

D. CILLEY.

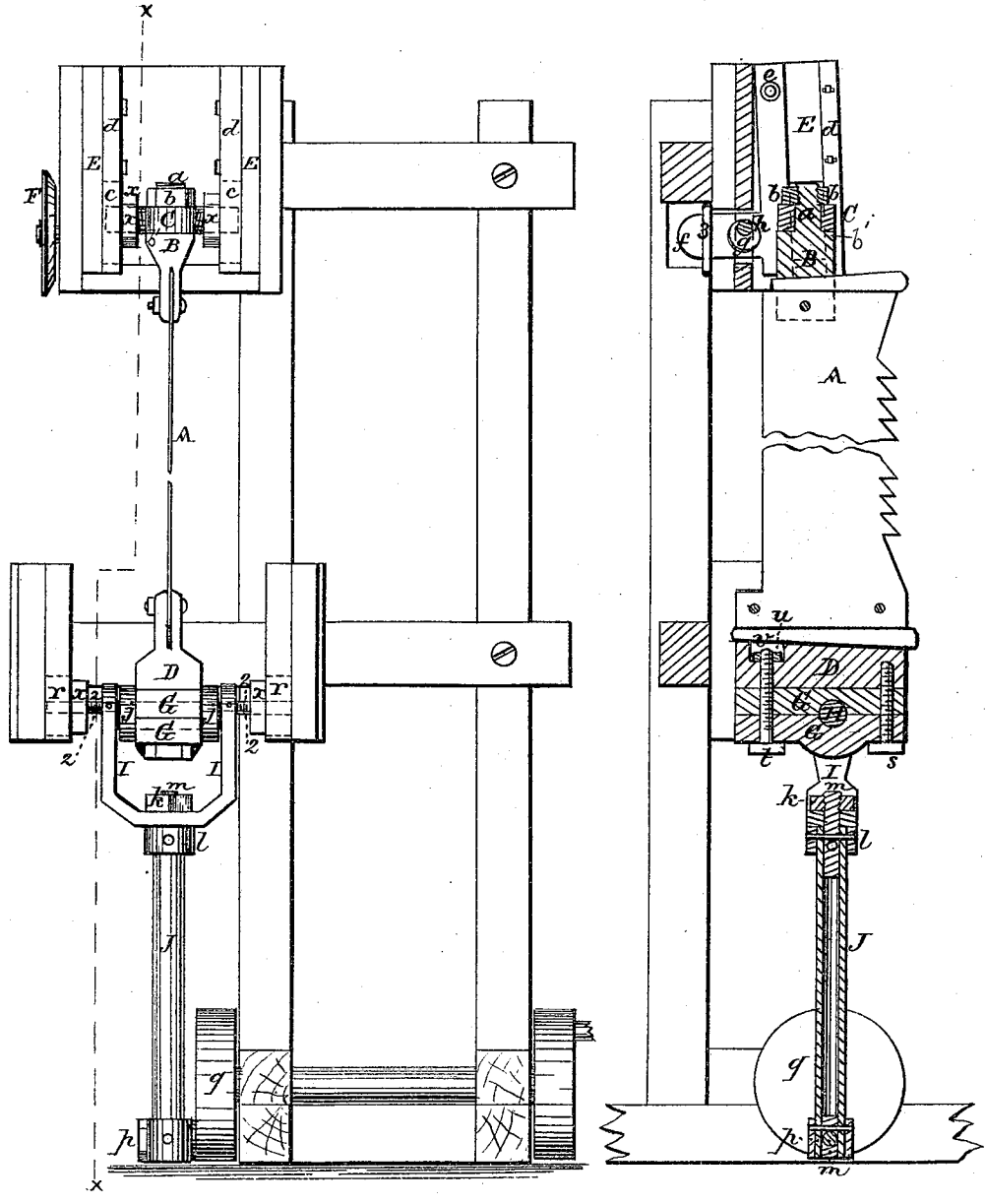
Improvement in Saw-Mills.

No. 133,015.

Patented Nov. 12, 1872.

Fig. 1.

Fig. 2.



WITNESSES.
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Fig. 3.

Fig. 4.

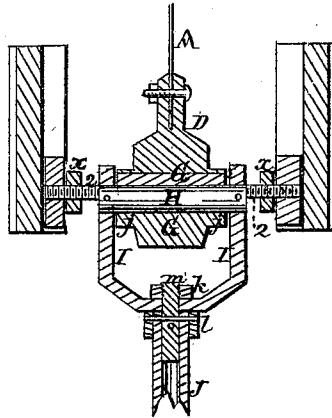
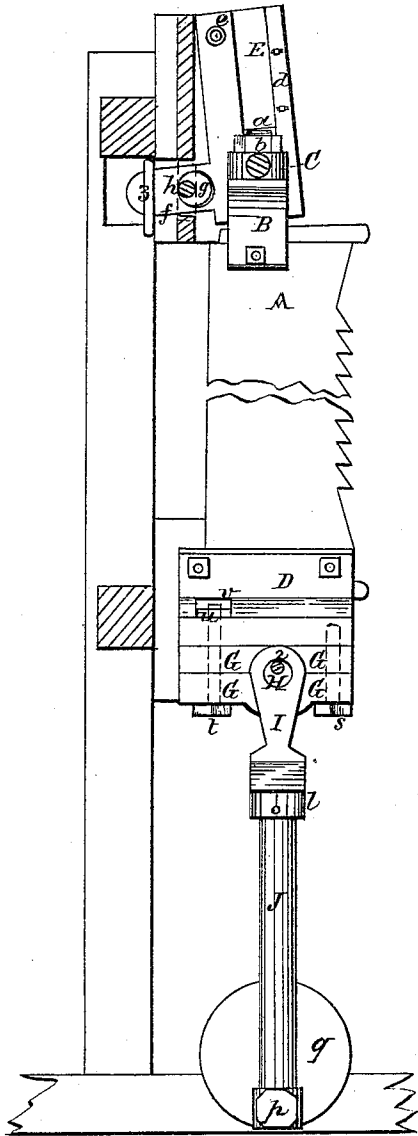


Fig. 5.

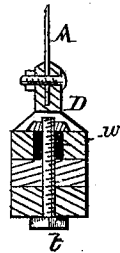
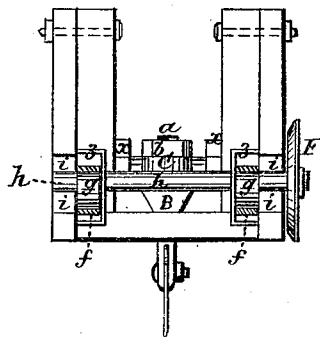


Fig. 6.



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UNITED STATES PATENT OFFICE.

DANIEL CILLEY, OF OSCEOLA MILLS, PENNSYLVANIA.

IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. 133,015, dated November 12, 1872.

To all whom it may concern:

Be it known that I, DANIEL CILLEY, of Osceola Mills, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Saw-Hangings, of which the following is a specification:

In means for rendering the upper saw-buckle easily attachable to and removable from the cross-head by a shouldered pivot-stem and clamp-nut, between which the cross-head is securely held; also, in the arrangement of eccentrics upon a hand-wheel rod, in connection with the pivoted guides of the upper saw-buckle, for increasing or diminishing the overhang or oscillating motion of the upper end of the saw; also, combining the upper and lower pivoted saw-buckles, when each is constructed to have a fixed adjustment, to effect and hold the saw in perfect range at both ends; and, likewise, in making the pitman connection with the yoke by means of a clamp-nut, so as to render it easily detachable and to obtain a more perfect vertical adjustment of the yoke with the crank-shaft to avoid any unequal rubbing or wear of the wrist-pin boxes against one or the other of the guides of the lower buckle.

In the accompanying drawing, Figure 1 represents a front elevation of a saw embracing my invention; Fig. 2 represents a vertical section, showing more clearly the connection of the saw, with its buckles, cross-head, and pitman-rod; Fig. 3 represents a vertical section taken at the line *xx* of Fig. 1; Fig. 4 represents a cross-sectional view of the saw-buckle, showing more clearly its connection both with the eccentric wrist-pin, pitman, and saw; Fig. 5 represents a cross-section through the slotted end of the saw-buckle; and Fig. 6 represents a rear view of the upper pivoted saw-guides and their connection with the eccentrics upon the hand-wheel rod for adjusting the overhang of the saw.

The saw *A* is mounted in an upper and a lower buckle, the upper buckle *B* being connected to a cross-head, *C*, and the lower buckle *D* to the pitman-rod; and the saw thus connected is made to have an oscillating motion in its up-and-down stroke, in a manner to be hereafter described. The buckles are slotted to receive the saw, and the latter is secured by bolts and tightened by keys, as shown in

the drawing, so as to hold the saw firmly. The upper buckle *B* is provided with a cylindrical stem, *a*, extending from its upper end, and having a screw-thread cut thereon. This stem *a* serves to receive the cross-head *C*, which has an annular opening for that purpose, and a clamp-nut, *b*, upon the end of the stem *a* firmly unites the cross-head with the buckle. The stem *a* also serves as a pivot upon which the saw-buckle is turned, in connection with a similar lower pivot, for the purpose of effecting the proper ranging adjustment of the saw in relation to the ways of the log-carriage. The cross-head *C* has its ends fitted into boxes *c*, which move in guide-plates *E*, pivoted at their upper ends to the cast-iron head-frame. The guide-plates *E* are cast solid with the back ribs, but the front ribs *d* are separate and secured by screws which pass through slots in said ribs to allow them to be adjusted properly to tighten the cross-head boxes. These guide-plates *E* are pivoted at their upper ends (in the example shown at their upper rear corners) at *e*, and from their lower ends an arm, *f*, extends rearward, having an annular opening in each to receive an eccentric, *g*, upon a rod, *h*, the outer end of which has a hand-wheel, *F*, or crank, by which the eccentrics *g* may be turned within said arms to move the guide-plates *E* upon their pivots *e*, and project their lower ends further from or nearer to a perpendicular line to increase or diminish the overhang or oscillatory movement of the saw. To effect this, however, the rod *h* of the eccentrics *g* must have a free vertical play in slots *i* in the sides of the cast head-frame, (see Fig. 6,) but no horizontal movement, so that by turning the eccentrics *g* they act horizontally from a fixed rod, *h*, to draw the upper end of the saw in or out by simply turning the hand-wheel, and thus effect the adjustment of the saw to the least degree by a simple, durable, and convenient device. The guide-plates *E* are held against the inner sides of the cast head-frame by means of loops or staples *3*, which embrace the arms *f* of the eccentrics, as shown in Figs. 2, 3, and 6, so that the lower as well as the upper ends of the guide-plates *E* are held against their supporting-frame. The lower buckle *D* is connected directly to two plates, *G*, of equal length with the buckle *D*, and perfectly closed one with the other.

The contiguous surfaces of these two plates G are cast with semicircular bearings, which match with each other and form a cylindrical opening for the reception of the noddle-pin H of the pitman-rod, thus forming a closed saw-buckle, which perfectly incloses the said pitman-pin. The bearing of the box-plates G is extended, by means of collars or necks *j* on the sides of the plates G, so as to form a long bearing for the pitman-pin H, which passes through the box-plates G and the arms of a yoke, I, which connects the said pitman with its buckle-pin. This yoke therefore embraces the buckle-plates and lies snugly against the collars or necks *j* thereof, with its bearings upon the pin to which the arms of the yoke are secured by rivet-bolts, in a manner and for a purpose to be presently described, as shown in Fig. 4. The lower horizontal bar of the yoke I is perforated with an annular opening into and through which the upper end of the pitman-rod passes, and has a screw-thread formed on its upper end to receive a nut, *k*, which clamps the yoke to a collar or ring, *l*, secured to the pitman-rod just beneath the lower bar of said yoke. The pitman J is of gas or other pipe, into each end of which is inserted an iron plug, *m*, the upper plug extending beyond the pipe to form the screw-stem which connects it with the yoke. These iron plugs are held in the pipe by heating its ends and then shrinking a band, *l*, upon each end of the pipe, and drilling two holes at right angles to each other, and riveting the three parts together. This construction forms a strong, durable, and cheap pitman-rod, and renders its connection with the crank of the driving-shaft and yoke solid and secure, and admits of the easy and convenient separation of the pitman from the yoke of the saw-buckle or wrist-pin, and thus allows the saw with its hangings and boxes to be readily removed and replaced within the guides when desired. The yoke connection possesses also the advantage of allowing the pitman with its buckle and pin-boxes to be set square or in line with the crank-pin *p* below, to obtain a perfectly free bearing of the boxes of the noddle-pin H within their guides. This is accomplished by the means afforded by the horizontal bar of the yoke for boring the hole therein for the pitman in a true vertical line with the pin *p* of the driving-crank *q* below the saw. Were it not for this advantage, the ends of the buckle wrist-pin would be liable to press hard and unequally in one or the other of its boxes *r*, and would thereby bind more or less in the guides of the buckle. The buckle D is secured to the pitman-pin bearing-plates by means of two vertical screw-bolts, the front one, *s*, of which, serves as the pivot upon which the saw-buckle D may be turned to effect the ranging of the saw, while the other, *t*, serves, by means of a clamp-nut, *u*, to secure the buckle when the saw is properly ranged; the rear end of the buckle having an

opening, *v*, to receive said clamp-nut *u*, and a slot, *w*, to allow of the ranging adjustment of said buckle over the shank of the rear connecting-bolt *t*, in a manner described and shown in my patent of July 12, 1870. In this ranging adjustment the pivot-stem *a* of the upper buckle B, when unclamped, acts in harmony with the pivot-bolt *s* of the lower buckle D, and thus the ranging of the saw is effected upon the pivots of the two buckles by simply unclamping the nuts of the respective buckles, setting the range, and again clamping the nuts, the one upon the cross-head C, and the other upon the buckle D.

The buckle-plates G constitute a highly advantageous feature, not only in forming a closed compact buckle with the noddle-pin bearings formed within the plates themselves, (thus dispensing with a separate box for that purpose,) but in facilitating the separation of the pitman or noddle-pin from the saw-buckle by removing the screw-bolts *s* *t*, which connect the parts together. The ends of the noddle-pin are fitted into boxes *r*, which move in guides in the lower frame. In order to take up the lateral motion of the upper and lower buckle, which may be produced by wear of the boxes or other cause, the cross-head arms and the eccentric ends of the noddle-pin are provided with screw-threads and lock or jam nuts *x*, so that by turning the latter to the right, they are caused to press upon and adjust the boxes against the inner sides of the guides, and thus keep the saw true and steady. The noddle or pitman pin H is constructed so that its ends 2, just outside of the yoke, will be eccentric with the part H inclosed by the buckle D and yoke I, and the pin is secured to the latter when the eccentric is in a vertical position—that is, when its ends 2 are up, and the eccentric portion of the pin is down, as shown in the drawing, Figs. 1 and 4. As, therefore, the ends of the pin in their guide-boxes *r* can have no lateral movement with the saw, it is plain that the oscillation of the eccentric portion of the pin, produced by its rigid connection with the pitman-yoke, must impart a back and forward movement to the saw at each vibration of the pitman-rod, and thus, in connection with the inclined guides, produce an oscillatory movement of the saw in proportion to the diameter of the eccentric pin of the pitman.

While the extent of the vibration of the lower end of the saw always remains fixed, its oscillation is increased or diminished by the adjustment of the overhang of the saw more or less. This is necessary to adapt the saw to the feed of the carriage, which is changed to make it faster or slower, according as the logs are rough and hard, or comparatively smooth and soft. For rough hard wood a slow feed is necessary, while for soft wood a faster feed is required. In the latter case the overhang of the saw is increased; but in the former, it is diminished.

Having described my invention, I claim—

1. The upper saw-buckle B, clamped to the cross-head C by shoulders *b'* below and the screw-nut *b* above said cross-head, as described, in combination with a muley-saw, whereby the saw may be readily secured to and removed from the cross-head, as set forth.

2. The combination of the connected eccentrics *g* with the pivoted guide-plates E of the upper saw-buckle or cross-head C, as a means for effecting the overhang of the saw to suit the change in the feed of the log being cut, essentially as described.

3. The combination of the upper pivoted saw-buckle B having a fixed adjustment, as

described, with a muley-saw and the lower pivoted saw-buckle D, having also a fixed adjustment, substantially as and for the purpose set forth.

4. The yoke I, in combination with the pitman-rod J, made detachable from the latter, and to which it is adjusted and secured by a clamp-nut, *k*, as and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses, this 31st day of January, A. D. 1872.

DANIEL CILLEY.

Witnesses:

A. J. SYPHER,

H. A. D. KRAUSE.