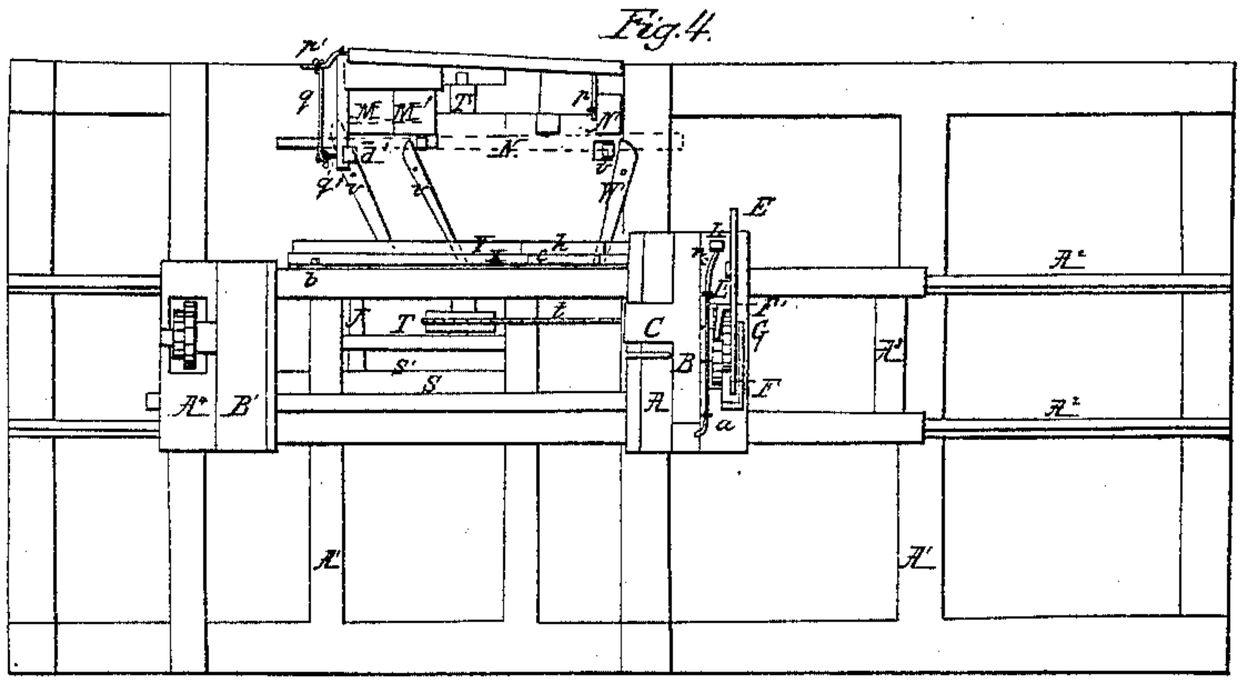
J. Pemberton,

Reciprocating Saw Mill.

No. 21,588. Patented Sep. 21, 1858.

Fig. 4.



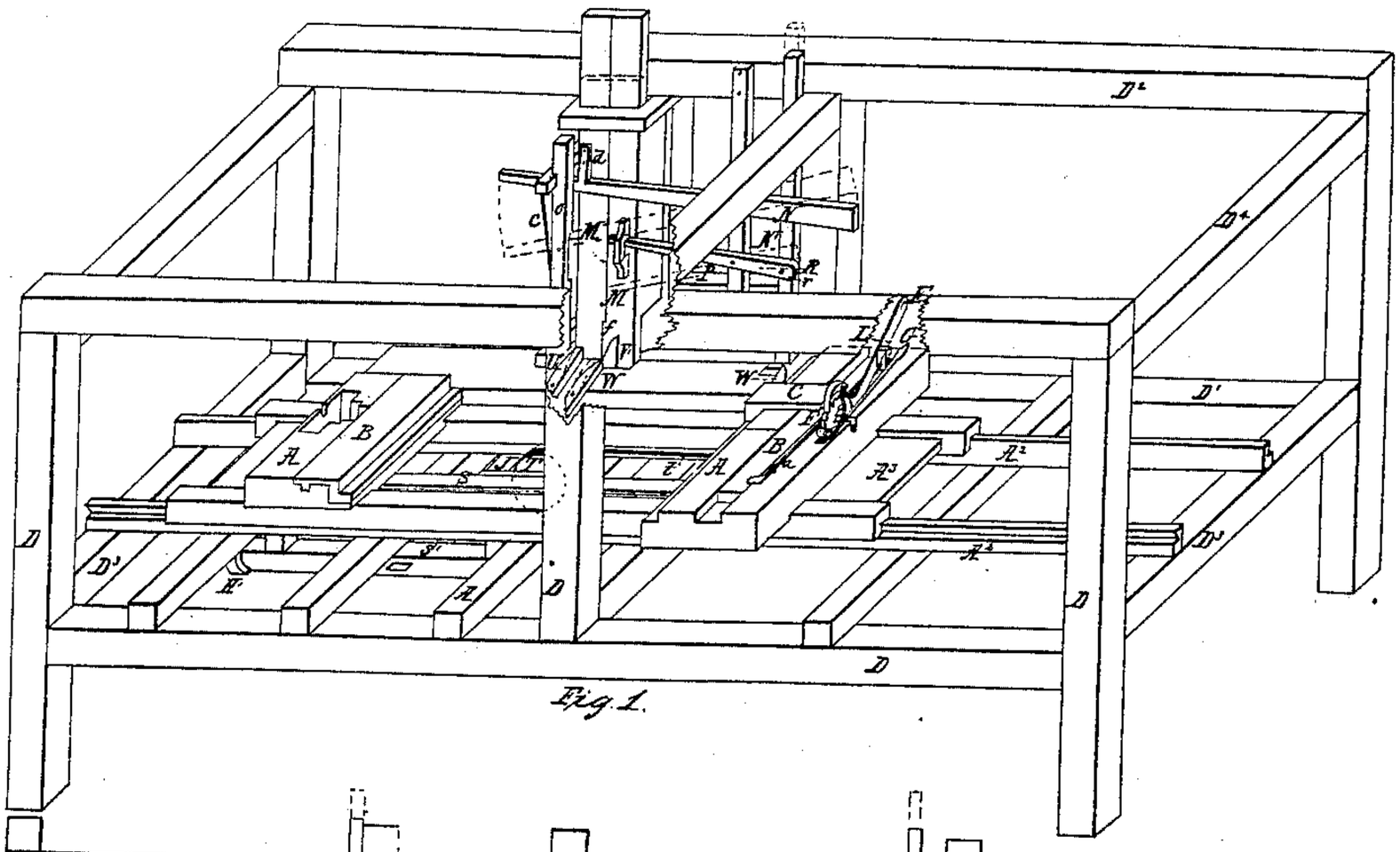


Fig. 1.

Fig. 2.

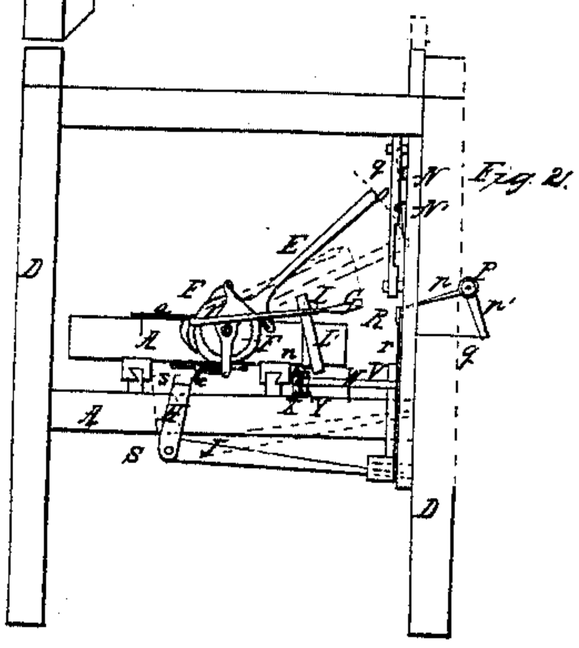
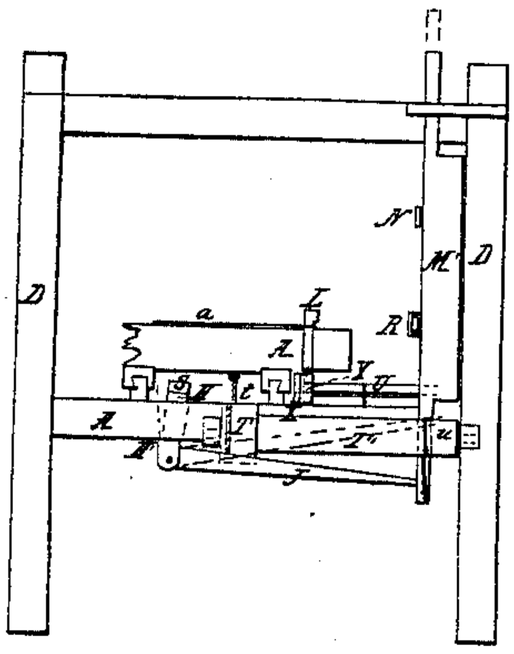


Fig. 3.



UNITED STATES PATENT OFFICE.

JOHN PEMBERTON, OF JONESBORO, INDIANA; LEMUEL PEMBERTON ADMINISTRATOR OF JOHN PEMBERTON, DECEASED.

SAWMILL.

Specification of Letters Patent No. 21,588, dated September 21, 1858.

To all whom it may concern:

Be it known that I, JOHN PEMBERTON, of Jonesboro, in the county of Grant and State of Indiana, have invented certain new and useful Improvements in Sawmills; and I do hereby declare that the same are described and represented in the following specifications and drawings.

The nature of my improvements consist in so constructing and arranging the several parts of the mill, that when a log is put upon the carriage and the several parts of the mill properly adjusted, and put in motion, it will continue to operate and saw a cut, run the carriage back, reset the log, and saw another cut and so continue to operate, until the log is sawed as required. And further in so constructing and arranging it that the valve or gate will be partially closed, so as to reduce the speed of the mill while the carriage is running back and the log being set, and when that is done the valve or gate is opened again so as to run the mill at the required speed. Also in stopping the setting apparatus and reducing the speed of the mill when the log is sawed.

To enable others skilled in the arts to make and use my improvements I will proceed to describe their construction and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

Figure 1, is an isometrical view of the mill with my improvements omitting the saw, and such parts as are not deemed necessary to show said improvements. Fig. 2, is an end view, and Fig. 3, a transverse section showing some of the parts more clearly. Fig. 4, is a plan or top view.

In the above-mentioned drawings the parts of the mill are represented at D, D, connected together by the side sills D′, and beams D^2, and by the cross sills D^3, and girders D^4, to form a frame similar to those in common use. The sleepers A′ are fastened to the sills D′; and to these sleepers and the cross sills D^3, the ways A^2, are fastened for the carriage A^3, to traverse upon and carry the log to be sawed. To this carriage the head block A, and tail block A^4, may be fitted in the usual manner or otherwise. These blocks are both provided with shafts which carry ratchet wheels, and pinions which act upon the racks on the underside of the bars B, B′, fitted to traverse in the blocks as represented. The bracket C, is fastened to the bar B, to traverse the log on the carriage as the bar is moved by the pinion on the same shaft with the ratchet wheels F, and F′, and the lever E, is fitted to turn freely on the same shaft and carries a pawl to turn the ratchet F, so as to traverse the bar B, and set the log for a new cut. The lever E, is operated by the rod *e*, fastened to its lower arm which rod is traversed by the bar S, for that purpose. When the bar S, leaves the rod *e*, the lever E, falls down onto the stop L′, which may be set higher or lower so as to saw the lumber thick or thin as desired. The lever G, is fitted to vibrate on a pin in the block A, and has a pawl rigidly attached to it, to catch the ratchet F′, as the lever G, is raised by the pin *f*, in the lever E, so as to stop the ratchet F, when it has been moved the required distance by said lever E, and prevent the lever from moving the ratchet F, too far, when it sets the log for a new cut. The bar S, is connected by the arms H, to the rock shaft S′, fitted to turn in hangers fastened to the sills A′, and provided with an arm J, the outer end of which arm, is fitted to a score in the bar M.

The bar M is arranged to traverse perpendicularly through the floor, and the bracket I, and is operated by the bar M′, arranged to traverse by the side of it, which bar M′, is raised by the rope *u*, which is fastened to it and to the roller T′, which roller turns in appropriate bearings fitted for it on the frame of the mill, and has the rope *t*, fastened to it which connects it to the carriage, and is so arranged that when the saw has completed its cut in the log it turns the roller T′, and raises the bar M′, and M, (the projection *f*′, on the former, catching the latter as represented in Fig. 1,) and when M′, is raised the hook *v*′, which is fastened to it catches upon the floor and holds it up. M′, also carried up the lever R, (which vibrates on a pin in the bar K, fastened to the frame of the mill), which run N′, down (that is the bar N′, arranged to traverse through the floor and a bracket fastened to the frame) and vibrated the lever *e*′, so as to throw the feed motion of the carriage out of gear; which feed motion may be connected to said lever *e*′, in some convenient manner. The lever *e*′, vibrates on a pin in the bar e^2, of the frame.

There is a bracket fastened to N′, which surrounds the arm *p*, of the rock shaft P, which turns in appropriate bearings fitted for it, and it was turned by the arm *p*, when N′, descended and vibrated the arm *p*, to traverse the rod *q*, and vibrate the lever *q′*, so as to draw the lever N, out of the score in the bar O, and let it rise up to the bracket *d′*, on the bar M, and run down the rod *a′*, to which the valve or gate may be connected, so as to reduce the speed of the mill, while the carriage is being run back, and the log set for a new cut. The upper end of the lever *q′*, is pivoted on the side of the bar which supports the upper end of the bar O.

There is a pin in the under side of the head block A, represented by dotted lines at *n*, Fig. 4, which acts on the projection *c*, on the slide X, which slide is arranged to traverse by the side of the ways on which the carriage traverses, and is provided with a mortise for the end of the lever W, which vibrates on a pin in the floor to release the hook *v′*, which is fastened to M′, after the carriage has carried the log back past the saw, so as to let M′, and M, drop and vibrate the lever J, and operate the devices heretofore described, so as to set the log for a new cut.

There is a pin *b*, see Fig. 4, in the side of the carriage which acts against the opposite end of the projection *c*, on the slide X, to traverse it, and vibrate the lever *w′* (which turns on a pin in the floor) so as to release the hook *v*, which catches on the floor, so as to hold up the bar N′, to which it is fastened.

The pin *b*, should be adjusted or set in such a position in the carriage, according to the length of the stuff being sawed, so that as the tailblock approaches the saw it will traverse the slide X, and operate the devices above described, so as to let the bar N′, drop—and throw the feed motion out, and the devices to run the carriage back into gear, as it vibrates the lever *e′;* to which lever *e′*, the devices for running the carriage back, may be connected in some convenient manner.

There is a rod *a*, fitted to traverse in brackets fastened to the top of the head block A; one end of this rod is bent so as to be acted on by the bar or rack B, so as to draw the opposite end out of the stop L, in the head block, when the bar B, is moved to set the log for the last cut. The stop L, is fitted to a hole in the end of the head block, so as to drop down when the rod *a*, is drawn out, and act on the projection *h*, on the slide *y*, (which slide is fitted to traverse by the side of the slide X,) to operate the lever U, which vibrates on a pin in the floor; so that when the log is sawed as required, and the carriage is run back, the stop L, traverses the slide Y, and carries the end of the lever U, into a score in the bar M, so as to hold it up and stop the operation of the devices which set the log.

As the apparatus which sets the log on the tailblock is similar to that upon the headblock, I do not deem it necessary to represent or describe it.

By the use of my improvements more than one half of the labor of the attendant is saved, thereby allowing him time to prepare new logs and remove the lumber sawed. Besides this advantage, the mill works faster as it occupies far less time in setting itself, than would be required for the attendant to set it.

The mill and improvements having been constructed and completed as above described, and a log placed upon the head and tail blocks in the usual manner and properly secured by dogs or otherwise, I depress the lever N, and let it spring into the score in the bar O, (as represented in dotted lines) which draws up the rod *a′*, and lets the water on the wheel, or the steam on the engine, and puts the mill in operation, and the log traverses against the saw, and as the tailblock approaches the saw, the pin *b*, in the carriage strikes the projection *c*, on the slide X, and operates the lever *w′*, which releases the hook *v*, on N′, which drops down and throws the feed motion out of gear and the devices which run the carriage back into gear by operating the lever *e′*, which vibrates on a pin in the bar e^2. When the bar N′, descended it carried down the arm *p*, of the rockshaft P, so as to move the arm *p′*, rod *q*, and vibrated the lever *q′*, so as to release the lever N, from the score in the bar O, and partially close the gate or valve so as to reduce the speed while the carriage is being run back. When the tail block ran up to the saw, it drew the rope *t*, to turn the roller T′, so as to raise the bar M′ (by the rope *u*,) so as to let the hook *v′*, catch upon the floor and hold up M′, which carried up M, and the arm J, of the rock shaft S′, and moved the bar S, to the position represented by dotted lines in Fig. 2. As the carriage is run back, and after the log gets past the saw, the pin *n*, in the head block strikes the projection *c*, on the slide X, and traverses it to operate the lever *w*, and release the hook *v′*, and let the bars M, and M′, drop and depress the arm J, and vibrate the bar S, which acts against the projection *e*, connected to the lower end of the lever E, so as to vibrate it and turn the shaft of the ratchet F, to operate the pinion, to traverse the rack and set the log for a new cut. When M′, was raised as above mentioned it carried up M, and when it descended M, descended with it so that the bracket *d′*, depressed the lever N, and let it spring into the score in the bar O, opening the gate or valve, so as to let the mill run at a proper speed, and when the bar M′, descended it depressed the lever R,

to the position represented by dotted lines and raised N′, so as to throw the devices which run the carriage back out, and let the feeding motion into gear by vibrating the lever *e′*, (to which they may be connected) so as to traverse the carriage for the saw to make another cut in the log, and as the tail block approaches the saw the pin *b*, operates the slide X, again and the operation of slacking the speed, running the carriage back, setting the log and increasing the speed again will be repeated as above described and continued until the log is sawed, or until the rack B, strikes the projection on the rod *a* and draws it out of the stop L, and lets it drop down so as to hit the projection *h*, upon the slide Y, and traverse it as the carriage is run back so as to carry the end of the lever U, into a score in M, so as to hold it up when M′, descends and throws the backing devices out of gear, so that when the log is sawed as required the mill will only run at the reduced speed, or at the same speed it ran when the carriage was run back, and as M, is held up as above stated, the sawed lumber remains upon the carriage until it is removed, as the setting devices cease to operate, while M, is held up by the lever U.

I do not claim as new the devices below enumerated, but simply their relative arrangement as specified for the purposes set forth, to wit.

1. The roller T, ropes *t*, and *u*, to raise the bars M, and M′, in combination with the pin *b*, slide X, lever *w′*, bar N′, and rock shaft P, with its arms, rod *q*, and lever *q′* the whole being so constructed and arranged as to throw the feeding out and the backing devices into gear by operating the lever *e′*, and move the gate or valve to reduce the speed of the mill at the proper time or after the saw cuts through the log.

2. The arm J, rock shaft S′, and bar S, in combination with the projection or stop *e*, connected to the lever E, or its equivalent to turn the ratchet wheel shaft and traverse the rack to set the log as desired.

3. The ratchet wheel F′, bent lever and pawl G in combination with the pin *f*, or its equivalent in the lever E, to stop the ratchet wheels when they have moved far enough, so as to prevent the log from being moved too far when it is set for a new cut.

4. The pin *n*, in the head block and slide X, in combination with the lever *w*, which releases the hook *v′*, to let M′, and M, decend to increase the speed of the mill as described.

5. The rod *a*, and stop L, in combination with the slide Y, and lever U, so constructed and operated as to hold up the bar M, after the log is sawed and prevent it from descending and increasing the speed of the mill, and at the same time stop the apparatus which sets the log.

JOHN PEMBERTON.

Witnesses:
JOHN T. MORRIS,
LEVI D. PIERCE.