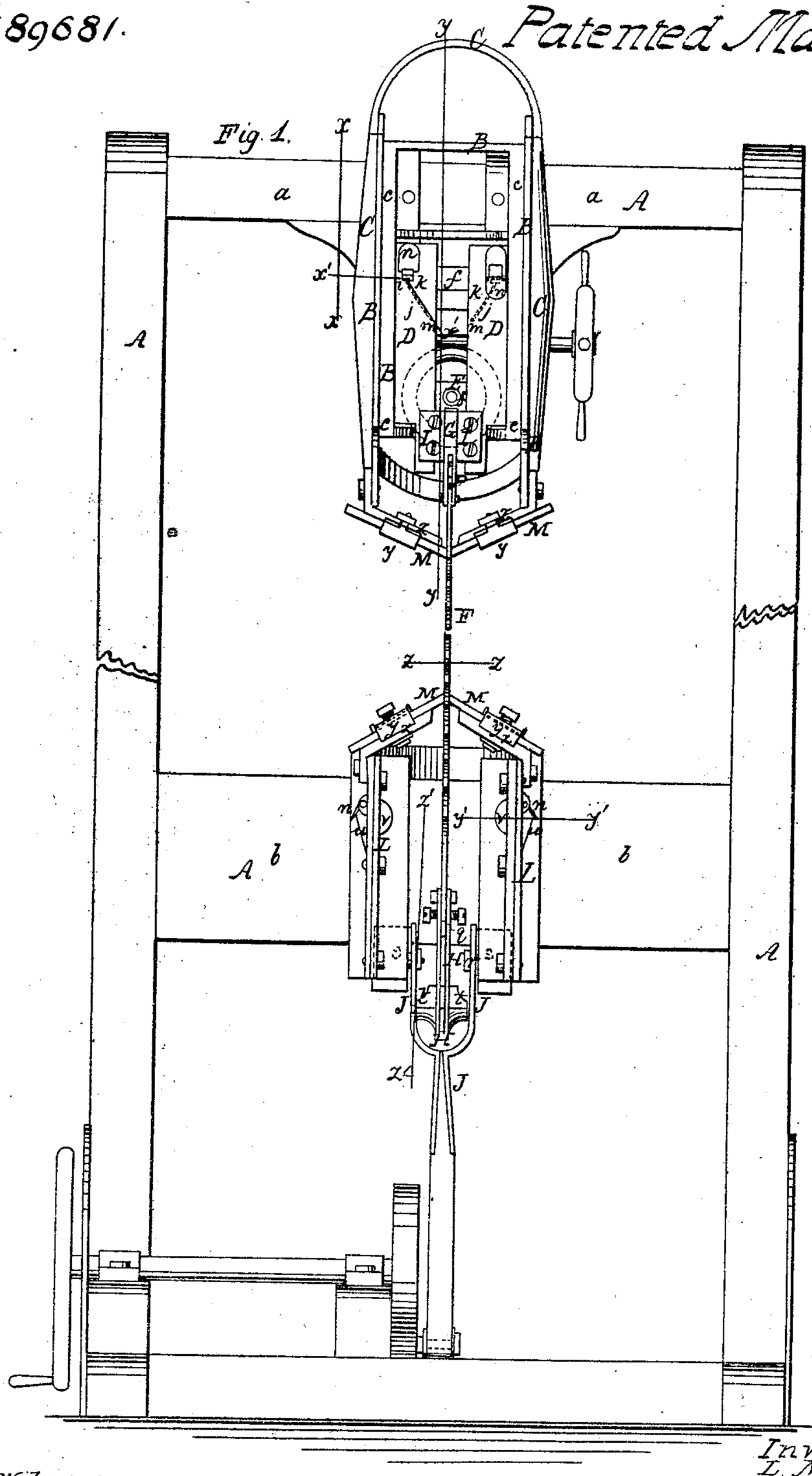
2 Sheets
Sheet 1.

L. Morrison & A.G. Harms.

Saw Mill.

No. 89681. Patented May. 4. 1869.

Fig. 1.



Witnesses.
Wm. A. Morgan
Robert F. Brady

Inventors
L. Morrison &
A. G. Harms.
per Munn & Co
Attorneys.

2 Sheets
Sheet 2

L. Morrison & A.C. Harms.

Saw Mill.

No. 89681. Patented May 4. 1869.

Fig. 2

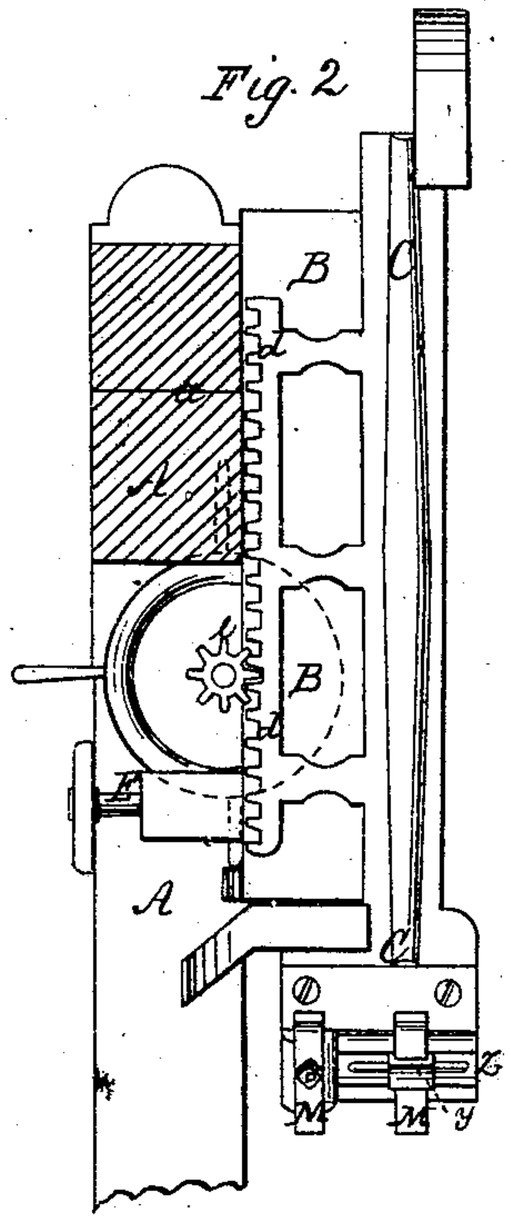


Fig. 3

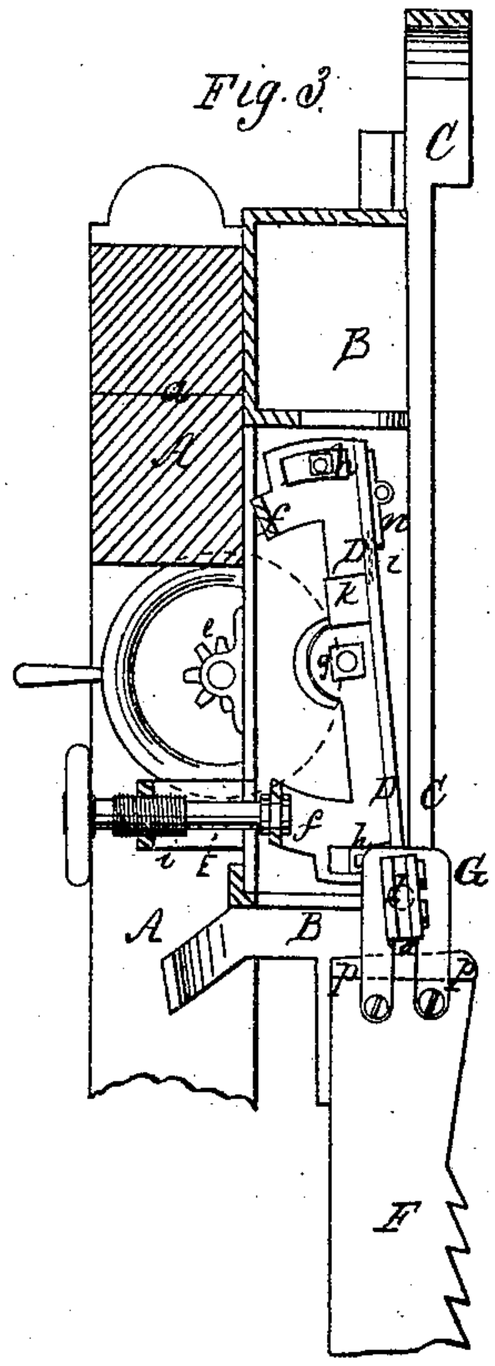


Fig. 4.

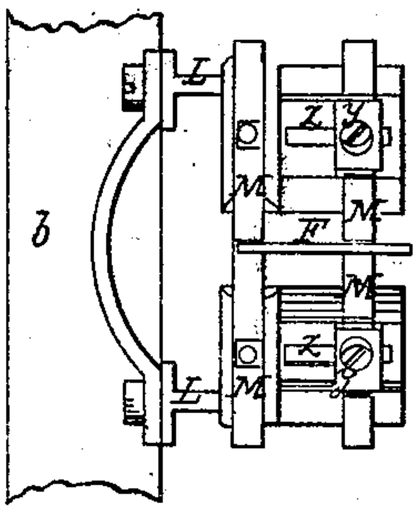


Fig. 5.

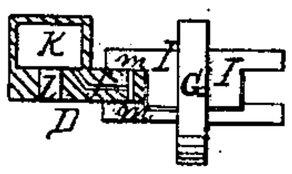


Fig. 6.

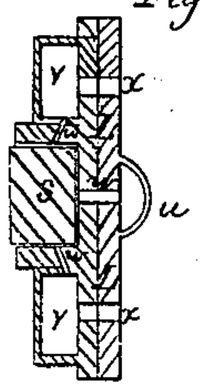
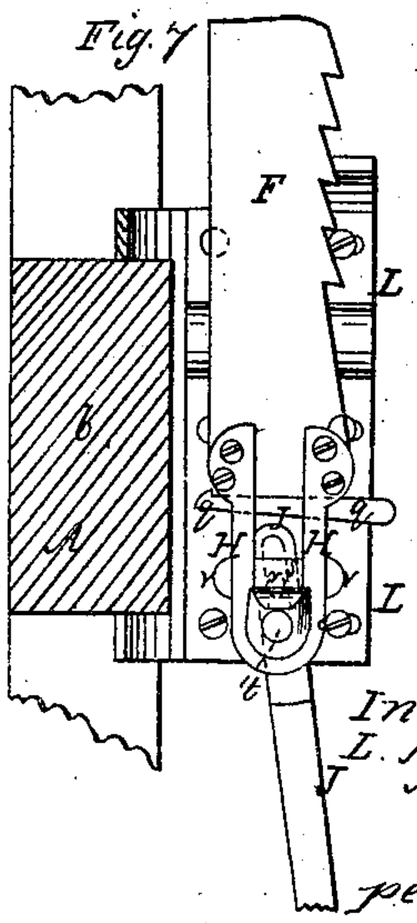


Fig. 7



Witnesses.
Wm A Morgan
Jno H Roberts

Inventor.
L. Morrison &
A. C. Harms.

per Munn & Co
Attorneys.

UNITED STATES PATENT OFFICE.

L. MORRISON AND A. G. HARMS, OF ALLEGHENY CITY, PENNSYLVANIA.

IMPROVEMENT IN MULEY-SAW MILLS.

Specification forming part of Letters Patent No. **89,681**, dated May 4, 1869.

To all whom it may concern:

Be it known that we, L. MORRISON and A. G. HARMS, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Muley-Saw Mill; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet I, represents a front elevation of our improved saw-mill. Fig. 2, Sheet II, is a detail vertical transverse section of the same, taken on the plane of the line *x x*, Fig. 1. Fig. 3, Sheet II, is a detail vertical transverse section of the same, taken on the plane of the line *y y*, Fig. 1. Fig. 4, Sheet II, is a detail horizontal section of the same, taken on the plane of the line *z z*, Fig. 1. Fig. 5, Sheet II, is a detail horizontal section of the same, taken on the plane of the line *x' x'*, Fig. 1. Fig. 6, Sheet II, is a detail horizontal section of the same, taken on the plane of the line *y' y'*, Fig. 1. Fig. 7, Sheet II, is a detail vertical section of the same, taken on the plane of the line *z' z'*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to certain improvements in the manner of hanging and adjusting reciprocating saws, so that the same will operate and be regulated with ease and without any difficulty.

The invention consists, first, in providing for a lateral adjustment of the upper saw-guides, for the purpose of giving the saw more or less throw; also, in making the wrist on the lower saw-buckle adjustable, more or less, apart from the lower saw-pivot; also, for the purpose of varying the rocking motion of the saw.

The invention further consists in making the side guides of the saw laterally adjustable, to adapt them to wider or narrower saws, or to let them follow the saw as the same wears.

A in the drawing represents the frame on which the supports and guides of our improved saw are arranged. The upper cross-bar, *a*, of the said frame supports the upper, and the lower cross-bar, *b*, the lower, guides of the saw. To the face of the upper bar, *a*, is firmly secured a box, B, which is open in front and at the lower end. Flanges *c c* are formed on the outer side of the box B, they being tracks for the upper guide-frame, C, which carries a rack, *d*, as usual, so that it can be set higher and lower by turning a pinion, *e*. D D are the upper inclined slides or rails, for the upper saw-buckle to travel on. These slides are connected with each other by means of straps *f f*, and are, by pins *g*, pivoted to the side of the box B. They have curved slots at their upper and lower ends, as is clearly shown in Fig. 3. Bolts or screws *h*, projecting from the sides of the box B, fit through these slots.

By means of a screw, E, swiveled in one of the straps *f*, and working in a stationary plate, *i*, the plates D can be set in any suitable inclined position, so as to be adapted to any desired rocking motion of the saw, the curved slots at their ends allowing such adjustment by means of the screw E.

The plates D are provided with channels *j j*, which are formed within them in suitable manner, in the positions indicated in Fig. 1 and as shown in Fig. 5.

A cup, *k*, is secured in rear or front of each plate D, and communicates by an opening, *l*, with the outside, as in Fig. 5, the channel *j* entering the cup, and passing thence to a transverse aperture, *m*, formed through that portion of the plate on which the upper cross-head of the saw travels.

When oil is poured into the cup *k* through the opening *l*, the track of the cross-head will become well lubricated. The opening *l* may be closed by a swinging or other lid, *n*.

F is the saw. To its upper end is secured a strap or buckle, G, with a square-headed or with two or more fastening-pins, so that said buckle cannot swing on the saw. In the same manner is the lower buckle H secured to the lower end of the saw. The upper buckle carries the upper cross-head, I, which is, by means of a box, *o*, and key *p*, held in place, it having a pin that fits through the buckle, so that it can swing to adjust itself automatically to the more or less inclined position of the plates D.

A wedge, *q*, having a head at its thin end, is interposed between the lower edge of the saw and the upper supporting-edge of the

buckle H, for the purpose of keeping the parts stiff and to prevent the saw from shrinking.

The pitman J is provided with a forked upper end, as in Fig. 1, the said end being slotted, as shown in Fig. 7. Bolts *r r* connect the said slotted ends with the slides *s*, which work in grooves formed on fixed plates L, as shown in Fig. 6, said fixed plates being fastened to the lower cross-bar, *b*.

The buckle H is, by a pivot, *t*, connected with the pitman below the pivots *r* of the pitman. By adjusting the bolts *r* higher or lower in the slotted ends of the pitman, the rocking motion of the saw will be varied.

The plates L have oil-cups *u* and *v*, which are arranged, as in Fig. 6, with channels *w w*, so as to lubricate the three sides of each crosshead I. These cups are either on the outside of the plates L, as at *u*, or they are by apertures *x* connected with the outside, so that the oil or other lubricating matter can be filled into the cup without difficulty.

Lids like those described for the upper lubricating-channels may also be arranged over the lower cups or apertures, *x*, as indicated in Fig. 1.

The guide-frame C, as well as the plates L, carries short guide-bars M M, which are longitudinally adjustable as to the thickness of the saw. The front bars M are, however, also laterally adjustable, they being held in sleeves *y*, which travel on transverse grooves or tracks *z z*, as shown in Fig. 4. This is to adjust the bars M also as to the width of the saw.

The plates L are composed of double thickness, so that that portion on which the slide *s* works may be adjusted to suit the width of said slide.

We claim as new and desire to secure by Letters Patent—

1. The inclined guides D, when provided with curved slots at their ends, and when pivoted to the fixed plates B, as described, so that they can be adjusted by means of a screw, E, substantially as herein shown and described.

2. The pitman-straps J, connected as described, with slotted upper ends for the reception of the wrist-pins *r* of the slides *s*, arranged above the pivot *t*, as herein described, for the purpose specified.

3. The sleeves *y*, carrying the front guide-bars M, adapted to be moved laterally, as described, in the grooves *z* of the guide-carrying plates, for the purpose specified.

L. MORRISON.
A. G. HARMS.

Witnesses:
J. H. MORRISON,
JNO. H. HARMS.