

A. & S. WIDMER.
HARNESSE LEVELING MECHANISM FOR LOOMS.
APPLICATION FILED JAN. 4, 1908.

915,916.

Patented Mar. 23, 1909.

2 SHEETS—SHEET 1.

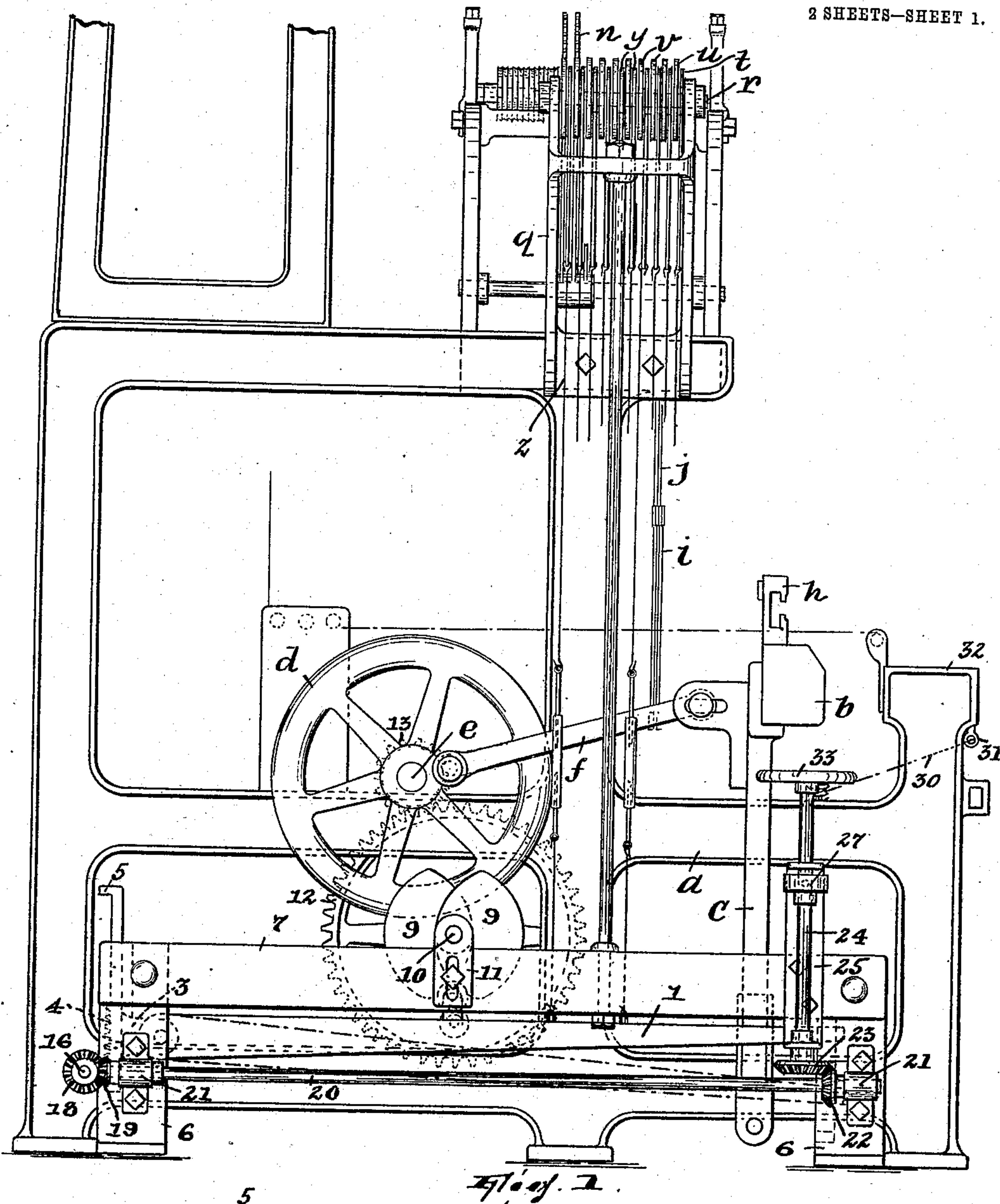


Fig. 1.

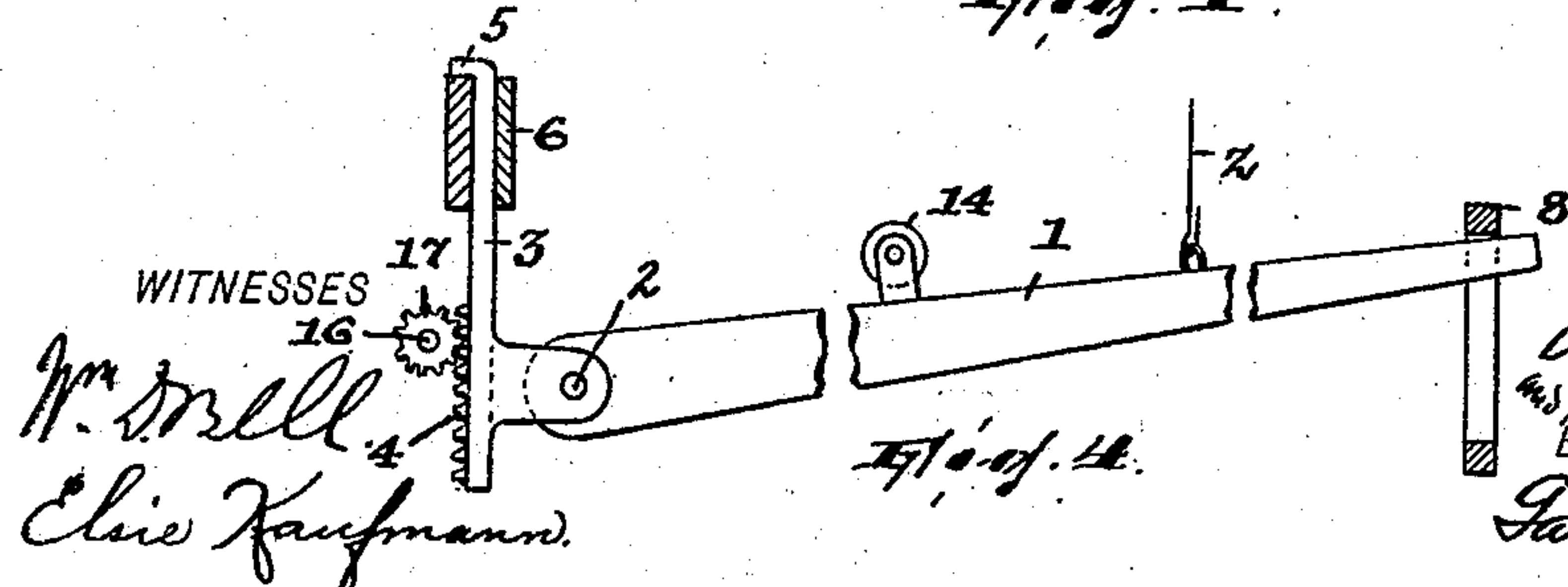


Fig. 2.

WITNESSES
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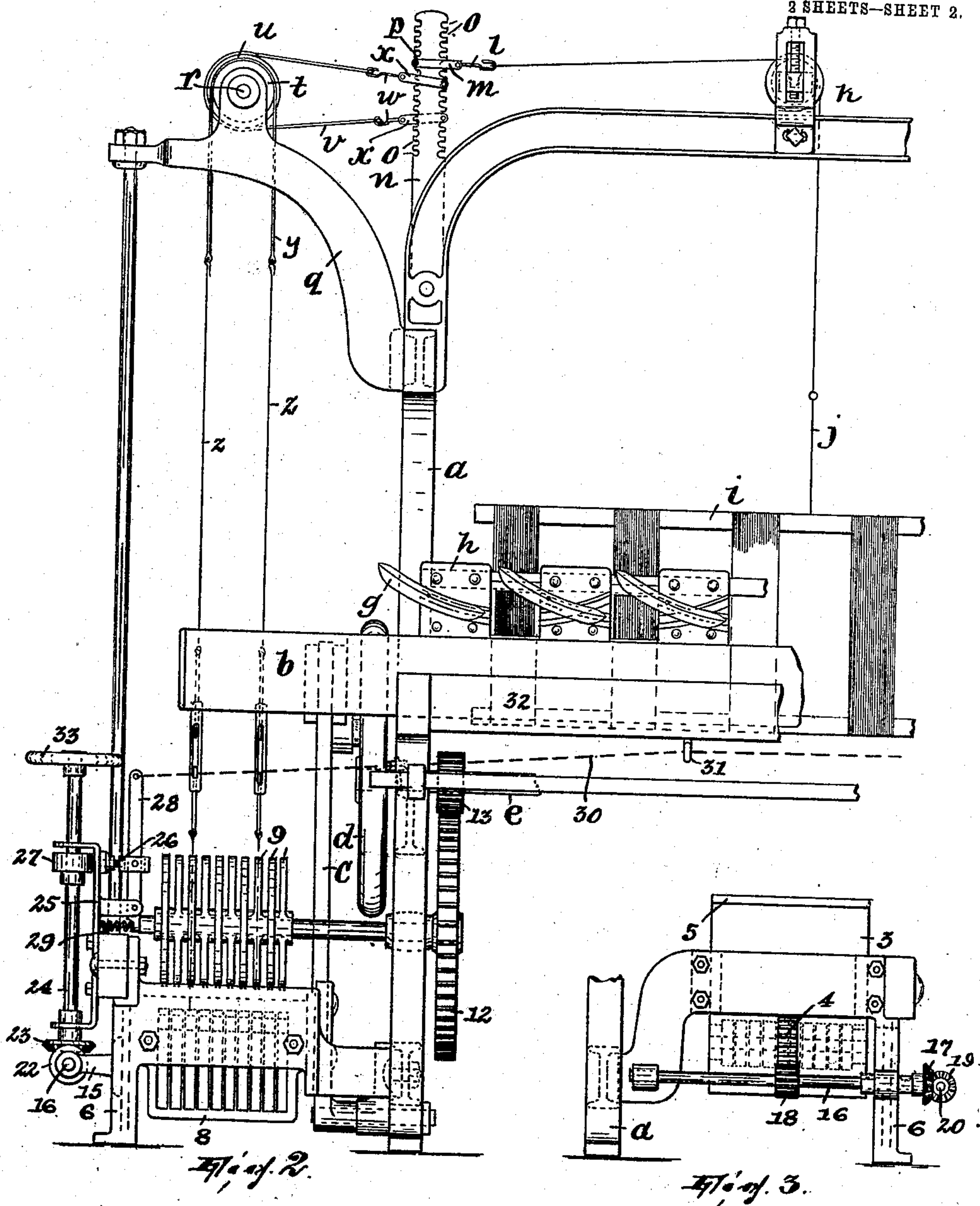
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WITNESSES

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UNITED STATES PATENT OFFICE.

ADOLPH WIDMER AND SAMUEL WIDMER, OF PATERSON, NEW JERSEY.

HARNESS-LEVELING MECHANISM FOR LOOMS.

No. 915,916.

Specification of Letters Patent.

Patented March 23, 1909.

Application filed January 4, 1908. Serial No. 409,275.

To all whom it may concern:

Be it known that we, ADOLPH WIDMER and SAMUEL WIDMER, citizens of the United States, residing in Paterson, Passaic county, New Jersey, have invented a certain new and useful Improvement in Harness-Leveling Mechanism for Looms; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

Our invention relates to looms and particularly to the means for controlling the movements of the harness thereof.

Our object is so to construct and arrange the harness controlling means of a loom, and particularly of a loom of the narrow-ware type, that the operation of leveling the harness may be performed by the weaver with the greatest facility and convenience.

Our invention will be found fully illustrated in the accompanying drawings, wherein,

Figure 1 is a side view of a narrow ware loom provided with our improved harness controlling mechanism; Fig. 2 is a front view of the end-portion of the loom shown in Fig. 1; Fig. 3 is a rear view of a part of so much of the loom as is directly concerned in the invention; and, Fig. 4 is a sectional view of what is shown in Fig. 3 taken in a plane parallel with the side of the loom.

In said drawings, *a* designates the frame of the loom; *b* is the batten carried by the lay-swords *c* in the usual manner and connected with the wheel *d* on the crank-shaft *e* by the pitmen *f*; *g* and *h* denote the shuttles and shuttle blocks, respectively; *i* the shafts of harness, and *j* the harness-cords, the same extending upwardly over the vertically adjustable pulleys *k* and being connected with the hooks *l* of the clevises *m* which respectively receive the pivoted upwardly extending arms *n*, the latter being provided with notches *o* along their inside and outside edges and one of the outer notches receiving the pin *p* of the corresponding clevis. An auxiliary frame *q* projects from the upper part of the side of the main frame *a* and in this is journaled the shaft *r* of pulleys *t* and *u*, alternating with each other, the pulleys *t* being the smaller; the pulleys are fixed to

the shaft and rotate therewith together. Around each pulley *u* extends a strap *v* whose ends are engaged with the hooks *w* of clevises *x*, the clevises for each strap *v* receiving (different) arms *n* in the same manner as the clevises *m*. The arrangement is such that on-rocking shaft *r*, according as one end of a strap *v* is taken up the other end gives way, thus raising one of the shafts of the harness and lowering another.

Around the smaller pulleys *t* extend the straps *z* which are connected by adjustable connections *z* with the harness levers 1.

The harness levers 1 are all arranged side by side on a common fulcrum 2 in a vertically movable bracket 3 provided with the rack teeth 4 and having its upper end turned off to form a stop 5. This bracket stands at right angles to the side of the loom frame and is guided for vertical movement in one of two stands 6 which, with a connecting brace 7, form a projecting auxiliary frame. The free ends of the harness levers 1 are guided for movement in a grid 8 bolted to the other stand 6. The harness levers are actuated by the cams 9 which are fixed on a shaft 10, which is journaled in the loom-frame *a* and in a vertically adjustable bracket 11 on the brace 7, between said brace and the loom-frame. This shaft carries a gear 12 which meshes with a pinion 13 on the crank shaft *e*. The levers may carry rollers 14 engaging the peripheries of the cams. In the normal position of the parts while the loom is in operation, the bracket 3 is elevated, standing substantially as it appears in Fig. 1. In this position it is held by the following mechanism. In the stand 6 in which the bracket 3 is guided is journaled a rotary shaft 16 carrying a pinion 17 which meshes with the rack 4 and also carrying a bevel pinion 18. This bevel pinion meshes with another bevel pinion 19 on a shaft 20 which is journaled in brackets 21 bolted to the stand 6 and which carries another bevel pinion 22 meshing with a bevel pinion 23 on a vertical shaft 24 which is journaled in a two-armed bracket 25 bolted to the brace 7. This bracket 25 forms a guide for a detent 26 which is adapted to engage a notched collar 27 secured to shaft 24 and which is carried by a lever 28 fulcrumed in the bracket 25 near one end, the detent 26 being normally forced toward the collar 27 by a spring 29 suitably interposed between the lever 28 and bracket 25. To the lever 28 is attached a hand-line 30 which extends

through eyelets 31 attached to the breast-beam 32 and extending substantially to the far end of the loom so as to be in convenient reach of the weaver wherever he happens to be.

The shaft 24 carries a hand-wheel 33, and by turning this the shaft 16 is rotated and causes the bracket 3 to be raised until the detent 26 falls into the notch of the collar 27, in which position it will hold bracket 3 until the lever 28 is moved to draw the detent out of the notch. In this position, the fulcrumed ends of the harness levers being held elevated by the bracket 3, the harness holds said levers in operative contact with their cams 9. Should, now, a thread break in the warp or some other occasion arise requiring the leveling of the harness, the weaver may, from wherever he happens to be at the front of the loom, draw upon the cord 30, causing the lever 28 to effect the release of shaft 24 and, consequently, of the bracket 3, which will fall with the harness levers, bringing the latter into the position shown in Fig. 4. In assuming this position, the several harness levers bear at their free ends against the upper ends of the slots in the grid 8, so that they all stand in the same plane in their final position. The harness is thus leveled practically instantaneously upon simply drawing the cord 30.

As already explained, the parts may be set back to their normal positions by simply turning the hand-wheel 33 until the shaft 24 is brought to the position where the detent will engage with the notch of the collar 27 and lock shaft 24, and the parts controlled by it, against return movement.

When bracket 3 falls its movement is limited by stop 5 engaging the top of the stand 6.

Having thus fully described our invention, what we claim as new and desire to secure by Letters Patent is:

1. The combination, in a loom, of the frame, the harness-shafts, arms fulcrumed in the frame, pulleys journaled in the frame, flexible connections passing around said pulleys and connecting the harness-shafts with said arms, respectively, a rocking structure, a flexible connection extended around said structure and attached at its ends to different arms, and means for rocking said structure, substantially as described.

2. The combination, in a loom, of the frame, the harness-shafts, arms notched on opposite edges and fulcrumed in the frame, flexible connections connected with the harness-shafts and having clevises engaged with one notched edge of said arms, a rocking structure, a flexible connection extended around said structure and having clevises engaged with the other notched edge of said

arms, one with each arm, and means for rocking said structure, substantially as described.

3. In a loom, the combination, with the frame, of the harness-shafts, harness levers, means for actuating said harness-levers, operative connecting means connecting the harness-shafts and harness levers, a fulcrum support for the harness levers movable to move the levers together against the pull of the harness, and an abutment forming a fulcrum for the levers under their movement with said fulcrum support, substantially as described.

4. In a loom, the combination, with the frame, of the harness-shafts, harness levers, means for actuating said harness-levers, operative connecting means connecting the harness-shafts and harness levers, a gravity actuated fulcrum support for the harness levers movable to move the levers together against the pull of the harness, an abutment forming a fulcrum for the levers under their movement with said fulcrum support, and means for locking said structure against the action of gravity, substantially as described.

5. In a loom, the combination, with the frame, of the harness-shafts, harness levers arranged substantially horizontally, cams arranged over the harness levers, means, exerting an upward pull on the harness levers, operatively connecting the same with the harness, a gravity actuated fulcrum support for the harness levers movable to move the levers together downwardly, an abutment forming a fulcrum for the levers under their movement with said fulcrum support, and means for locking said support in its elevated position, substantially as described.

6. In a loom, the combination, with the frame, of the harness-shafts, harness levers arranged substantially horizontally, cams arranged over the harness levers, means, exerting an upward pull on the harness levers, operatively connecting the same with the harness, a gravity actuated fulcrum support for the harness levers movable to move the levers together downwardly, an abutment forming a fulcrum for the levers under their movement with said fulcrum support, means for locking said support in its elevated position, and a releasing device controlling said locking means and extending transversely of the loom, substantially as described.

In testimony, that we claim the foregoing, we have hereunto set our hands this 20th day of December 1907.

ADOLPH WIDMER.
SAMUEL WIDMER.

Witnesses:

JOHN W. STEWARD,
ALFRED GARTNER.