(No Model.) 2 Sheets—Sheet 1.

J. N. RICHEY, S. N. HENCH & W. A. DROMGOLD.

MECHANISM FOR OPERATING SAWMILL CARRIAGES.

No. 491,494. Patented Feb. 7, 1893.

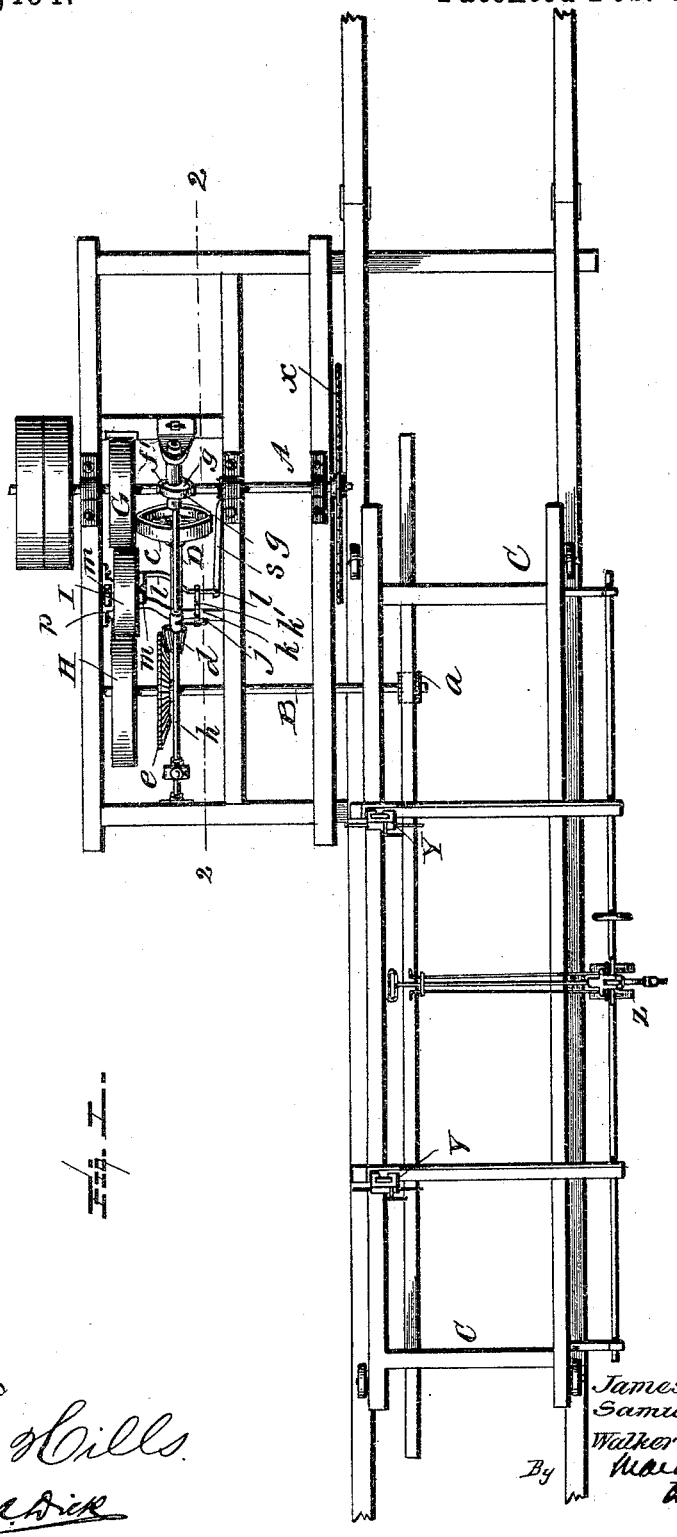

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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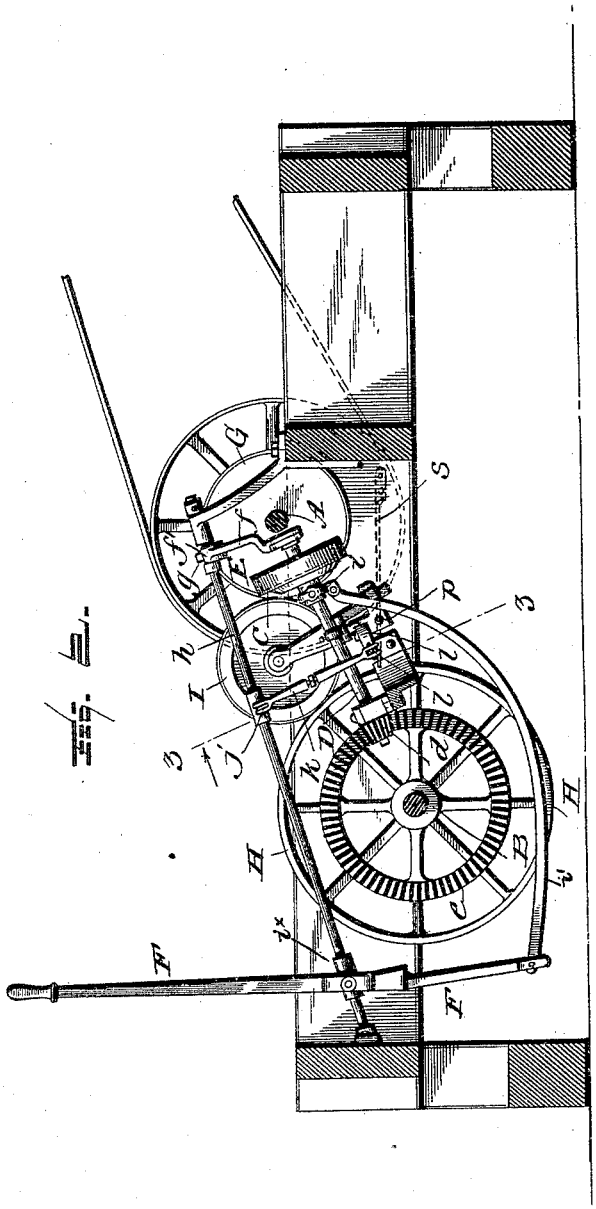

Fig. 1.

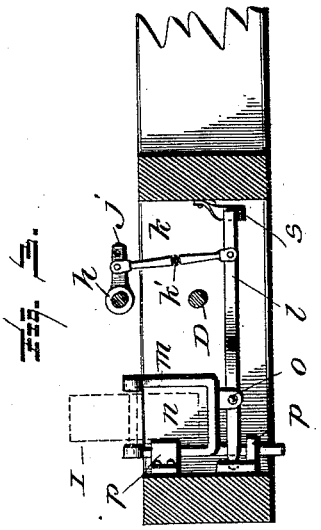

Fig. 3.

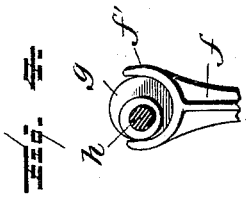

Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES N. RICHEY, OF CARMICHAEL'S, AND SAMUEL N. HENCH AND WALKER A. DROMGOLD, OF YORK, PENNSYLVANIA; SAID RICHEY ASSIGNOR TO SAID HENCH AND DROMGOLD.

MECHANISM FOR OPERATING SAWMILL-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 491,494, dated February 7, 1893.

Application filed August 2, 1892. Serial No. 441,925. (No model.)

To all whom it may concern:

Be it known that we, JAMES N. RICHEY, of Carmichael's, Greene county, Pennsylvania, and SAMUEL N. HENCH and WALKER A. DROMGOLD, of York, in the State of Pennsylvania, have invented a certain new and useful Improvement in Mechanism for Operating Sawmill-Carriages, of which the following is a specification.

The object of our invention is to provide means for effecting in a simple and efficient way the rapid "gigging back" or backward movement of the saw mill carriage.

We will first describe the improvements by reference to the accompanying drawings, and will then point out in the claims those features which we believe te be new and of our invention.

In the drawings—Figure 1 is a plan view of so much of a saw mill as needed to illustrate the improvement. Fig. 2 is a section of the same on line 2—2 Fig. 1. Fig. 3 is a section on line 3—3 Fig. 2 showing the sliding bracket bearing for the intermediate and the connections between that bracket and the eccentric shaft for throwing the forward carriage feed into and out of connection with the driver. Fig. 4 is an enlarged face view of the eccentric and the yoke or fork in which it works.

A is the driver or power shaft carrying the saw X.

B is the carriage shaft from which motion is communicated to the carriage C by a pinion *a* on the shaft which gears with a rack on the under side of the carriage.

Y are the head blocks, and Z are the "set works" or mechanism for setting and adjusting the head blocks.

The forward feed mechanism for the carriage is as follows: On the carriage shaft B is a beveled toothed wheel *e*, which gears with and is driven by a beveled pinion *d* on one end of the inclined feed shaft D, which has on its other end a friction gear *c* adapted to bear peripherally against the side of a friction disk E on the driver shaft A—said friction gear *c* having a longitudinal spline and groove connection with its shaft D, and being capable of sliding back and forth thereon so as to be moved nearer to or farther from the axis of motion of the friction disk E as desired, for the purpose of varying the speed. In order to throw the friction gear *c* into and out of contact with the friction disk E, the feed shaft D is so supported in bearings that, at the end on which the friction gear *c* is, it can be moved sidewise; and its bearing at this end has an upwardly extending arm *f* terminating at the top in a yoke or fork *f'* between the arms of which fits an eccentric *g* secured on a shaft *h* (the eccentric shaft) supported suitably in end bearings in the frame. To rotate this shaft so as to cause the eccentric to throw the yoke to one side or the other, and thus to throw the friction gear *c* into and out of connection with the friction disk E as desired, the laterally rocking carriage feed lever F is used. This lever is also used to adjust the friction gear *c* longitudinally on its shaft, to which end its lower end is connected to the hub of the friction gear *c* by a bowed connecting rod *i'* pinned at one end to the lever and at the other end to the hub. The lever is pivoted to a sleeve $i^{\times}$ fastened on the eccentric shaft *h*. In this way by the one lever F the forward feed for the carriage is started, adjusted and stopped.

The mechanism for backing the carriage is also connected to and operated by said lever F and is as follows: Upon the carriage shaft is a friction wheel H the rim of which adjoins but does not touch the friction rim G of the friction disk E on the driver shaft A; and between these two rims is an intermediate friction wheel I for taking motion from G and imparting it to H. This intermediate is carried by a bracket bearing *m* one leg of which (the one next to the frame of the machine) is supported and can slide up and down in guides *p* fast to the frame. These guides are so located as to cause the bracket to slide in a plane inclining upwardly toward the carriage friction wheel H; and by this arrangement the intermediate I is caused to rest at all times on the wheel H, while it comes in contact with the rim G only when its bracket bearing is lowered. Pinned at *o* to an extension on the underside of the bracket bearing *m* is a lever *l* which extends crosswise of and below the feed shaft D and has its fulcrum at one end

in the frame. At or near its opposite end it is joined by a connecting rod *k* to a radial or crank arm *j* fastened to the eccentric shaft *h*. Under this arrangement it will be noted that when the eccentric shaft *h*, by the lever F, is rotated to the left (which is the direction required in order to throw the feed gear *c* in gear with the driver) the bracket bearing *m* will be lifted, thus throwing the intermediate out of gear. The reverse action takes place when the bracket is lowered—this being consequent upon a rotary movement of shaft *h* to the left far enough to throw wheel *c* out of gear with the driver.

The connecting rod *k*, as shown in Figs. 2 and 3, is a two part rod, connected by a right and left screw and coupling joint *k'*, or equivalent mechanical connection, which will permit the working length of the rod to be varied, so as to increase or decrease at pleasure the distance between the points where it is pinned to or jointed to the lever *l* and arm *j* respectively, this being for the purpose of adjustment, and also of taking up and compensating for any wear in the friction rims of the wheels G, H, I, or either of them.

A plate spring *s* is placed under the free end of the lever *l* to counterbalance the weight of the bracket bearing and intermediate carried by the same, thus assuring the easy operation of the parts, as well as sustaining them in their adjusted position. In lieu of the spring a counterbalance weight can be used. There is of course a middle position of the eccentric shaft *h*, in which both the friction pinion *c*, and the intermediate I are out of gear with the driver. Then by rotating the shaft *h*, a little further in the proper direction the intermediate will be lowered into engagement with the driver and thereby the carriage wheel H, will through the intermediate be at once put in motion to back the carriage—which backing movement owing to the proportion of the wheels G, H, I, is a rapid one.

It will be understood that while for the sake of simplicity we use the same friction wheel E to drive both the wheel and the intermediate I, yet we may have on the driver shaft A one friction wheel to engage the feed wheel, and another and separate wheel to engage the backing intermediate I, and we desire to be understood as including any such obvious modification in our claims.

What we claim herein as new and of our own invention is:

1. The combination with the eccentric shaft *h*, the feed shaft connected to and laterally adjusted by said shaft *h*, the sliding friction gear on the feed shaft, the pivoted lever F, and the friction wheels on the driver and carriage shafts respectively, of the intermediate I for engaging said wheels, its sliding bracket bearing *m*, the lever *l* pinned to said bearing and adapted to lift and lower it, the radial arm *j* on the eccentric shaft, and the rod *k*, by which said arm is connected to the lever *l*, substantially as and for the purposes hereinbefore set forth.

2. The combination of the driver friction disk E having friction rim G; the carriage friction wheel H; the intermediate I and its bracket bearing, movable to carry said intermediate into and out of engagement with friction rim G; the feed shaft, having on it a sliding friction gear to engage the friction disk E, and supported in bearings laterally movable to bring the said friction gear into and out of contact with the friction disk; the eccentric shaft connected to and adapted to give lateral movement to the feed shaft; and the lever F pivoted to the eccentric shaft, and connected to and adapted to operate the sliding friction feed gear, and the bracket bearing of the intermediate I, substantially as and for the purpose hereinbefore set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES N. RICHEY.
SAMUEL N. HENCH.
WALKER A. DROMGOLD.

Witnesses:
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ROBERT J. LEWIS.