3 Sheets--Sheet 1.

W. GLUE.

Saw-Mill Head-Block.

No. 163,473. Patented May 18, 1875.

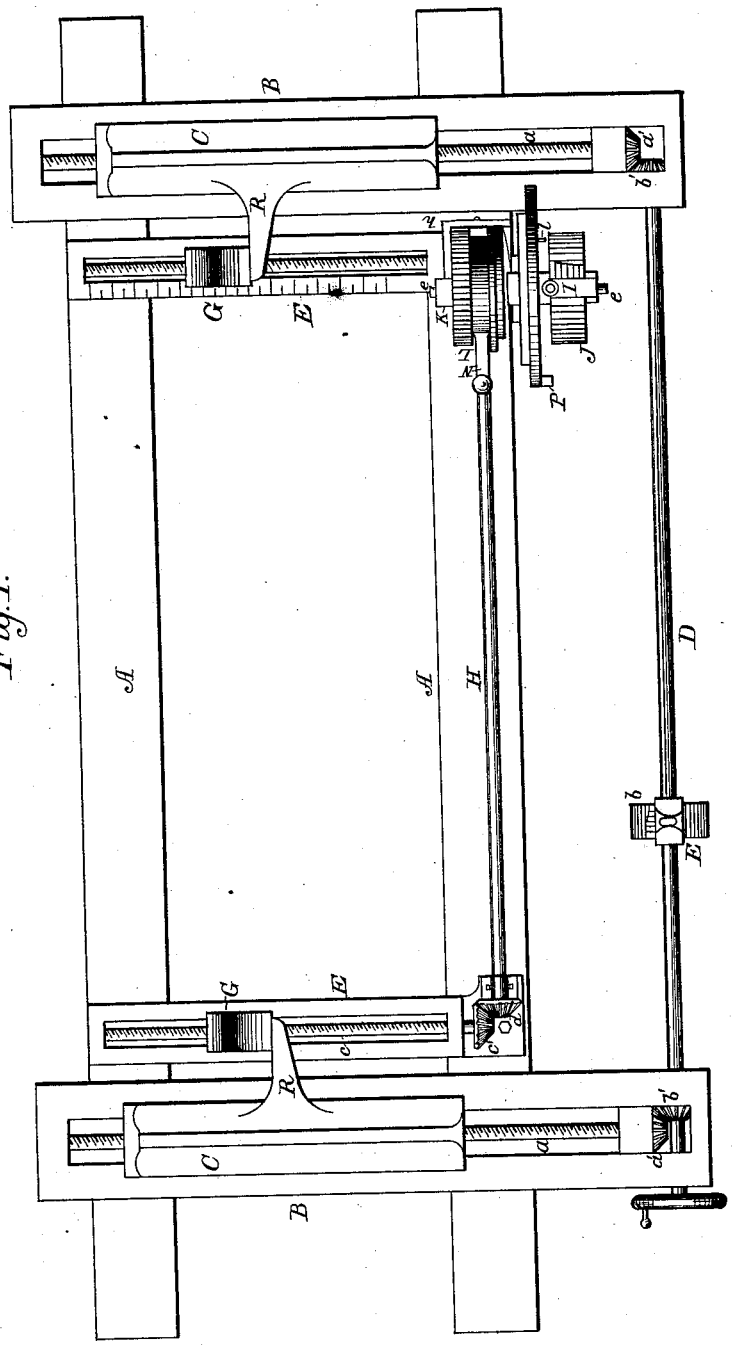


Fig. 1.

Witnesses:
E. W. Harding
N. A. Lyon

Inventor:
William Glue

3 Sheets--Sheet 2.

W. GLUE.

Saw-Mill Head-Block.

No. 163,473 Patented May 18, 1875.

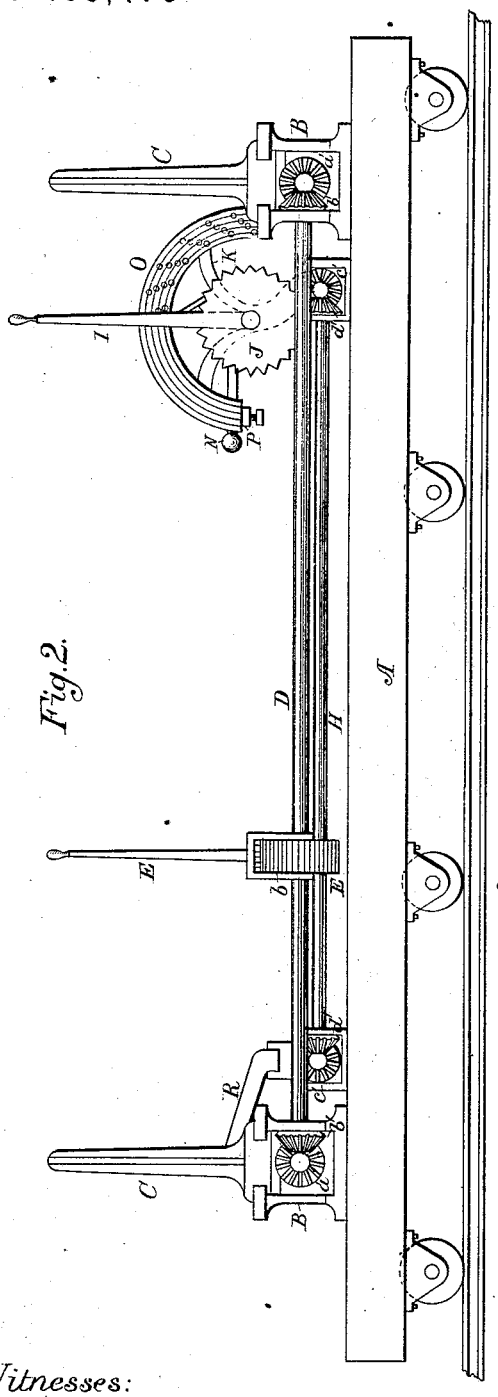


Fig. 2.

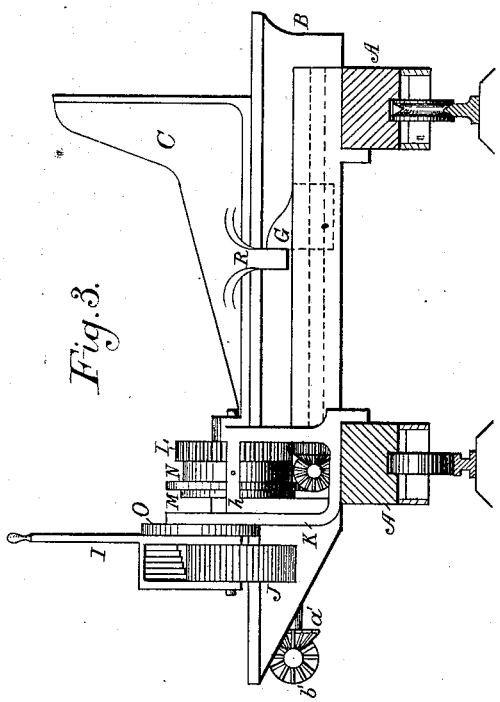


Fig. 3.

Witnesses:
E. W. Harding
N. A. Lyon

Inventor:
William Glue

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

3 Sheets--Sheet 3.

W. GLUE.

Saw-Mill Head-Block.

No. 163,473. Patented May 18, 1875.

Fig. 4.

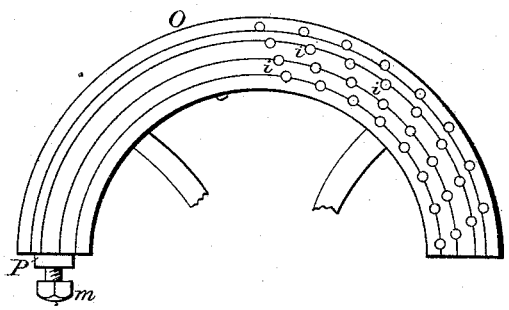


Fig. 5.

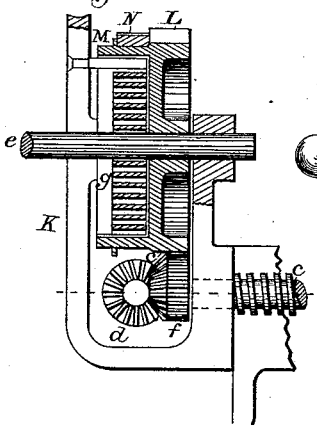
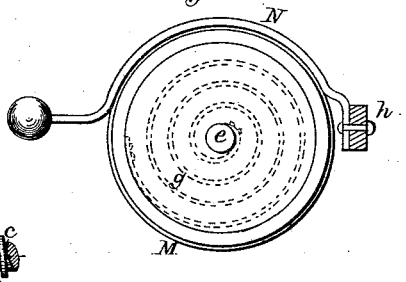


Fig. 6.



Witnesses.
E. W. Harding
N. A. Lyon

Inventor.
William Glue

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

WILLIAM GLUE, OF MUSKEGON, MICHIGAN.

IMPROVEMENT IN SAW-MILL HEAD-BLOCKS.

Specification forming part of Letters Patent No. **163,473**, dated May 18, 1875; application filed April 30, 1875.

To all whom it may concern:

Be it known that I, WILLIAM GLUE, of the city of Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Saw-Mill Head-Blocks; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to those parts of the log-carriage of a saw-mill which are instrumental in moving forward the log after each cut of the saw; the object being to avoid a difficulty which has hitherto proved almost insurmountable, consisting in the fact, that as a log is continually reduced by the successive removal of boards by the saw, it becomes lightened, and as the moving power remains constant it results in the log being thrown farther at each operation of the setting mechanism as it becomes lighter, thus causing an appreciable difference in the thickness of the boards cut from the log when first put upon the carriage, and those cut after it has been reduced in weight by the removal of a series of boards. Now, as this reduction in the weight of the log to be moved cannot be avoided, and as the construction of the moving devices in such a manner as to constantly produce the same result proves so difficult a task, I propose to overcome this difficulty by introducing a movable stop, the weight and friction upon which, being a constant quantity, cause it always to move exactly the same distance when receiving the same impulse. This stop being first moved the distance required for the thickness of the lumber to be cut, the log is moved to it, thus causing the lumber cut from the log to preserve an equal thickness throughout. And the invention consists in the construction and arrangement of the devices for producing this result, as will be hereinafter fully described, and then pointed out in the claims.

Figure 1 is a plan of the log-carriage and head-blocks. Fig. 2 is a side elevation of the same. Fig. 3 presents an end elevation of the carriage, with a side view of one of the head-blocks. Fig. 4 is an enlarged view of the quadrant, showing the manner of dividing it. Fig. 5 is a view, partly in section, of the spring-box and gear for operating the setting-screws. Fig. 6 shows the spring-box and brake, the spring being also designated by dotted lines.

The side pieces of the log-carriage are represented in the drawings by the letter A, and may be of any construction used for such purposes, as well as the wheels and track upon which it runs. Upon the carriage is placed the head-blocks B, two or more, as may be required, according to the length of the carriage. Moving within suitable guides upon these head-blocks are the setting jacks or knees C, which move the log upon the head-blocks through the agency of the screws *a*, provided at their outer ends with the bevel-gears *a'*, and working in a nut secured to the bottom of the setting-jacks. A shaft, D, revolving in suitable bearings, connects the head-blocks, and is put in motion by the ratchet-wheel *b* and pawl-lever E. This shaft D carries a series of bevel-gears, *b'*, equal in number to the head-blocks to be operated, which engage with the gears *a'* upon the screws *a*, thus giving motion to the setting-jacks whenever the pawl-lever E is oscillated. Other devices may be employed for giving motion to the setting-jacks, such as a rack upon their under sides engaging with pinions upon the shaft, or they may be moved forward by pawls acting upon the rack, and put in motion by an oscillating shaft; but I prefer the arrangement shown in the drawings. Adjoining each head-block is a supplementary block or way, F, having a graduated scale marked on its upper face, on which the stops G are moved by means of the screws *c*, which are supplied at their outer ends with bevel-gears *c'*. These gears engage with the gears *d* upon the shaft H, which is put in motion through the agency of the pawl-lever I, acting upon the ratchet-wheel J, which is secured upon a shaft, *e*, revolving in suitable bearings in the bracket K. This shaft also carries the gear-wheel L, which engages with a pinion, *f*, upon the screw *c*. The wheel L has four times the number of teeth carried by the pinion *f*, thus

causing the latter, with the screws *c*, to make four revolutions to each revolution of the wheel L, and as the screws are of one-inch pitch it follows that a movement of the lever I through the fourth part of a circle will give the screw one revolution and move the stops G one inch, and a proportionate distance for whatever distance the lever may be moved. Forming a part of the wheel L, being preferably cast with it, is the pulley M, which incloses the retracting-spring *g*, and forms a frictional surface, upon which the brake N acts. This brake is a metallic spring, formed so as to partially surround the pulley M, and secured to the cross-bar *h* of the bracket K, the other end being formed as a handle, by which it may be lifted out of contact with the pulley M, and it is also furnished with a weight at its extreme end, which assists in maintaining the desired amount of friction upon the pulley M.

The operation of this device is as follows: As the stops G are moved forward, the revolution of the shaft *e* causes the spring to be coiled tightly within the box, the brake preventing any reaction; but when the stops have reached their farthest point, and it is desired to return them, the brake is raised, when the spring, in its efforts to uncoil, will revolve the wheel L, and by its teeth motion is given to the screw *c*, which retracts the stop. Secured to the bracket is a quadrant, O, marked with concentric lines, and pierced with a series of holes, *i*, into one of which a pin, *l*, is inserted, which limits the movement of the lever I in one direction, and its motion in the opposite direction is arrested by a stop, P, which is made adjustable to a slight extent by means of the screw *m*, for the purpose of allowing a slightly greater or less movement of the lever, in order to compensate for the difference in the thickness of the saws which may be used with the machine. As the position of the pin *l* is always the same when a certain specified thickness of lumber is to be cut, it is obvious that without some device compensating for the difference in the width of kerf cut by the saws, one cutting a wide kerf would produce thinner lumber than a saw cutting a narrow kerf.

In operating these devices the log is placed upon the head-blocks and properly adjusted; then, by means of the lever I, the stops G are moved forward a distance equal to the thickness of the piece of lumber it is desired to cut, added to the saw-kerf. The setting-knees C are then moved forward, carrying the log before them, until the projections R upon the knees come in contact with the stop, when the piece of lumber is cut from the log and the operation repeated. It will thus be seen that the thickness of the lumber depends wholly upon the position of the stops G, and as these are only of a few pounds weight, the friction upon their operating-screws is small, and the wear consequently of little account, thus enabling the mill to cut lumber correct in thickness for a much longer period than the mills of ordinary construction.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. The adjustable stop G, operated in connection with a saw-mill head-block, substantially as and for the purpose specified.

2. The quadrant O, provided with an adjustable stop, P, for regulating the throw of the lever I, to suit saws of different thickness.

3. The wheel L, with its friction-pulley M, in combination with the pinion *f*, screw *c*, and stop G, as set forth.

4. The gear L, with its friction-pulley M, in combination with the spring *g* and brake N, as and for the purpose specified.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

WILLIAM GLUE.

Witnesses:

M. W. CHANDLER,

S. A. TERRY.