(No Model.) 2 Sheets—Sheet 1.

T. J. REAMY.

INTERMITTENT GRIP DEVICE FOR MACHINERY.

No. 485,058. Patented Oct. 25, 1892.

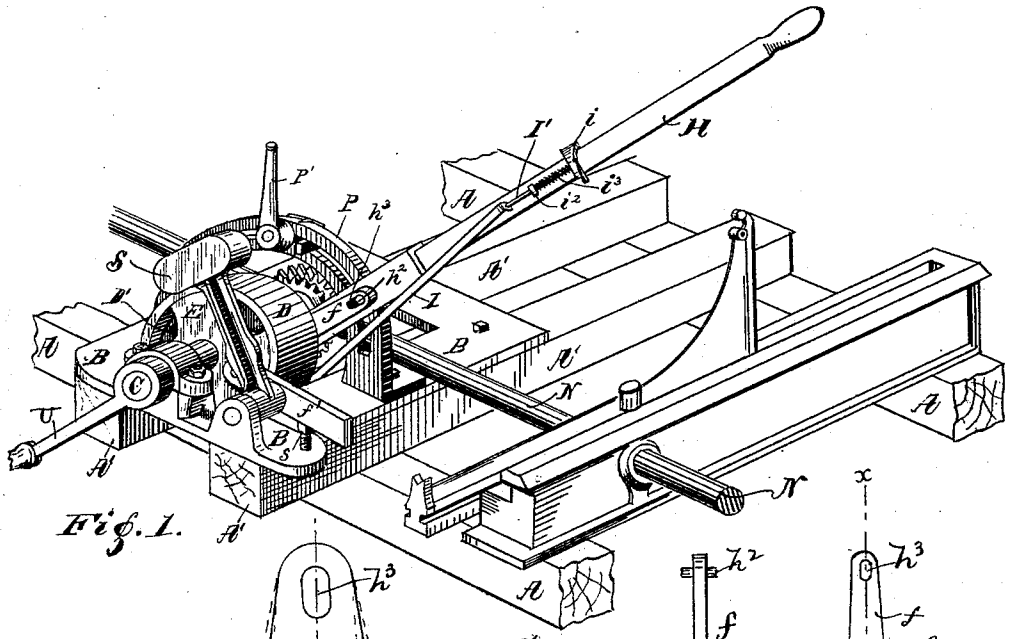

Fig. 1.

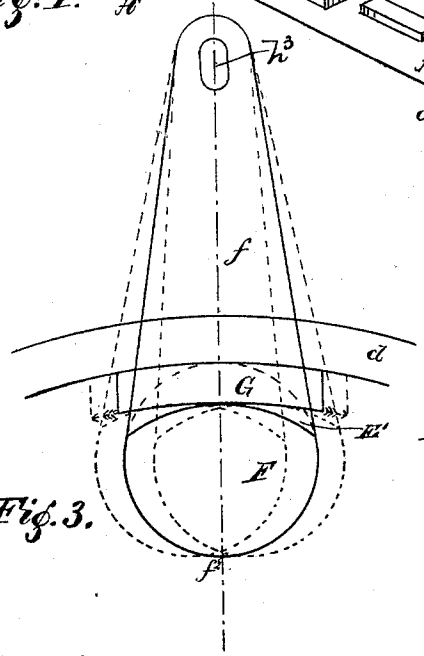

Fig. 3.

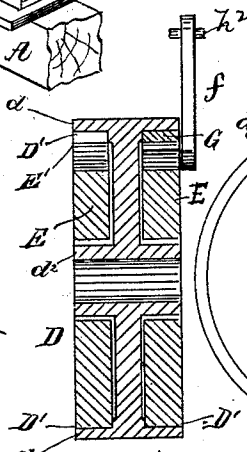

Fig. 5.

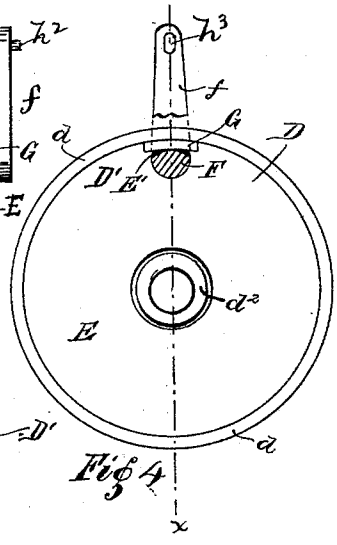

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

T. J. REAMY.

INTERMITTENT GRIP DEVICE FOR MACHINERY.

No. 485,058. Patented Oct. 25, 1892.

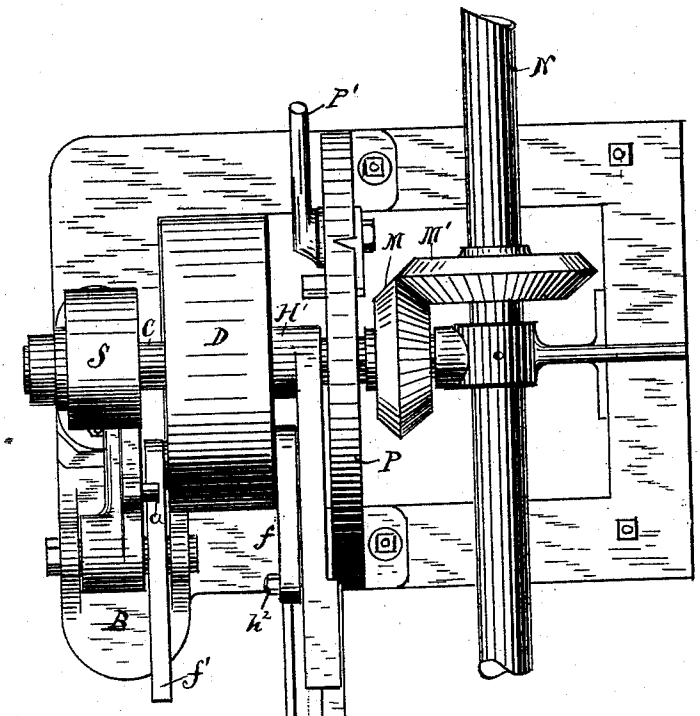

Fig: 2.

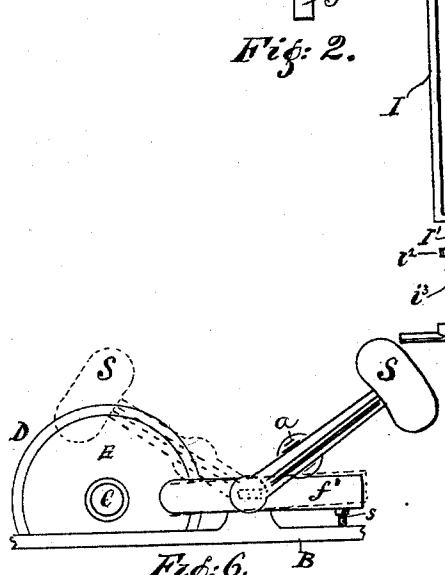

Fig: 6.

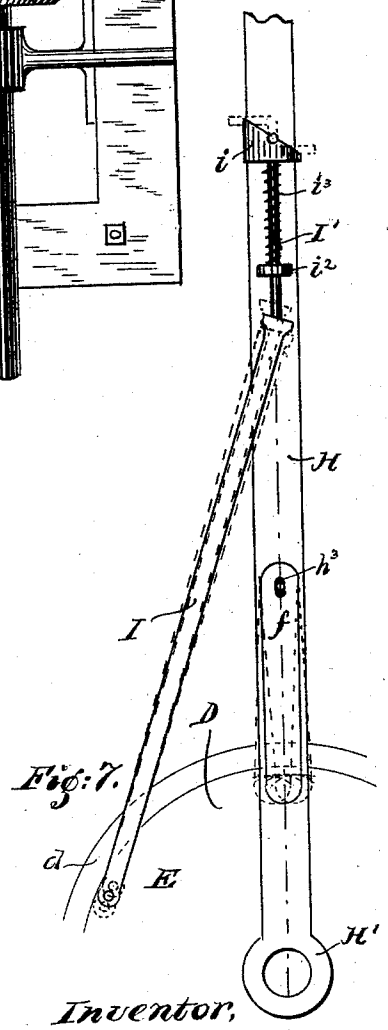

Fig: 7.

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UNITED STATES PATENT OFFICE.

THOMAS J. REAMY, OF AUBURN, INDIANA.

INTERMITTENT GRIP DEVICE FOR MACHINERY.

SPECIFICATION forming part of Letters Patent No. 485,058, dated October 25, 1892.

Application filed December 23, 1891. Serial No. 416,001. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. REAMY, a citizen of the United States, residing at Auburn, in the county of De Kalb and State of Indiana, have invented certain new and useful Improvements in Frictional Intermittent Grip Devices for Sawmills and other Machinery; and I 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.

This invention relates to improvements in sawmills; and has particular reference to improvements in intermittent grip devices for regulating the movement of the knees in the head-blocks.

The invention embodies a new application of the friction-cam, which may also be applied to other than sawmill construction.

In the set-works for sawmills as heretofore constructed a ratchet-wheel and pawl has been employed to give the proper feed; but the constant dragging of the pawl over the ratchets wears the parts to such an extent as to soon cause the pawl to slip, thereby making the feed irregular and producing lumber of different thicknesses.

The object of this invention is to provide set-works that may be operated by a reciprocating lever, that will be positive and reliable in its action, and in which the wear of the parts will be reduced to a minimum and will not interfere materially with the effectiveness of the device.

The object, also, is to provide set-works that may be reversed at the will of the operator or that may be thrown out of engagement entirely, so as to allow the knees to be moved rapidly by means of a crank when desired.

I accomplish these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1, Sheet 1, is a perspective view of my complete device, which is shown in this view as applied to the carriage of a sawmill in a position midway between the ends of the carriage. The carriage is only shown in part in this figure. Fig. 2, Sheet 2, is a top or plan view of the set-works constructed in accordance with my invention. Fig. 3, Sheet 1, is a diagram showing the construction of the cam and its correlative mechanism. The dotted lines indicate the positions that must be assumed by the cam and its lever in order to operate the feed in correspondingly-opposite directions. The full lines show the middle or neutral position, in which the cam is inoperative. Fig. 4 is a front view of the wheel or drum, which is operated by the cam. It also shows the cam-lever broken away to better illustrate the construction and arrangement of the cam and the bearing-plate, which is impinged between the cam and the inner surface of the flange on the wheel. Fig. 5 is a vertical section on the line x x of Fig. 4. Fig. 6, Sheet 2, is a detail in side elevation of the wheel and the lever for operating the cam that holds the wheel in the position given it by the reciprocating hand-lever. The lever first referred to is locked by the weighted arm. The dotted lines represent the position required to force the cam into a locking position with the wheel and the full lines the position of the lever when the cam is in a neutral position. Fig. 7 is a detail view of the reciprocating hand-lever and shows the mechanism by which the direction of the feed is reversed. The full lines represent the cam mechanism in a neutral position or out of engagement with the wheel, so as to permit of a free movement of the latter in either direction, and the dotted lines represent the positions for operating the feed in correspondingly-opposite directions.

Similar letters of reference refer to like parts throughout the several views of the drawings.

A represents a sawmill-carriage of usual construction and is shown only in part, sufficient to illustrate the application of my improved set-works. The short transverse sills A′ are bolted to the carriage and form the supports for the bed-plate B of the set-works. This bed-plate B is preferably of iron and supports the several parts of the set-works.

C is a shaft transverse with relation to the length of the carriage. It is journaled by suitable box-bearings to the bed-plate B. Mounted upon the shaft C and turning with it is a drum D. This drum has concentrically-recessed sides D′, shaped in cross-section as shown in Fig. 5. The recesses are alike on both sides of the drum and are adapted to receive the disks E, which fit snugly against

the circumferential flanges d, but do not contact with the hub extensions d^2. A circular opening E', Figs. 3, 4, and 5, of any suitable diameter is formed in each disk and extends entirely through it. This opening is so placed that the outermost point of its circumference coincides with the circumference of the disk and is adapted to receive a cam F. The cam F is integral with the bar or arm f and for more than half of its circumference conforms in size and shape to the opening E', so that when it is placed in the opening E' it will be maintained in a position concentric with said opening. The remaining or outer portion of the cam is curved in the arc of a circle having a longer radius than the lower portion and whose center f^2, Fig. 3, is at the point of intersection of the circumference of the lower portion with a line drawn through the longitudinal center of the arm f. A friction-plate G, curved to conform to the curvature of the under side of the flange d, is interposed by means of a suitable opening between the cam and the drum. When the longitudinal center f^2 of the arm f is aligned with the radius of the drum and disk, the plate G will fit between the cam and the drum without binding; but as soon as the longitudinal center of the arm f is moved to either the right or to the left and out of alignment with the radial line of the drum the cam will press against the friction-plate G and impinge it against the flange d with a force proportionate to the disalignment, and thereby lock the arm, the disk, and the drum together, so that the shaft to which the drum is keyed will be rotated by the movement of the arm.

H, Figs. 1, 2, and 7, is a hand-lever pivotally connected by means of the collar H' to the shaft C, and to this lever the arm f on that side of the drum is pivotally secured by means of the pin h^2, which pin is integral or permanantly secured to the lever and is projected through a longitudinal slot h^3 in the end of the arm f.

The rod I, Figs. 1, 2, and 7, is pivotally secured at its lower end to the disk E and is connected at its upper end to the draw-bar I'. The draw-bar I' has longitudinal movement through the guides i and i^2, and is pressed downwardly by the spring i^3. The upper end of the draw-bar is cranked, as shown, and by contact with the upper edge of the guide i forms a stop to resist the action of the spring. The upper edge of the guide is sloped, as shown in the drawings and is provided with three notches—one in the middle and one at top and bottom—to engage the cranked end of the draw-bar and hold it from accidental displacement.

By means of the draw-bar I' and the rod I, constructed and arranged as above described, the disk E may be moved forward or back a certain distance without moving the lever H or the drum D, and in so doing the arm f will be thrown out of radial alignment or back into alignment, as the case may be.

The arrangement of the parts of the above mechanism is such that when the cranked end of the draw-bar occupies the middle notch the arm f will be in direct radial alignment with the disk and drum and the cam will be in a neutral position, in which the reciprocation of the lever will not move the drum in either direction; but when the cranked end of the draw-bar is in the top notch the disk will be shifted to the right, carrying the cam and arm with it, as shown in dotted lines in Fig. 7, and forcing the cam into a locking position against the friction-plate G. A further movement of the disk to the right or of the arm to the left, which would be the same in result, would only serve to clamp the friction-plate the tighter between the cam and drum. A movement of the arm to the right, however, would result in relieving the clamped condition and would allow the arm, the lever, and the disk to move to the right without disturbing the position of the drum; but as soon as a movement to the left was attempted the cam would again impinge the friction-plate between it and the drum, thereby forming a lock which would cause the drum to rotate with the movement of the lever to the left. When the cranked end of the draw-bar is in the lower notch, a similar movement, but in a reverse order, will result. The slot in the end of the arm allows of the necessary adjustment in the length of the arm made necessary by the varying distance between the pin and the cam.

To make the set-works operative and complete, it is necessary to provide a stop or lock to hold the drum from back movement when the arm and disk are brought back for a new feed. This I accomplish by introducing a similar cam, disk, and lever on the opposite side of the drum, which will be set so as to allow the drum to move forward, but will lock it and prevent a backward movement. In this construction the lever f' is pivoted to a fixed point attached to the bed-plate of the machine and is projected out beyond the pivotal point, as shown in the drawings, Figs. 1, 2, and 6. A lever S is secured by the same pivot that passes through the lever f' and weighted at its outer end and is provided with a lug a intermediate its end and pivotal point. When the lever is thrown over toward the drum, the lug will contact with the lever f' and bear it down sufficient to lock the cam, and when the lever is thrown out or in the opposite direction the lug, coming again in contact with the lever f', will press the outer end down until the lever comes in contact with the set-screw s, projecting up from the bed-plate. The set-screw s will be so adjusted that when the lever f' is in contact with it the cam will be in a neutral position, such as will allow the drum to be turned freely in either direction. The length of stroke made by the lever H will be controlled by the stop P' on the quadrant P. The quadrant P is graduated in the usual manner and the stop is adjust-

able. The bevel-gear M on the end of the shaft C meshes with the bevel-gear M′ on the shaft N, and the shaft N operates the mechanism of the head-blocks and knees in the usual manner.

U is a crank on the outer end of the shaft C and is used for rapid adjustments when the cams are in their neutral positions, which allow the drum to turn freely in either direction.

I claim—

1. The drum D, flange *d*, disk E, having suitable opening therein, and friction-plate G, in combination with the cam F, adapted to be inserted and to operate in the opening in the said disk, said cam being attached to an arm *f*, whose opposite end is slotted and pivotally secured to a lever H, the lever H, and adjustable rod I, by which the ring to which the rod I is attached may be shifted to change the action of the cam, substantially as described and specified.

2. The combination of the flanged drum, a disk placed therein, a cam-support by the said disk, an arm connected with the cam and projecting beyond the drum, an operating-lever to which the arm is connected, and a movable rod connected with the disk, for the purpose described.

3. The combination of the doubled flanged drum, a disk placed in each flanged side, a cam carried by each disk, an arm connected with one cam, an operating-lever, a lever connected with the other cam and pivoted between its ends, and a weighted lever adapted to rest upon opposite sides of the pivotal point of the said cam-lever, substantially as described.

4. The combination of the doubled flanged drum, a disk placed within each flanged side, a cam carried by each disk, an arm connected with one cam, an operating-lever with which the arm is connected, and a lever connected with the other cam for locking it, substantially as specified.

5. The combination of the flanged drum, a disk placed within the flanged drum, a cam to engage the said flange, an operating-lever, an arm connected with the cam and with the said operating-lever, a rod connected with the said disk and the said lever, and a means upon the said lever for moving the said rod, for the purpose specified, substantially as set forth.

6. An intermittent gripping device comprising a flanged drum, an operating-lever pivotally supported at a suitable point, a disk placed within the flanged drum and having an opening, a cam supported in said opening, and a lever having one end connected to the cam and its opposite end connected with the operating-lever, the cam and its lever being so constructed and arranged and their relative positions to the operating-lever being such that when the operating-lever is in one position the cam is at its neutral point to allow a free revolution of the drum in either direction, but when the operating-lever is moved in either direction from the neutral point the cam will be applied, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS J. REAMY.

Witnesses:
JOSEPH A. MINTURN,
T. F. MEANY.