a harness-frame in both directions, a fixed support near the inner ends of the jacks and on which support they slide, independent movable supports for the outer ends of the jacks, a pattern-surface to act upon and govern the position of said supports, according to which jacks are to be lifted or depressed, a reciprocating lifter above the jacks, a reciprocating depressor below them, and a locking device, controlled by the lifter, to lock such of the jacks as are not to be engaged by the lifter on its operative stroke.

5. A series of horizontally-movable notched jacks each connected with and to actuate positively a harness-frame in both directions, each jack having a locking-notch, a locking-bar adapted to enter the notches of depressed jacks and lock them from movement when the selected jacks are lifted, a lifter, a depressor, a pattern-surface to select such of the jacks as are to be lifted and to place them in position to be engaged by the lifter, means controlled by the lifter to move said locking-bar into inoperative position when the pattern is changed, and a series of independent locking-pins to engage the notches of lifted jacks and hold them from movement until unlocked by the change of pattern.

6. A series of horizontally-movable jacks oppositely notched or shouldered at their upper and lower edges, near their outer ends, each jack being connected with and to move

positively a harness-frame in both directions, a depressor movable in a path to engage the lower shoulder of and move inward a jack when released by the pattern-surface, a lifter above the jacks, a pattern-surface to act upon, and raise the outer ends of selected jacks, bringing their upper shoulders into the path of the lifter, means to lock lifted jacks in such position, said jacks being unlocked by or through the pattern-surface, and independent means to lock depressed jacks, said means being made inoperative by or through the lifter prior to a change of pattern, whereby selected jacks are free to be engaged by the lifter on its operative stroke.

7. A series of horizontally-movable, notched jacks each connected with and to move positively a harness-frame in both directions, rocking fingers to support the outer ends of the jacks, the latter when unaffected by the pattern-surface being depressed, a pattern-surface to act upon said fingers and select and raise such jacks as are to be engaged by the lifter, a locking device to coöperate with and directly engage a jack so raised after it has been moved by the lifter, a depressor, to engage and move inward a lifted jack when lowered into normal position by or through the action of the pattern-surface, and a pivotally-mounted locking-bar to engage and lock all of the depressed jacks during the operative stroke of the lifter.

8. A series of horizontally-movable notched jacks each connected with and to actuate positively a harness-frame in both directions, each jack having a locking-notch in its top, a perforated bar extended across the jacks, headed locking-pins depending from and loosely supported in said bar, reciprocating lifter and depressor bars, movable above and below the jacks, respectively, and a pattern-surface to select and raise into the path of the lifter such of the jacks whose harness-frames are to be lifted, the raising of a jack permitting its corresponding locking-pin to drop into the locking-notch as the jack is moved outward by the lifter, lowering of the jack upon a change of pattern dropping it below the end of its locking-pin and thereby releasing the jack.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNEST TEBBS.

Witnesses:

ALLAN J. CASSIDY,
WILLIAM C. TEBBS.