(No Model.) 2 Sheets—Sheet 1.

A. LANG.

SAW MILL FEED MECHANISM.

No. 395,840. Patented Jan. 8, 1889.

Fig. 1.

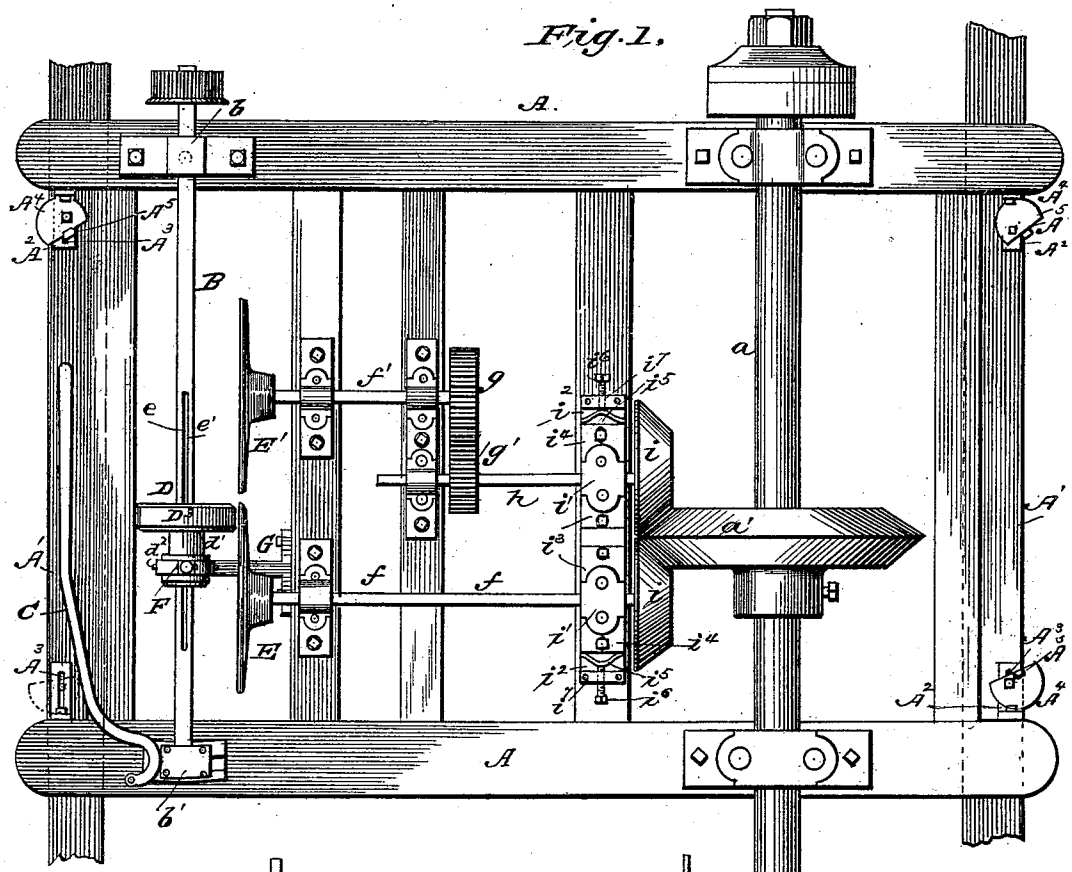


Fig. 4

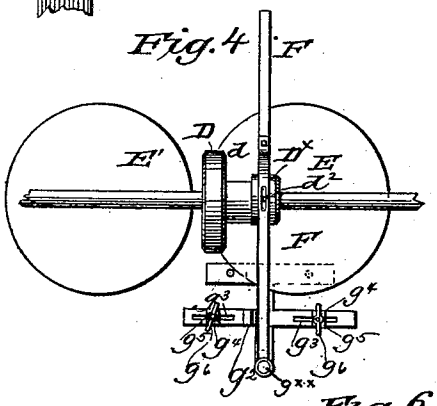


Fig. 5.

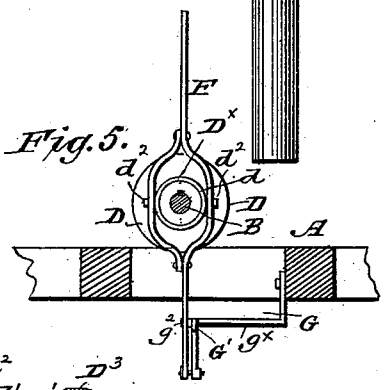
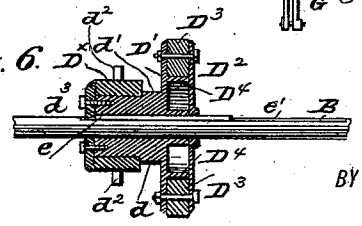


Fig. 6.



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SAW MILL FEED MECHANISM.

No. 395,840. Patented Jan. 8, 1889.

Fig. 2.

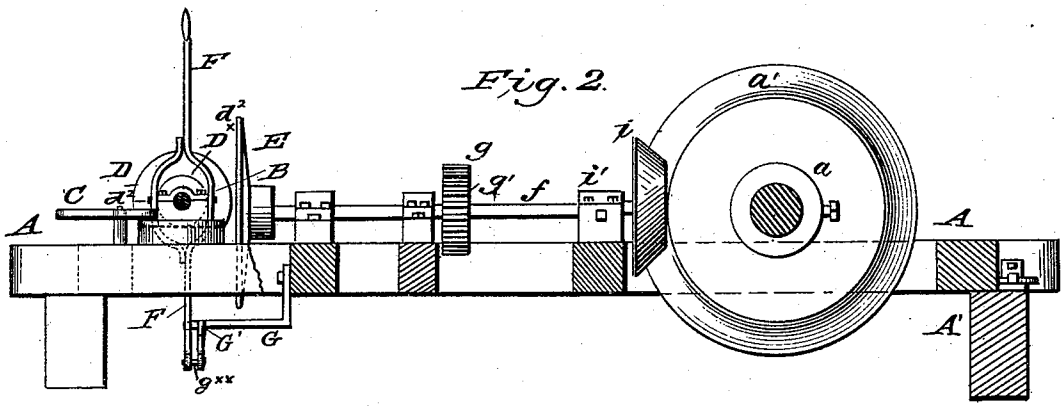


Fig. 3.

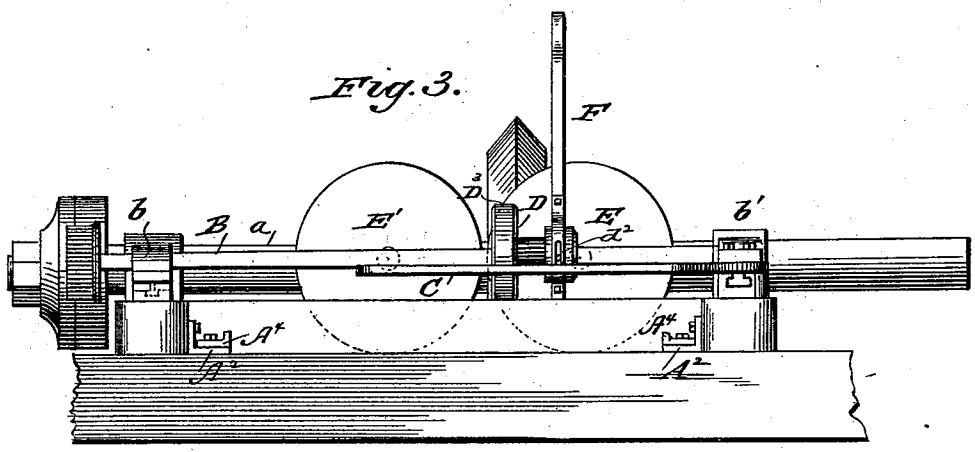
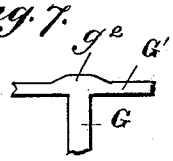


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALOIS LANG, OF ATLANTA, GEORGIA.

SAW-MILL FEED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 395,840, dated January 8, 1889.

Application filed April 7, 1888. Serial No. 269,992. (No model.)

To all whom it may concern:

Be it known that I, ALOIS LANG, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Improvement in Saw-Mill Feed Mechanism, of which the following is a specification.

This invention pertains to improvements in saw-mill feed mechanism, having for its object to overcome certain objections heretofore experienced in this class of mechanism; and it consists of the individual construction and combinations of the parts, substantially as hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved saw-mill feed mechanism. Figs. 2 and 3 are a sectional elevation and an end elevation, parts being broken away, respectively, of the same; and Figs. 4, 5, 6, and 7 are detail views thereof.

In carrying out my invention I employ the frame A, carrying the saw arbor or shaft *a*. This frame is mounted and held upon the sills A′ by means of angle-irons or brackets A^2 A^2, which are applied to said frame and sills. The horizontal arms of the brackets A^2 are provided with slots A^3, through which are inserted screws for fastening them in place to the sills, their vertical arms being held in place to the frame A also by screws or otherwise.

A^4 are eccentrics, which are applied to the angle-irons or brackets A^2, the same having apertures through them for the reception or passage of the screws securing the horizontal arms of the brackets in place. These eccentrics are each provided with a squared or rectangular projection or nipple, A^5, to permit of the manipulation of the eccentrics by the application of a wrench thereto. This contrivance is designed to effect the "husking" operation—*i. e.*, the adjustment of the saw-frame—in order to properly align the saw with the log-carriage, which is termed in sawyers' language giving the saw "lead." This is done, it will readily be seen, by applying to the nipples or projections $a^\times$ of the eccentrics A^4 a wrench, as above intimated, before, however, securing the brackets or angle-irons A^2 to the sills or timbers A′, and then properly manipulating the wrench so as to cause the eccentric to bear or press against the vertical arm of the bracket, which will have the effect to move the saw-frame to the required position in aligning the saw with the log-carriage.

B is a shaft disposed about parallel with the saw arbor or shaft *a* and supported at its ends in bearings *b b′*, one having a more or less pivotal movement, while the other, in addition to having a pivotal movement, is adapted to have a sliding movement. The sliding bearing *b′* is capable of being moved endwise by a lever, C, which is pivoted upon the frame A and formed with a curved or cam-shaped portion, *c*, near its pivoted end, acting upon said bearing. This shaft is adapted through gearing to have engagement with a toothed bar or rack suitably applied to the log-carriage, as is usual, in order to effect the feeding movement of the carriage. Upon this shaft is mounted a sliding friction-wheel, D, which in its general construction comprises the annular plates or disks D′ D^2, between which is sandwiched the paper ring D^3, fitted upon an annular projection D^4 of the disk D′, the whole being bolted together. This disposition of parts permits of the ready removal of a worn-out paper ring and the substitution in its place of a new one.

The disk D′ of the wheel D is provided with a hub or sleeve, *d*, which is formed with a shoulder or enlargement, *d′*, next to the wheel. Upon this sleeve *d*, or rather upon that portion thereof beyond the enlargement or shoulder *d′*, is fitted a solid ring or collar, $D^\times$, provided with two pins or pivots, d^2, and held in place by an annular cap, d^3, screwed to the outer end of the hub or sleeve and against the ring or collar. This sleeve or hub has on its inside a spline or feather, *e*, which is approximately wedge shape or flared in cross-section where it fits into the groove previously prepared therein for its reception, while the portion projecting into the bore of the hub or sleeve is rectangular and fits into or enters a longitudinal groove or channel, *e′*, in the shaft B. This spline or feather *e*, after the placing of the wheel D upon the shaft B and its entrance or insertion into the groove *e′* in said shaft, is driven home into the groove in the wheel-sleeve *d* and the groove *e′*, its distant end bringing up or abutting against the farther end of said groove, after which the

annular cap d^3 is screwed upon the end of the said sleeve or hub, as above set forth, fitting against and holding the feather or spline in place. This arrangement permits the wheel D to turn with the shaft and to have a sliding longitudinal movement thereon. It also obviates the plan heretofore adopted of channeling or grooving the shaft by cutting the same clear outward to one end thereof, the unnecessary portion having subsequently to be filled in in order to deprive the shaft of any angles at its point of bearing, as is desirable to prevent undue wear or cutting of the bearing; also, the use of a split collar or ring is dispensed with.

E E′ are two disks disposed opposite and edgewise to each other, being slightly spaced apart and secured upon shafts $f f'$, and which disks range in a plane at right angles to that in which the wheel or pulley D ranges, their faces thus being adapted to be presented to the periphery of the latter. The shaft f' is suitably journaled upon cross-pieces of the carriage or frame A and provided with a pinion, g, gearing with a smaller pinion, g', on a shaft, h. The shaft h and shaft f are each provided with a beveled frictional wheel, i, which wheel contacts with the double beveled face of a wheel or pulley, a', upon the saw arbor or shaft a.

The shafts f and h are journaled in any suitable manner at one end upon cross-pieces of the carriage or frame A, while their other ends are supported in boxes $i' i'$, held upon a plate, i^2, secured or bolted upon a cross-piece of said carriage or frame. The boxes $i' i'$ are held between blocks or castings $i^3 i^4$, of which the inner ones, $i^3 i^3$, are fixed or stationary, while the outer ones, $i^4 i^4$, are movable or yielding, being held to the boxes $i' i'$ by the action of springs $i^5 i^5$ and holding or adjusting screws $i^6 i^6$, working in end pieces, $i^7 i^7$, of the plate i^2 and bearing against the springs $i^5 i^5$. This arrangement permits of the automatic holding and moving up of the pulleys or wheels $i i$ to the wheel a', thus compensating for wear as it takes place between the wheels, while the tension of the springs themselves is regulated by the set or holding screws. This arrangement of gearing permits of the transmission of reverse movement to the disks E E′ from the saw arbor or shaft wheel.

F is the lever for shifting the wheel or pulley D from one disk to the other, having connection in the usual way with the pivots or pins d^2 of the ring or collar D′ upon the sleeve or hub d of said wheel, which lever will be further referred to hereinafter to disclose its pivotal connection or point.

G is a cam bracket or casting, with its inner cross-piece bolted to the carriage or frame A, while from this cross-piece extends outwardly an arm, $g^\times$, to which in turn is applied a cross piece or bar, G′, which is provided or formed about centrally of its length with a double-beveled shoulder or cam, g^2, the purpose of which will appear farther on. From the cross piece or bar G′ depends a pendant, being suitably secured thereto, through which passes a pivot-bolt, $g^{\times\times}$, upon which is fulcrumed or pivoted the lever F at its extreme lower end, and upon which the lever has a limited outward or lateral play to permit of the ready passage of the lever past the cam or shoulder g^2 of the bracket G while shifting the wheel D from one disk E E′ to the other. The cross-bar G′ of the bracket G is provided near its ends with longitudinal slots g^3, which receive screw-bolts g^4, upon which are fitted elongated washers or sleeves $g^5 g^5$, held thereon by thumb-nuts $g^6 g^6$, which screw-bolts and sleeves form arms, which serve as stops to limit and vary the throw or movement of the lever F.

The bracket G is disposed at a point that will enable its cam or shoulder g^2 as the wheel D arrives (as it is shifted by the lever F) about opposite the space between the disks E E′ to so act upon the said lever as to move the latter with the wheel outward, thus preventing the accidental dropping of the wheel in between the disks, which would interfere with the proper shifting of the wheel. The adjustable arms or stops $g^4 g^5$ (the adjustability of which is due to the slots and screws above described) limit the throw or movement of the lever F, as also vary said throw or movement.

In operation, it being desired to bring the wheel D into contact, say, with the more contiguous disk, E, it will be seen that by pressing inward upon the lever C with the knee or otherwise the wheel D will contact with said disk, and the shaft B thus be driven by the saw-arbor wheel a', intermediate shaft, f, with its wheel i, and said disk, when the required movement will be imparted to the carriage. If, however, it be desired to bring the wheel D into contact with the more distant disk, E′, the lever F is first actuated, so as to shift the said wheel from its present position over opposite the said disk, the wheel or disk being prevented, as previously stated, by the contact of the cam-bar G with said lever from accidentally getting in between the two disks. This done, the lever C is now pressed inward in the same manner as in making contact between the wheel D and the first-named disk, E, which will cause the wheel D to have contact with the disk E, when, by means of the wheel a' and the intermediate gearing, $g g'$, wheel i on shaft h, and said disk, the shaft B will be driven in the reverse direction to that in which it was previously driven, and thus impart a reverse or the required movement to the carriage or frame A. The direction of the movement to be imparted to the carriage of course is governed according as to whether the same, with its work, requires a forward or backward movement in feeding it to or from the saw.

In the method, as heretofore adopted, of reversing the movement of the feed of the carriage by employing a single disk and shift-

ing the sliding frictional wheel from side to side of the center of the disk it has been found that the wearing action of the wheel has formed a concavity in or dished the disk, so as to impair the action or operation of the feeding mechanism, which is remedied by my invention. If it is desired to use only one of the wheels *i i*, connection is then made between the shafts *f f'* by a belt passing around pulleys secured upon said shafts or around the cylindric hub portions of the disks E E', the same being adapted to serve as pulleys.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a saw-mill feed mechanism, the combination of the saw arbor or shaft wheel, the disks disposed edgewise to each other, together with shafts and gearing for transmitting motion from said wheel to said disks, and the sliding wheel having contact with either one or the other of said disks, and the feed-shaft pivotally supported in position, substantially as set forth.

2. In a saw-mill feed mechanism, the combination, with the shifting-lever, the sliding wheel having connection with said lever, the feed-shaft carrying said wheel and pivotally supported in position, and the disks, together with shafts and gearing for transmitting motion to said disks, of the bracket provided with a cam-bar or shoulder acting upon said shifting-lever as the sliding wheel while being shifted arrives opposite the space between the disks, substantially as specified.

3. In a saw-mill feed mechanism, the combination of the disks secured edgewise to each other and upon shafts driven from the saw-shaft wheel, the shifting-lever engaging with a wheel sliding upon a shaft, a lever having a cam-shaped pivoted end for moving the wheel to and from the said disks, and the bracket having a cam-bar adapted to act upon the wheel-shifting lever, substantially as specified.

4. In a saw-mill feed mechanism, the combination of the disks secured edgewise to each other and upon shafts driven from the saw-shaft wheel, the shifting-lever engaging with a wheel sliding upon the feed-shaft, and the bracket having a cam-bar acting upon the shifting-lever, substantially as set forth.

5. In a saw-mill feed mechanism, the combination of the disks secured edgewise to each other and upon shafts driven from the saw-shaft wheel, the shifting-lever engaging with a wheel sliding upon the feed-shaft, and a cam-bracket having arms limiting the throw or movement of the shifting-lever, substantially as set forth.

6. In a saw-mill feed mechanism, the combination of the disks secured edgewise to each other and upon shafts driven from the saw-shaft wheel, the shifting-lever engaging with a wheel sliding upon the feed-shaft, and a cam-bracket having adjustable arms limiting and varying the throw or movement of the shifting-lever, substantially as set forth.

7. In a saw-mill feed mechanism, the combination of the disks secured edgewise to each other and upon shafts driven from the saw-shaft wheel, the shifting-lever engaging with a wheel sliding upon the feed-shaft, all supported upon a frame adjustable by means of angle-irons or brackets having their horizontal arms provided with slots, and eccentrics applied to said brackets and adapted to be manipulated by a wrench, substantially as set forth.

8. In a saw-mill feed mechanism, the combination, with the sliding wheel shaft-boxes, of the plate provided with end pieces, fixed blocks secured upon said plate, sliding blocks, springs acting upon said latter blocks, and holding or adjusting screws working in said plate, end pieces, and against said springs, substantially as set forth.

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Witnesses:
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