(No Model.) 2 Sheets—Sheet 1.

J. L. BARNES.

FEED MECHANISM FOR SAWMILLS.

No. 474,435. Patented May 10, 1892.

FIG. 1.

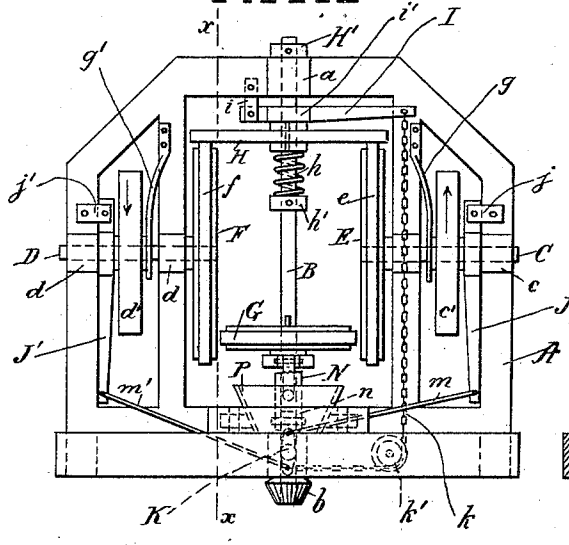


FIG. 3.

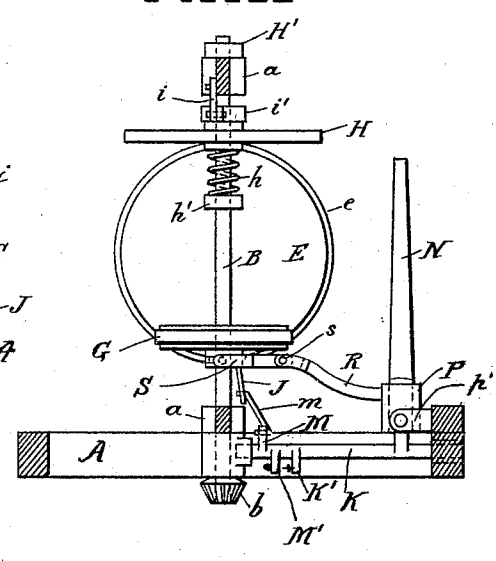


FIG. 2.

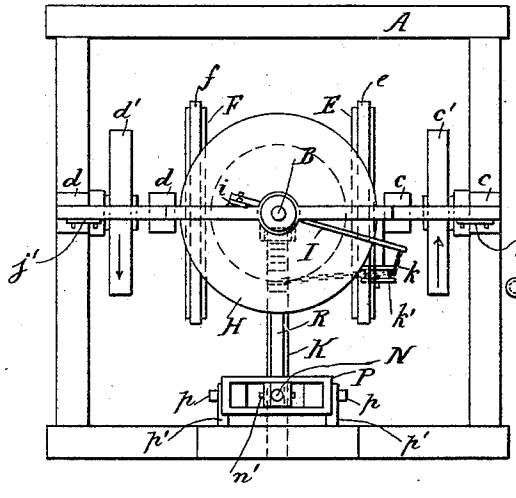
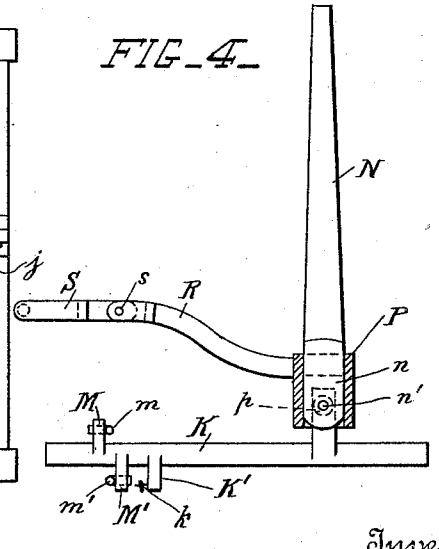


FIG. 4.



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(No Model.) 2 Sheets—Sheet 2.

J. L. BARNES.

FEED MECHANISM FOR SAWMILLS.

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FIG. 5.

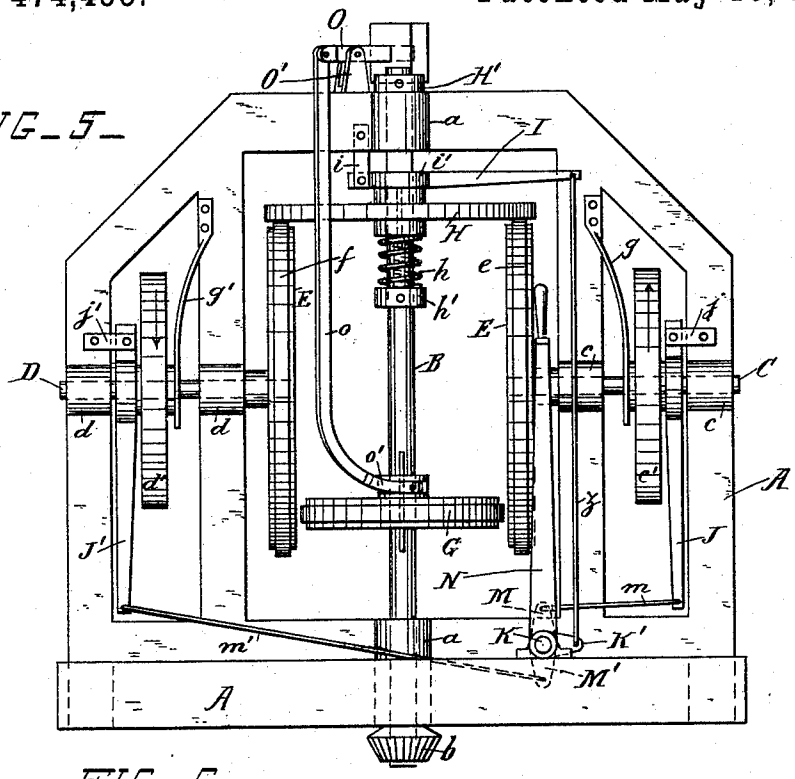
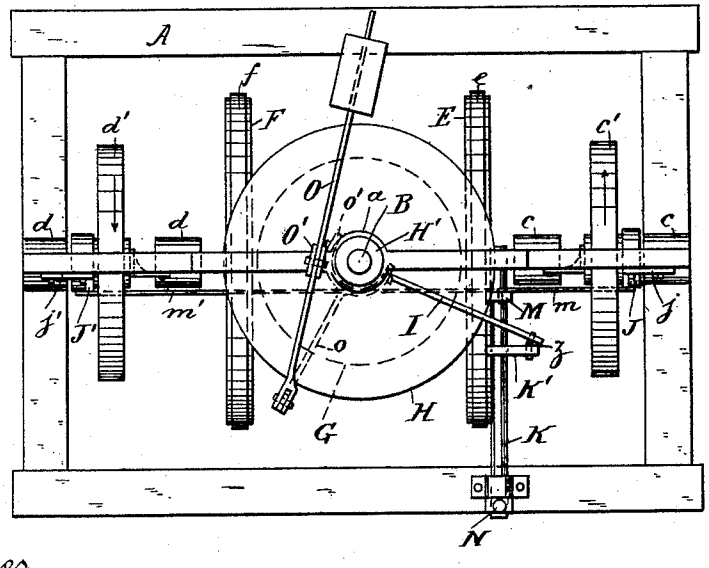


FIG. 6.



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FEED MECHANISM FOR SAWMILLS.

SPECIFICATION forming part of Letters Patent No. 474,435, dated May 10, 1892.

Application filed January 18, 1892. Serial No. 418,392. (No model.)

To all whom it may concern:

Be it known that I, JOHN LAKE BARNES, a citizen of the United States, residing at Kendallville, in the county of Noble and State of Indiana, have invented certain new and useful Improvements in Feed Mechanism for Sawmills; and I 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.

This invention relates to devices for operating the feed mechanism of sawmills; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a front view of the feed mechanism. Fig. 2 is a plan view of the feed mechanism from above. Fig. 3 is a vertical cross-section taken on the line *x x* in Fig. 1. Fig. 4 is a detail side view of the operating-lever and rock-shaft. Fig. 5 is a front view showing a simple modification of the feeding devices. Fig. 6 is a plan view of the devices shown in Fig. 5.

A is the frame which supports all the feed mechanism.

B is a central vertical shaft journaled in the bearings *a* on the frame A. A beveled toothed pinion *b* is secured on the shaft B, and this pinion propels the sawmill-carriage back and forth by means of intermediate driving mechanism. This mechanism is of any ordinary approved construction and is not shown in the drawings.

C and D are two driving-shafts. The shaft C is journaled in the bearings *c* on the frame A, and the shaft D is journaled in similar bearings *d*. The shafts C and D are driven constantly at the same speed in opposite directions, as indicated by the arrows, by means of the belt-pulleys *c'* and *d'*, respectively, secured on the said shafts.

E is a flat friction-disk provided with a friction-wheel *e* on its periphery and secured upon the shaft C.

F is a similar friction-disk provided with a friction-wheel *f* on its periphery and secured upon the shaft D. The two shafts C and D are arranged exactly in line with each other, so that the flat faces of the friction-disks E and F run in parallel planes, and the two friction-wheels *e* and *f* are of exactly the same diameter.

G is a friction-wheel splined on the shaft B between the friction-disks E and F. H is a friction-disk splined on the said shaft B above the friction-wheels *e* and *f*. The friction-wheel G is used for running the carriage forward at various speeds and the friction-disk H is used for running the carriage backward at a constant speed. The two shafts C and D have a slight endwise movement in their bearings, and *g g'* are springs secured to the frame and adapted to press back the shafts, thereby normally holding the disks E and F clear of the wheel G. A spring *h* encircles the shaft B and bears against the collar *h'* and normally supports the disk H clear of the whells *e* and *f*.

H' is a collar secured to the top of the shaft B for supporting it and receiving the end-thrust.

The disk H is caused to bear against the wheels *e* and *f* simultaneously by means of the lever I, pivotally supported at one end from the frame A by the link *i*. The middle portion *i'* of the lever I is caused to engage with the hub of the disk H in any approved manner, or it may merely bear against the hub.

The driving-shafts C and D are moved endwise by means of two similar levers J and J', which engage with the hubs of the pulleys *c'* and *d'* in a similar manner to the lever I, which engages with the hub of the friction-disk H. The upper ends of the levers J and J' are respectively supported from the frame A by the pivoted links *j* and *j'*. The carriage is run backward by moving the lever I to cause the disk H to bear on the two wheels *e* and *f* simultaneously, and the shaft B is thereby revolved without pressure or friction in its bearings. The carriage is moved forward by moving the levers J and J' simultaneously to cause the two disks E and F to bear against the opposite sides of the wheel G, and the shaft B is thereby revolved without friction or pressure in its bearings. This arrangement of parts, which relieves the central driving-shaft from the pressure against its bearings, which is unavoidable when single pairs of wheels are used, renders the mechanism much easier to drive.

The pressure on the lever I is released when

the pressure is applied to the levers J and J′, and all three levers are operated by the rock-shaft K. This rock-shaft is journaled in bearings on the frame A and the three said levers are operatively connected to it. The levers J and J′ are respectively connected to the rock-shaft by the rods *m m′*, which are pivoted to the lower ends of the levers and to the arms M M′, arranged on opposite sides of the center of the rock-shaft, so that the levers are moved in opposite directions simultaneously. The lever I is connected to the rock-shaft K by means of the chain *k*, which passes around the guide-sheave *k′*, and is attached to the arm K′ on the rock-shaft.

N is a hand-lever connected to the rock-shaft and adapted to oscillate it.

In the modification shown in Figs. 5 and 6 the rock-shaft is placed to one side of the center of the frame. This makes the rods *m m′* of unequal length, but it permits the lever I to be connected direct to the arm K′ by a rod *z*, so that the chain and guide-pulley are not required; but a straight chain might be used in place of the rod *z*, if desired, and chains might be used in place of the rods *m m′* in either arrangement.

The friction-wheel G may be slid upon the shaft B to vary the driving-speed by any ordinary approved mechanism—as, for instance, that shown in Figs. 5 and 6. This mechanism consists simply of a balanced operating-lever O, pivoted in the bracket O′, secured to the frame A, and a rod *o*, pivoted to the lever O at one end and provided with a fork *o′* at its other end for engaging with a ring in a circumferential groove in the hub of the friction-wheel G. This arrangement of parts is very simple and is convenient when the steam-engine or other motor which drives the sawmill is provided with an automatic speed-governor, and no inconvenience arises from having two operating-levers. When the sawyer has to operate a separate lever to regulate the supply of steam to the engine, the movement of the friction-wheel G is preferably effected by the lever N, as shown in Figs. 1 to 4. The lever N is provided with a joint *n*, having its pivot-pin *n′* arranged crosswise of the rock-shaft K. The whole lever N is movable back and forth to oscillate the rock-shaft, and the upper part of the lever N is also movable to and from the shaft B by turning it on the pivot-pin *n′*.

P is a yoke provided with trunnions *p* at its ends, arranged concentric with the pivot-pin *n′* and journaled in the bearings *p′* on the frame A. When the lever N is moved to oscillate the rock-shaft, it slides back and forth in the yoke without moving it; but when turned on its pivot-pin *n′* it rocks the yoke upon its trunnions *p*.

R is an arm, which projects from the yoke P, and S is a fork pivoted to the end of the arm R by the pin *s*. The fork S engages with the hub of the friction-wheel G in the ordinary manner, and the said wheel is moved up and down on its shaft to vary the speed of the carriage by turning the hand-lever to rock the yoke. The hand-lever N is arranged at the center of the frame, as shown in Figs. 1 to 4, in order to bring the arm R in front of the central shaft; but it is obvious that the hand-lever N could be placed to one side, as shown in Figs. 5 and 6, if the yoke were made long enough, or if the arm R were cranked sufficiently to permit of an operative connection being made with the hub of the friction-wheel G.

What I claim is—

1. In sawmill feed mechanism, the combination, with the central friction-wheel for actuating the carriage and the two friction-disks revolved in opposite directions, of a single hand-lever adapted to be moved back and forth in two planes, intermediate actuating devices connecting the said lever with the said disks, whereby the disks may be moved simultaneously to or from the friction-wheel when the lever is moved in one plane, and operating devices connecting the said lever with the friction-wheel and adapted to move it to vary its speed when the said lever is moved in the other plane, substantially as set forth.

2. In sawmill feed mechanism, the combination, with a central shaft and a friction-wheel secured on the said shaft and adapted to move the carriage in one direction, of two combined friction-disks and friction-wheels driven with equal speed in opposite directions and a friction-disk secured on the said central shaft and adapted to move the carriage in the reverse direction, the two said combined disks and wheels being adapted to drive the said wheel in one direction and the said disk in the other direction, substantially as and for the purpose set forth.

3. In sawmill feed mechanism, the combination, with a central shaft and a friction-wheel secured on the said shaft, of two combined friction-disks and friction-wheels driven with equal speed in opposite directions, a friction-disk splined on the said central shaft, two pivoted levers adapted to press the two said disks simultaneously upon the said friction-wheel, a pivoted lever adapted to press the said disk upon the said two wheels, and a rock-shaft provided with a hand-lever and with arms operatively connected with the three said levers, whereby the said central shaft may be revolved in opposite directions, substantially as and for the purpose set forth.

4. In sawmill feed mechanism, the combination, with the central shaft, the friction-wheel, and the friction-disk, each splined on the said shaft, and the two combined friction-disks and friction-wheels driven in opposite directions, of the oscillatory rock-shaft, intermediate operating devices connecting the rock-shaft with the said friction-disk and with the said two combined disks and wheels and permitting the central shaft to be revolved in

opposite directions, a hand-lever secured to the rock-shaft and provided with a joint, and a yoke inclosing the said hand-lever and pivoted crosswise of the said rock-shaft and provided with a projecting arm adapted to move the said friction-wheel to vary the speed of the central shaft, substantially as and for the purpose set forth.

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

JOHN LAKE BARNES.

Witnesses:
THOMAS L. GRAVES,
WILLIAM ALBRICHT.