

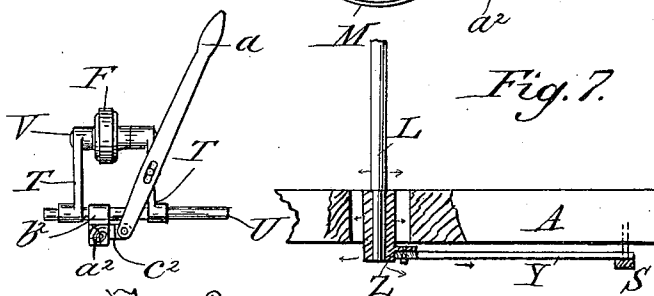
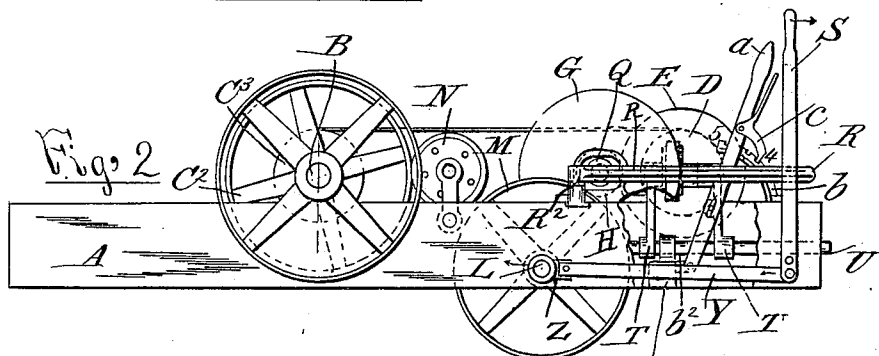
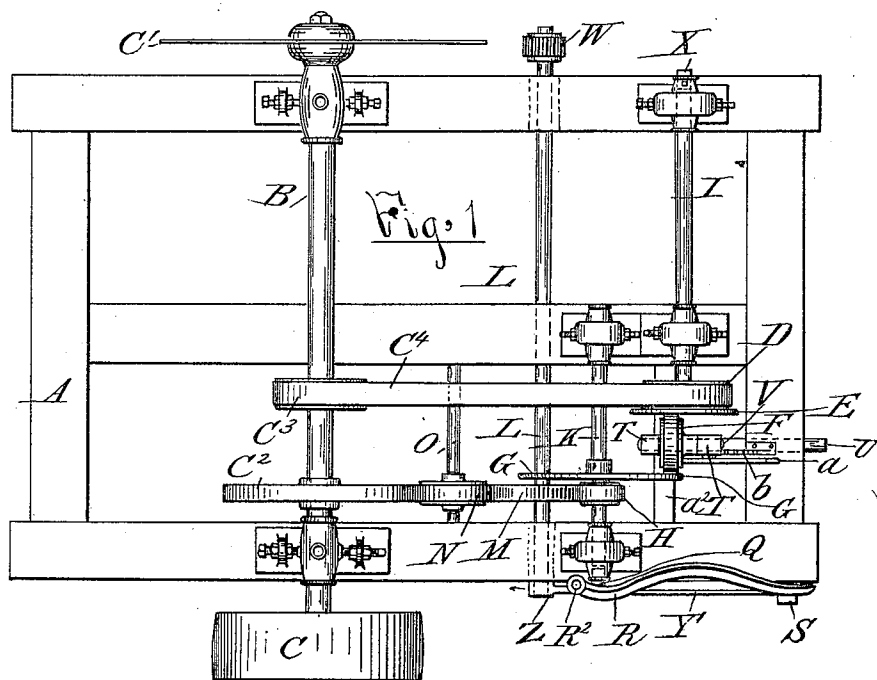
(No Model.)

2 Sheets—Sheet 1.

P. STOVALL.
SAW MILL FEED.

No. 461,719.

Patented Oct. 20, 1891.



Witnesses

Henry L. Johnson.
Robert E. Paul.

Fig. 3

Inventor

Philip Stovall
per John C. Walker.
Atty

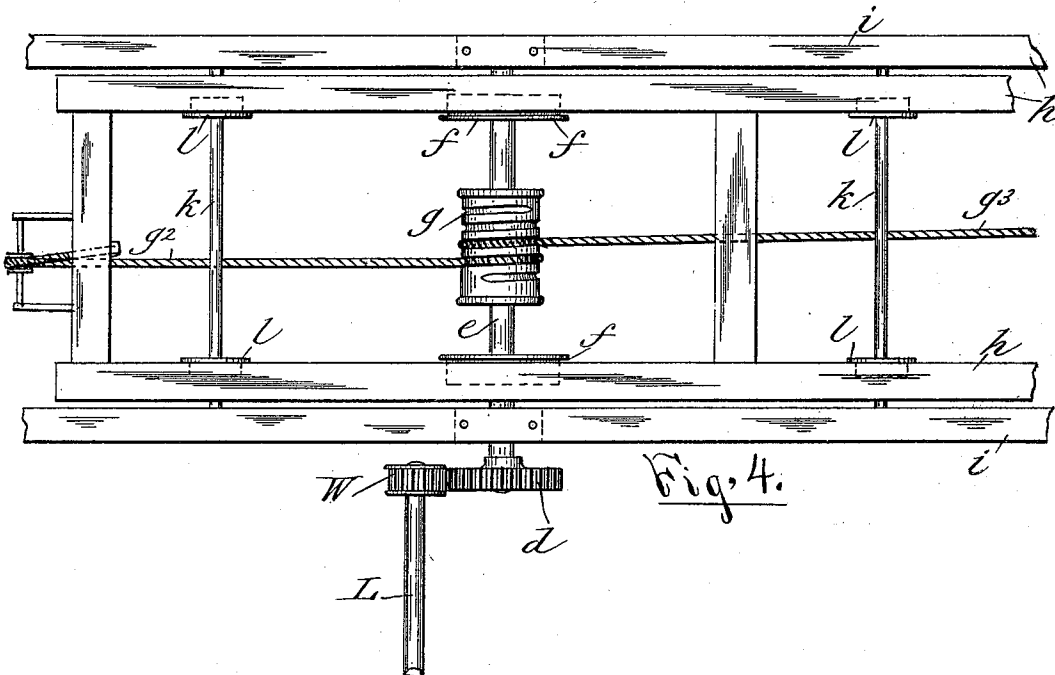
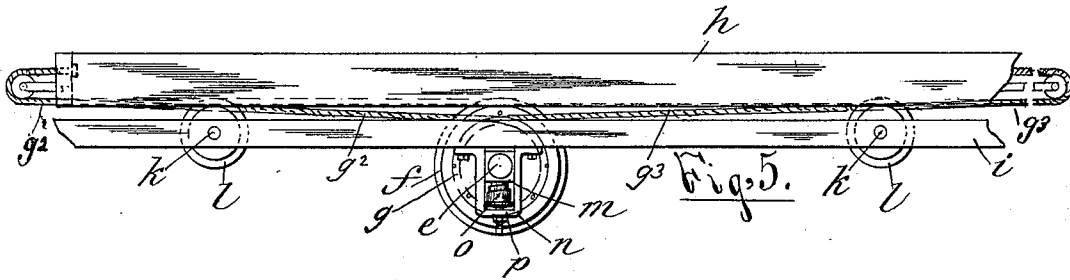
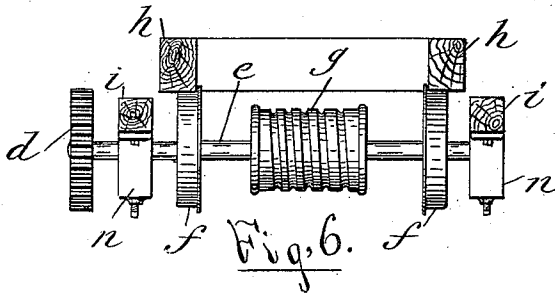
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Witnesses
Henry L. Johnson.
Robert E. Paul.

Inventor
Philip Stovall
By his Attorney
John C. Chas. Ker.

UNITED STATES PATENT OFFICE.

PHILIP STOVALL, OF ATLANTA, GEORGIA, ASSIGNOR OF ONE-HALF TO JOHN O. PERKINS, NELSON W. PERKINS, AND SHADRICK F. PERKINS, ALL OF SAME PLACE.

SAW-MILL FEED.

SPECIFICATION forming part of Letters Patent No. 461,719, dated October 20, 1891.

Application filed March 2, 1891. Serial No. 383,399. (No model.)

To all whom it may concern:

Be it known that I, PHILIP STOVALL, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Saw-Mill Feeds; 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 an improvement in saw-mill feeding mechanisms, especially of that class known as the "variable-friction type," the object of the invention being to perfect and simplify and make better and more complete saw-mill feeding devices of this sort; and the invention consists in the construction, arrangement, and combination of the various parts, substantially as will be hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a plan view of my improved feeding mechanism for saw-mills. Fig. 2 is a side elevation of the same. Fig. 3 is a detail elevational view of the adjustable friction-pulley, its operating-lever, and the connected parts whereby the variation of the feed is produced. Fig. 4 is a plan view of the saw-mill carriage. Fig. 5 is a side elevation of the same. Fig. 6 is a transverse section of the same, with the drum and certain parts in elevation. Fig. 7 is a detail sectional view of one of the shafts supported in its oscillating box.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

A denotes the main frame for the saw. It may be of any suitable size, shape, and construction. This frame has suitable boxes, in which is arranged the saw-mandrel B, provided with the driving-pulley C, the friction-wheel C², and pulley C³, and carrying the saw C⁴.

Parallel to shaft B is a short shaft O, on which is mounted a friction-wheel N, revolving by contact with friction-wheel C², said shaft O being an oscillating shaft and having an adjustable box.

Parallel to shafts B and O is a third shaft L, carrying a friction-wheel M, located in line

with wheels C² and N and adapted to be thrown into or out of contact with the wheel N, accordingly as the shaft is vibrated. Shaft L also carries at its other end a spur-pinion W, which meshes with a pinion d on the end of shaft e, that carries drum g, whereon winds the rope g² g³, that operates the log-carriage. (See Fig. 4.) The shaft L is supported in one rigid box and one oscillating box Z. To box Z is pivoted one end of the connecting-rod Y, the other end of which is pivoted to the lower end of upright lever S, that is pivoted to frame A. (See Figs. 1 and 2.) By manipulating the hand-lever S the shaft L may be vibrated sufficiently to place wheel M in contact with wheel N when desired.

Parallel to the shafts B, O, and L, which I have already described, is another shaft K, which carries a friction-disk G and a friction-wheel H, working in contact with wheel M. The shaft K runs in suitable boxes or bearings. A steel pivot Q is inserted into one of the boxes that hold shaft K, and said pivot rests against the end of this shaft. A horizontal lever R is pivoted to a fulcrum on a projection or lug R² on frame A, said fulcrum being adjacent to pivot Q, so that the lever R may operate against said pivot, and the free end of the lever is adjacent to lever S and in position to be moved by lever S to vibrate said lever R and move pivot Q and impart an endwise movement to shaft K.

I designates another shaft parallel to shafts L and K and running in suitable boxes on frame A and carrying pulley D and friction-disk E.

X is a steel plug inserted into the end of one of the boxes in which said shaft I is carried, said plug resting against end of shaft I and thereby preventing any endwise play thereof. The pulley D is connected with pulley C³ and receives motion therefrom by means of the belt C⁴.

V is a short shaft at right angles to shafts I and K and running in boxes formed on the end of brackets T T. (See Fig. 3.)

U is another adjacent shaft, which is used as a sliding bar and carries the brackets T T, one end of said shaft U passing through the end timber of saw-frame A, while the other end passes through box b², which is screwed

to a supporting-bar a^2 , on which is also a projection c^2 , serving as a fulcrum whereto is pivoted the lower end of an upwardly-projecting hand-lever a , which constitutes one of the operating-levers of the machine and is slotted to receive a pin or wrist cast on one of the brackets T. The lever a is also provided with the pivoted catch or latch c , that engages the notches of the segment or quadrant b , secured on saw-frame A. (See Figs. 1 and 2.)

h h designate portions of the side beams of the carriage, which are connected by suitable transverse bars, (see Figs. 4, 5, and 6,) and i i denote portions of the stringers or sleepers. On the shaft e , that carries pinion d , engaging spur-pinion W, already referred to, is also a pair of flanged friction-wheels f f , on which the beams h h rest. Said shaft e , carrying also drum g , is supported and runs in boxes secured to the stringers i i .

k k denote two other shafts on each side of shaft e and equidistant therefrom, said shafts k being likewise journaled in sleepers i i and carrying pairs of flanged friction-wheels l l , whereby the carriage is also supported as it travels back and forth.

g^2 and g^3 are cables attached to drum g and carriage h . (See Fig. 4.) The journal-boxes m of shaft e are supported in brackets n , (see Fig. 5,) securely bolted beneath the stringers i i . Within each bracket n is a plate p , and spring o bears up against the bearing m .

Power applied by belt from an engine or otherwise to pulley C will set the same in motion and revolve the saw-mandrel with its saw as well as the pulleys mounted on the mandrel, and the belt C^4 , running from pulley C^3 to the pulley D on shaft I, conveys motion to the latter shaft and rotates the same. The shafts I and K are placed in such a position alongside of each other that the radius of friction-disk G on shaft K overlaps the radius of friction-disk E on shaft I, and the friction-wheel F, placed at right angles with shafts I and K, is placed between the two disks E and G, and the face of friction-wheel F is in contact with the faces of both the disks E and G, all these being pressed into contact together by vibrating lever S sufficiently against lever R to cause the latter to press hard on pivot Q, which acts against the end of shaft K and causes shaft K to move. This produces sufficient frictional contact between the wheel F and the disks E and G to transmit motion from the shaft I, through disk E, wheel F, and disk G, to shaft K, and accordingly, through wheel H, which is fixed on shaft K, to wheel M and the shaft L, which carries said wheel, and therefore to the pinion W, intermeshing pinion d , drum g , rope g^2 g^3 , and the carriage. The motion of shaft K, friction-wheel H, and friction-disk G can be increased, as may be preferred, and may in fact vary from the lowest to the highest speed, as may be desired. In order to change the speed, all that it is necessary to do is to disengage the latch or catch c from the teeth of the segment, lifting it, for

instance, out of the teeth 4 in said segment or quadrant b , and then throwing the lever a a certain distance, which will result in moving the friction-wheel F forward nearer to the center of the friction-disk G, and thus increasing the speed of the shaft K and wheel H, and consequently the speed of the carriage. This same movement, which places friction-wheel F nearer to the center of disk G, will also place it farther away from the center or closer to the periphery of the disk E. If it is desired to diminish the speed, the lever a can be moved back, disengaging the latch c from the teeth 5, in which it may have dropped when the lever was thrown forward, and thus removing the wheel F farther from the center of the friction-disk G, thereby diminishing the speed, the catch c dropping into the teeth 4 again or into any other one of the teeth, accordingly as it may be desired to adjust the speed. I have just described this operation as though the shaft L were so placed as to have the friction-wheel M in contact with the wheel H; but it will be remembered that the shaft L is a vibratory shaft, it having one end in an oscillating box Z, and therefore the friction-wheel M is not at all times in contact with the wheel H. The adjustment of the wheel F of course can take place just as well when the wheel M is not in contact with wheel H, and in general it will probably so take place. Therefore after the proper adjustment of the wheel F has been accomplished, so as to make the shaft K run at the proper speed, the operator will lay hold of the operating-lever S, moving it forward, thereby actuating the connecting-rod Y, which is opposite to the oscillating box Z, and thereby bringing the friction-wheel M on the shaft L into frictional contact with the friction-wheel H on the shaft K, and in consequence the carriage will be set in motion, the motion being transmitted through shafts K L, pinions W and d , shaft e , drum g , and the ropes. Said ropes are preferably carried forward to a suitable distance and then passed around sheave-pulleys, then back to the drum and made fast thereto, so that it will be readily apparent that by the winding of the cables or ropes upon the drum the carriage will be moved forward, carrying the log or piece of timber that is to be sawed against the cutting-edge of the saw. After the forward movement of the saw-carriage has taken place then a reverse or backward movement must follow. In order to effect this, the operator again lays hold of the lever S, throwing it back, the result of which is to throw the shaft L toward the saw-mandrel, thereby throwing the friction-wheel M out of contact with the friction-wheel H and bringing it into contact with the friction-wheel N, mounted on the shaft O, which wheel being carried by the vibrating shaft is adapted to come in contact with the wheels C^2 . When the wheel M comes into contact with the friction-wheel N, the latter will be thrown into

contact with the wheel C², and thus the three wheels M, N, and C² will move together, and the result of this will be that the motion of wheel C² will be transmitted through the wheel N and wheel M to the shaft L, the motion of which will consequently be reversed, and therefore the motion of the carriage will be reversed, the other cable acting to carry the carriage back. The drum *g* may be made small and light, and the cables may be made of light construction, yet sufficiently strong to have a steady and firm movement of the carriage, so that it will be competent to perform heavy work. When the work is light or the machinery is used in light mills, the drum *g* and the cables *g*² and *g*³ may be dispensed with, using the friction-wheels and the spring attachment only for propelling the carriage.

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

1. In a variable friction feed mechanism for saw-mills, the combination of the frame A, the saw-mandrel B, journaled therein and provided with the driving-pulley C, friction-wheel C², and pulley C³, the short shaft O, parallel to shaft B and having thereon a friction-wheel N in contact with friction-wheel C², the shaft L, parallel to shafts B and O and carrying a friction-wheel M, arranged to be thrown into or out of contact with the wheel N and carrying also a spur-pinion W, meshing with pinion *d* on the end of the shaft *e*, carrying drum *g*, whereon winds the rope that operates the saw-carriage, the oscillating box Z for one end of the shaft L, the connecting-rod Y, pivoted to said box Z, the other end of which rod is pivoted to the lower end of the lever S, the shaft K, carrying a friction-disk G and a friction-wheel H, working in contact with wheel M, the shaft I, supported in suitable boxes on the frame A and carrying pulley D and friction-disk E, said pulley D being connected with pulley C³ by means of belt C⁴, the short shaft V at right angles to shafts I and K and running in boxes on the end of brackets T T, the adjacent shaft U operating as a sliding bar and carrying the brackets T T, and box *b*², screwed to the supporting-bar *a*², having projections *c*², whereon is pivoted the lever *a*, all arranged to operate substantially as described.

2. In a variable friction feed mechanism for saw-mills and similar machinery, the combination of the saw-mandrel provided with driving-pulley C, friction-wheel C², and pulley C³, the shaft O, parallel to shaft B and having wheel N in contact with wheel C², the shaft L, parallel to shafts B and O and carrying

wheel M and likewise spur-pinion W, meshing with pinion *d* on the end of shaft *e*, carrying drum *g*, whereon winds the rope that operates the saw-carriage, the saw-carriage arranged for operation as described, the shaft K, provided with disk G, shaft I, provided with disk E, friction-wheel F, having its periphery in contact with these disks, said wheel F being carried by shaft V, the brackets T T, in which the shaft V is mounted at right angles to shafts I and K, and the adjacent shaft U, operating as a sliding bar and carrying the brackets T T, one end of said shaft U passing through the saw-frame A, while the other end passes through box *b*², which is screwed to a supporting-bar *a*², on which is a projection *c*², serving as a fulcrum, where to is pivoted the lower end of the upwardly-projecting hand-lever *a*, slotted to receive a pin or wrist cast on one of the brackets T, said lever being provided with a pivoted catch *c*, engaging the segment *b*, all arranged substantially as described.

3. In a variable friction feed mechanism for saw-mills, the combination of frame A, saw-mandrel B, journaled therein and provided with pulley C, friction-wheel C², and pulley C³, the short shaft O, provided with friction-wheel N, revolving in contact with friction-wheel C², said shaft O being arranged to oscillate shaft L, parallel to shafts B and O, and carrying friction-wheel M and spur-pinion W, meshing with pinion *d* on shaft *e*, carrying the rope-drums for the log-carriage, the oscillating box Z, carrying one end of shaft L, the connecting-rod Y, pivoted to box Z, the upright lever S, pivoted to the connecting-rod, the shaft K, carrying friction-disk G and friction-wheel H, the pivot Q, inserted in one of the boxes of shaft K, the horizontal lever R, pivoted to the fulcrum or lug R² on frame A, so that the lever R may operate against said pivot, the free end of the said lever being adjacent to lever S and in position to be moved by lever S, so as to move pivot Q and thus adjust the shaft K endwise, the shaft I, carrying pulley D and friction-disk E, shaft V at right angles to shafts I and K and carrying friction-wheel F, and the sliding shaft U, carrying brackets T T for shaft V, all arranged substantially as described.

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

PHILIP STOVALL.

Witnesses:

HENRY C. JOHNSON,
ROBERT E. SAUL.