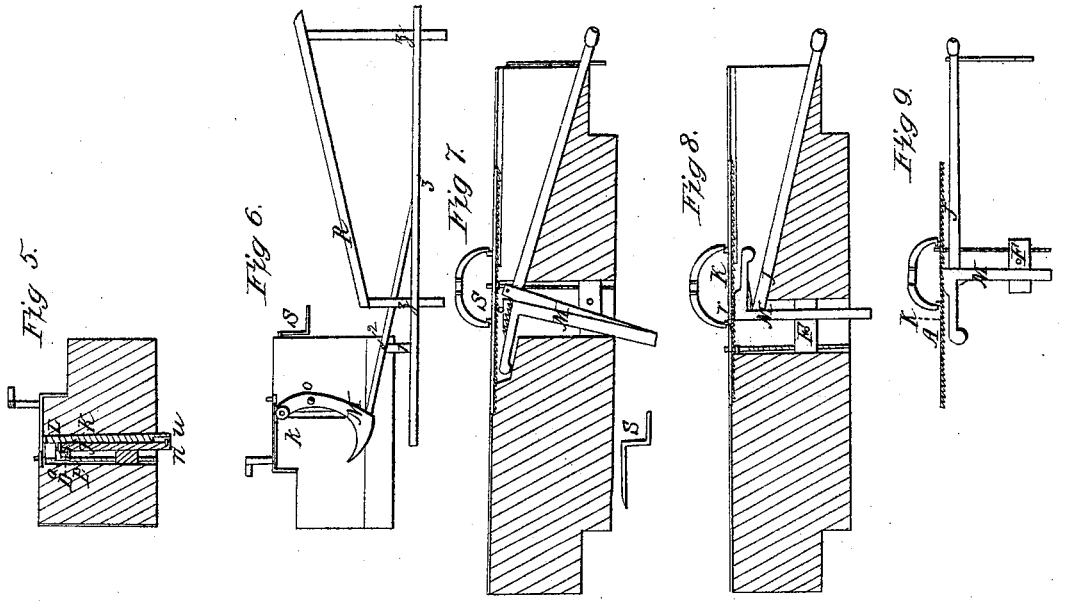
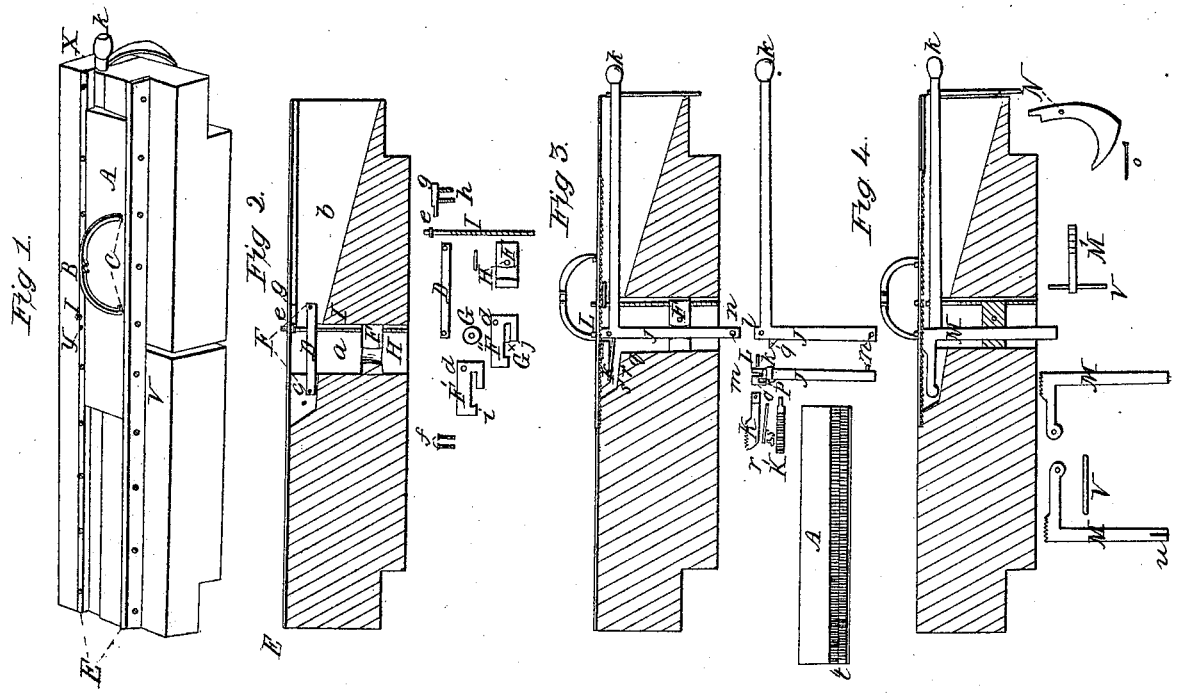
H. Mellish,

Saw-Mill Tail-Block.

No. 4,769. Patented Sep. 19, 1846.





UNITED STATES PATENT OFFICE.

HENRY MELLISH, OF WALPOLE, NEW HAMPSHIRE.

SELF-SETTING TAIL-BLOCK.

Specification of Letters Patent No. 4,769, dated September 19, 1846.

To all whom it may concern:

Be it known that I, HENRY MELLISH, of Walpole, in the county of Cheshire and State of New Hampshire, have invented a new and useful Improvement in the Construction of Head-Blocks for Log-Carriages for Sawmills; and I do hereby declare that the following is a full and exact description thereof, reference being had to the annexed drawings.

Figure 1, is a perspective view of the block. Figs. 2, 3, and 4, are representations of a longitudinal section of the block, showing the openings in which the apparatus for moving along and setting the slide in the top of the block is fixed, each figure showing successive additions of different parts of the apparatus distinctly, also combined and in place. Fig. 5, is a cross section of the block, dividing the dependent arm of the lever; and of the dog, showing the connection of the jack with the lever, and the lever with the dog; also the manner in which the lever rides on the bar under the slide. Fig. 6, is an end view of the block, and a longitudinal elevation of the inclined plane for raising the lever, and the latch for liberating the lever from the catch. Fig. 7, is a longitudinal section of the block showing the lever depressed, the jack and dog, liberated from the slide in order that the slide may be moved by hand. Fig. 8 is a longitudinal section of the block showing the direction of the jack, dog, and fulcrum and the teeth on the slide reversed, relatively to that of the lever, in order that the slide may be moved in a different direction. Fig. 9 is a representation of the combination, the invention of which I claim.

Fig. 1, the perspective view. I make my block in the usual form and of the usual dimension, with the exception that it should be somewhat thicker, to accommodate the motion of the lever and fulcrum.

A is a slide of cast iron in the top of the block to which the dog B, for fastening the log is attached by means of the eyes C, in usual form. This slide may be five inches wide and half as long as the block, and five eighths of an inch thick, having a rabbet at each edge on its upper surface for the purpose of receiving the guides of cast iron E which are made fast to the block and keep the slide in its groove. On the under side of this slide there are two rows of notches or teeth, parallel to each other, and stand raking in opposite directions, see plan view of slide A, Fig. 3. Near the center of the block, under the slide above described I cut a mortise five inches long by three inches and three fourths of an inch wide down through the block; then in the top of the block I cut a channel at the mortise five inches deep, and at the end of the block ten inches deep, and of proper width to accommodate the lever to be placed in it, see mortise *a*, and the channel *b* Fig. 2, at the other side of the mortise I make an opening to accommodate the jack and dog, see *c*, Fig. 2. In these openings I fix the following apparatus: Fig. 2, the fulcrum, the screw and the bar D, for the lever to ride on. This bar may be one foot long, one and a half inches wide, and half an inch thick, and made fast in the block across the mortise with the screw *f*, or other suitable means.

F, is a block of cast iron three inches deep from top to bottom, and of a length, and a breadth at the widest end, to fit the mortise above described, see plan view of its upper surface F′ which shows an opening down through the widest end for the purpose of receiving the friction roller G, see F″ where it turns on the pin H. This block is suspended in the mortise *a* by the screw I, which passes down through the screw hole *d*, and its head I up to its collar *e* through the guide E, see I, Fig. 1, the screw being suspended by passing through the plate of iron *g*, which is fastened to the block with the screws *h*.

Fig. 3 is a longitudinal section of the block showing a distinct view of the lever, the jack and the slide, and also showing them in combination with what has been described in Fig. 2. J, the lever, its dependent arm in the opening *i* in the fulcrum block F, Fig. 2, against the friction roller. This arm of the lever may be one foot four inches long, one inch thick and two inches wide, and the horizontal arm of the same width and thickness and of a length to reach three inches beyond the end of the block, at which extremity it is terminated by the friction roller *k*. At the angle of this lever there is a projection upward, for the purpose of connecting it with the jack K in the form of a hinge, by passing the pin L through the hole *l* in the projection. See the

shape of the parts forming the joint and connecting the lever and jack, *m*. See plan view of jack K.

At the lower end of the lever there is a pin projecting laterally, see *n*, for the purpose of acting upon the dog, as will be seen hereafter. There is also a projection from the angle of this lever laterally forming the hook *o*, for hanging the lever upon the bar D.

P is a pin in the lever below the bar to keep it in place; from the edge of the lever at its angle there is a third projection Q, to support the end of the spring *r* for raising the jack to which it is attached with the screw *s*. This jack may be five inches long by one and a half wide and one inch thick, with teeth along its upper surface a distance of three inches commencing at the end opposite its attachment to the lever, and corresponding to those on the slide, into the row *t* of which they are to operate.

Fig. 4 is a longitudinal section of the block showing the addition of the dog for setting the slide to the representations in the last figure. M the dog, the length, the breadth and thickness of its dependent arm should correspond with that of the dependent arm of the lever, and its horizontal arm two inches wide in its widest point, and one thick and five or more long, with teeth on its upper surface commencing at its angle, and like those on the jack (see plan view M^1). At the lower end of the dependent arm of this dog in one side there is a groove *u* to receive the pin *n* in the lever when the dog is confined in its place with the pin V on which it turns. See V, Fig. 1.

N is a catch of cast iron attached to the end of the block with the screw *o* (see Fig. 6) to hold up the end of the lever.

Fig. 5, the cross section dividing the dependent arms of the lever and dog, showing the pin *n* in groove *u* and the joint *m*, Fig. 3 (see Fig. 6), the pin *n*, the groove *u* and K, the jack J, the lever and L the pin forming the joint D, the bar *o*, the hook over it and by which the lever is suspended, P the pin in the lever below the bar to keep it in place.

The apparatus above described for moving and setting the slide being fixed in its place I cover the channel in which the lever is placed with sheet iron *x*, Fig. 1.

Fig. 4 shows the setting of the slide by the jack and dog and will be seen by the following explanation: To move along and set the slide, depress the lever (the liberating of the lever from the catch will be shown hereafter) which will draw back the jack under the slide, so that its teeth will catch upon other teeth in the row it acts upon by being thrown up by the spring *r*, the dog M being thrown down at the same time by the action of the lever, its pin *n* in the groove *u* of the dog. See Fig. 7. The jack in this figure is represented as relieved from the action of the spring below it for another purpose, but should be considered in explaining the moving and setting of the slide as still acting upon its row of teeth. Now it will be seen that the jack when the lever is raised will act upon the slide and move it along and that the dog will at the same time be acted upon by the pin *n* in the lever and raised, its teeth to act upon those of the slide and set it as seen in Fig. 4.

As the distance through which the slide at the top of the block is to be moved at a single sweep of the lever is regulated by raising or depressing the fulcrum I manage as follows:

If two inches be the thickness of the stuff to be sawed, or set for, I let down the fulcrum by turning the screw I, Fig. 1, till the slide A will be moved along that distance and the thickness of the saw added, and then pass a rod of sufficient length down through a hole *y* in the guide, down on to the top of the fulcrum block, and mark the rod at the top of the guide. Then if the thinnest stuff to be set for be three-eighths of an inch, I raise the fulcrum till the slide moves through that distance and the thickness of the saw, and mark it as before. I then divide the space between these two points into thirteen parts, which gives the eighths between them; these marks on the rod serve as a scale to set the fulcrum by, or gage the thickness of the stuff.

Fig. 6, the end view of block and inclined plane R, the inclined plane, made by passing two props through a piece of plank five or six inches wide and four feet long (see *z*) for the purpose of supporting another piece three inches wide at their upper ends at a proper height to form an inclined plane to raise the end *k* of the lever and to pass down through holes in the floor by the side of the way on which the log carriage runs. These two posts are passed through the edge of the plank farthest from the end of the block, as seen in the figure. Another prop is passed through at the other edge and near the end of the plank (see 1) at the top of which there is a tenon passing through another piece of plank one and a half inches wide and which turns on a pin passing through it and the tenon (see 2). One end of this last piece of plank is elevated so as to come in contact with the lower end of the catch N and the other end on the plank 3.

S, is a round rod of iron bent in the form of a crank, with a beveled point as seen in the figure, see Fig. 7, for the purpose of liberating the jack from the slide, in order that it may be moved back when required, and which for that purpose is to be passed into a hole in the back side of the block, see S, on a level with the upper surface of the jack, and between the point of attachment to the

lever and the teeth, so that by passing the rod its beveled side down and its point over the jack and giving it a turn half round the teeth of the jack will be thrown down out of the notches (the lever being depressed at the time) see end of the rod over the jack S, Fig. 7, when the slide may be thrown back by hand.

As two blocks are made use of in every carriage I will here observe (as they are distinguished by the terms head block and tail block) that the above perspective view is that of the tail block, or the one which holds the end of the dog opposite to that at which the saw sets in. The only difference in the construction of the other, consists in applying the apparatus for moving the slide half way between the end of the block and the saw, with a short slide over it and which moves only to the middle of the block.

Fig. 8 is longitudinal section of the block showing the direction of the jack, dog, and fulcrum and the teeth on the slide reversed, relatively to that of the lever, in order that the slide may be moved in an opposite direction, the apparatus being precisely the same as that above described with the exception that the angle of the lever J, is an acute instead of a right angle, and the operation and effect, the same, with the exception that the lever is depressed, instead raised to move and set the slide. K, the jack above the horizontal arm of the lever. M, the dog, its horizontal arm covering the jack *r*, the spring for raising the jack its point bearing upon the lever, F, the fulcrum block.

Operation: After placing the log on the blocks and dogging them, and setting the inclined plate R, Fig. 6 in opening in the floor by the side of the carriage way, the lever with the friction roller *k* being raised and kept up by the catch N, put the saw in motion. While sawing through the log the lever being raised will pass over the highest point of the inclined plane R and the lower end of the catch over the latch 2, without being acted upon, but on the passage back of the carriage it will be seen that the catch N will come in contact with the upper end of the latch which will move the upper end of the catch out from under the lever and let it fall, which will liberate the teeth of the dog from those of the slide, draw back the jack so that its teeth would be liberated from the slide and catch upon other teeth in its row, then on the carriage passing still farther back it will be seen that the end of the lever would pass on to the inclined plane and be raised, and the catch fall under it; the lever in the block at the saw end of the carriage (or head block) being operated by hand.

When the log has been sawed and discharged from the blocks, the rod or crank S may be used as above described to liberate the jack from the slide, when the slide may be thrown back by hand.

The advantages of this mode of constructing head blocks are, 1st, the setting the slide in a permanent manner so that it can not be moved by the crowding of the saw; 2d, its not being liable to wear by friction and become loose; 3d, its cheapness and compactness.

It is intended that the material, the dimensions, and proportions, and mode of application may be varied to suit the views and purposes of the constructor.

Claim, see the combination Fig. 9.

What I claim and desire to secure as my invention, by Letters Patent, is—

The reversed rows of teeth on the under side of the slide A, the jack K, and the angular lever J, and dog M, for moving and setting the slide, the horizontal bar on which the lever rides, for guiding the jack in a direction parallel to that of the slide, and the movable fulcrum in its block F, for gauging the thickness of the stuff to be sawed; and it is to be expressly understood, that I claim them, not separately, but in the combination substantially in the manner, and for the purpose herein set forth.

HENRY MELLISH.

Withnesses:
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PAMELIA S. STACKWEATHER.