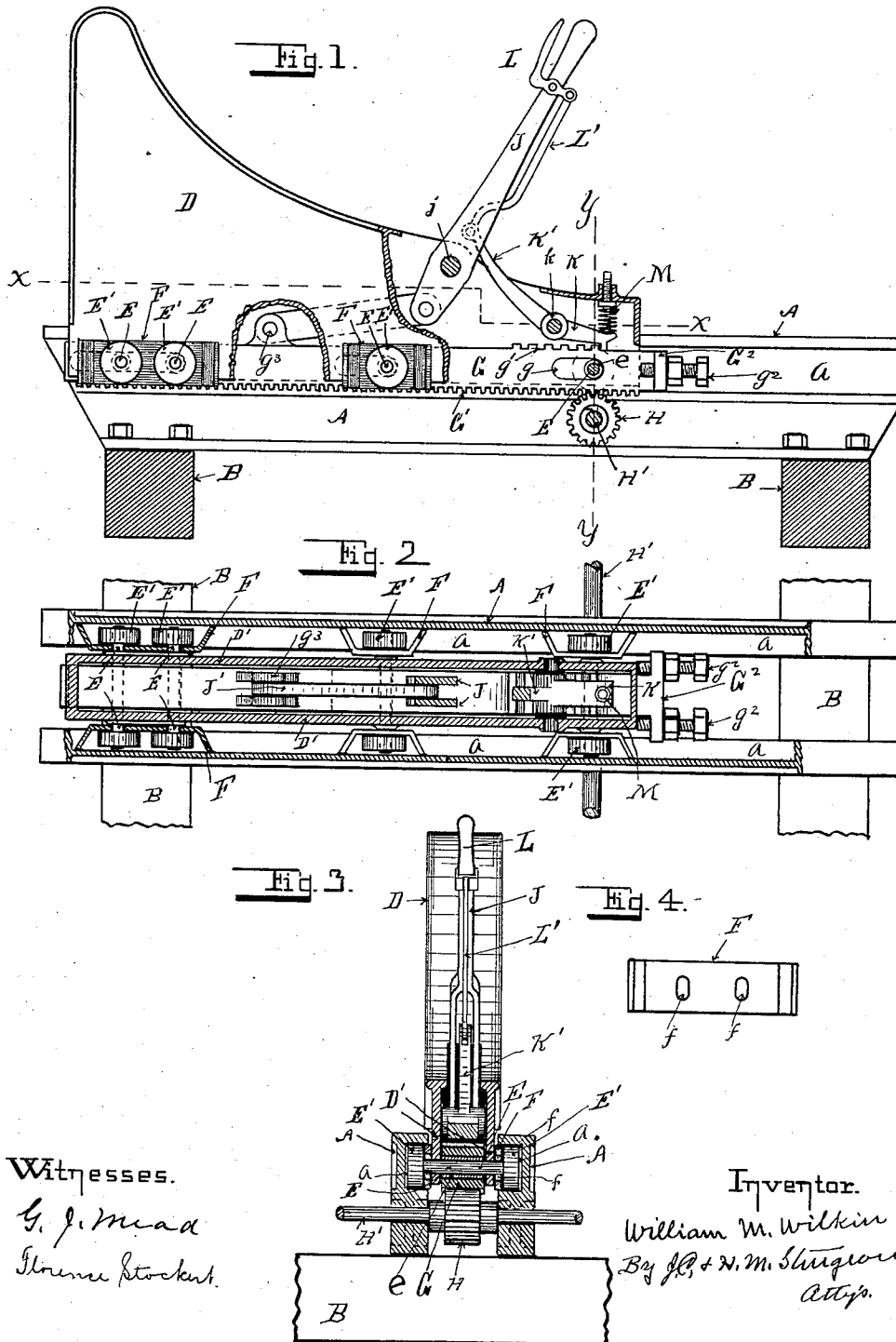


W. M. WILKIN.
SAWMILL HEAD BLOCK.
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1,065,993.

Patented July 1, 1913.



Witnesses.

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UNITED STATES PATENT OFFICE.

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SAWMILL HEAD-BLOCK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM M. WILKIN, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Sawmill Head-Blocks; 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to saw-mill head-blocks, and has for its object the production of a head-block which will overcome certain difficulties now existing in the construction and operation thereof.

Heretofore head-blocks for saw-mill carriages have been made by providing the base with grooves and a knee with tongues sliding in said grooves. In practice these tongues and grooves become gummed up with oil and dust so that it is difficult to move the knee. Then in addition to this trouble, when large round logs are against the knees the center line thereof being high up on the faces thereof they rise up on the front end of the knees when the knees are employed to force the log forward on the head-block toward the saw. And as the log is inclined to roll on the head-block, it operates to lift upward on the knee, and especially so when the knee is supplied with dogs which engage the log to prevent it from rolling. This upward lift on the front end of the knee tends to bind and lock the tongues of the knee to the upper wall of the groove in the head-block to such an extent that it takes more power to overcome this friction, unless well oiled, than to move the log. The consequence is that the tongues on the knees wear off at their front ends on the upper sides thereof to such an extent, that when the dogs on the knees are forced down into cants on the head-blocks the knees will be lifted at the front end thereof, thereby throwing the faces of the knees out of perpendicular, which will leave the last board thicker at its upper edge than at its lower edge. The present practice of making the groove in the block and the tongue on the outsides of the knee with a sliding fit in said grooves, and then mounting the rack-bars by means of tongues and grooves on the

inside of the knee so that the rack-bar is supported by the walls of the knee, closes all passages down through between the block and the knee, and between the inside walls of the knee and the rack-bar, so that all dirt and dust which lodges therein works into the grooves thereby necessitating frequent cleaning out. To obviate and overcome these difficulties I provide the head-block with lateral channels or flanges in which channels rollers operate. These rollers are preferably secured on shafts or axles journaled in the knee and operate to carry the knee entirely free from contact with the head-block. This construction also leaves a free opening down through between the block and the knee so that dirt and dust cannot lodge therebetween and interfere with the moving of the knee, and when upward pressure is exerted on the knee, as hereinbefore described, the rollers come in contact with the flange forming the upper walls of the channels and form a roller bearing with no tendency to lock as in case of the ordinary sliding bearing, thus relieving the operator from extreme labor in setting the log forward.

In the preferred construction of my head-block I put the roller shafts or axles through the knee and secure the rollers operating in said channels on said shafts or axles so that their shafts or axles will revolve in bearings in the knee, while the rack-bar is provided with slots through which the shafts or axles of the rollers pass, and while the rack-bar is thus supported on the roller axles, it is otherwise independent of the knee except for the connecting link between it and the hand lever. This leaves free passage down through between the inside walls of the knee and the sides of the rack-bar. The object of the slots in the rack-bar is to permit the knee to be adjusted with relation to the rack-bar to compensate for the taper of a log. This movement of the knee forward over the rack-bar I preferably obtain through a hand-lever pivoted to the knee and connected to the rack-bar by means of a link; a dog is also provided which engages teeth in the upper side of the rack-bar, and a spring to hold the dog in engagement with the teeth on the rack-bar. This dog is operated by a hand-grip at the top of the hand-lever whereby the dog can be raised out of engagement with the rack-teeth, when it is desired to move the knee, and again dropped

into engagement with the rack-bar thus holding the rack-bar and knee together until released, and the knee moved back to its normal position. When all of the knees of the saw-carriage are moved backward into line, I have provided projections on the sides of the rear end of the rack-bar in which are placed adjusting screws, by means of which an accurate adjustment of the rack-bar with relation to the securing dog can be made, so that the last board may be of the required and uniform thickness. With this arrangement of mechanism there will be no strain on the hand lever, as is the case with all other set-works wherein all of the shock of loading falls on the link, hand-lever and quadrant, as head-blocks are ordinarily constructed, thereby causing lost motion and frequent breaking of parts.

In operating head-blocks, the present practice is to recede the knees either by friction gears, or by means of coiled springs on the setting shaft, which, when the dog is released causes the knees to run backward for the reception of another log. In most cases where springs are used for this purpose they have to be wound very tightly on the shaft in order to get tension enough to give the requisite power to move the knees backward when the grooves or ways in the blocks become clogged with gum and dirt; consequently the operator has to labor just that much harder to overcome the tension of the spring in addition to moving the weight of the log; and when friction gears are used they usually wear away rapidly; with my device all this trouble is overcome to a very great extent, and when a spring is used to move the knees backward it is not necessary to keep it wound up so tightly.

The features of my invention are herein-after fully set forth and described, and are illustrated in the accompanying drawings in which:

Figure 1 is a side view in elevation of my improved head-block with parts of the knee broken away and one side of the base block removed. Fig. 2 shows a horizontal section of the knee portion of the head-block on the line $x-x$ in Fig. 1, and also shows the upper flanges of the block-beams broken away. Fig. 3 shows a rear view of my improved head-block, partly in elevation and partly in section on the line $y-y$ in Fig. 1, looking toward the front end of the block. Fig. 4 is a detail showing in elevation one of the roller dust shields, detached.

In these drawings illustrating my invention, A, A, are the base beams of the head-block, and are adapted to be secured to suitable longitudinal timbers, B, B, of the saw-carriage. These beams, A, A, of the head block are provided with flanges and channels a, a , and are placed at such a distance apart that the lower, bifurcated, part of the

sliding knee, D, will enter and slide longitudinally between them.

In suitable bearings in the bifurcated portion, D', of the knee D, I preferably mount axles, E, upon the ends of which axles I secure rollers, E', which fit and roll in the channels, a , in the beams, A, A, of the head-block, so that the knee, D, is carried freely back and forth on said rollers, E', in the channels, a, a , of the beams, A, A, of the head-block. To cover and protect the rollers, E', from dirt and dust, and to clear away any dirt and dust accumulating in the channels, a , out of the path of the travel of the rollers, E', I preferably provide shields, F, (see Fig. 4) which embrace and inclose the rollers, E', as is clearly shown in Fig. 2, the axles, E, of the rollers, E', passing through vertically elongated holes, f , so that the shields, F, will not bear any of the weight of the knee, D, or of the strain exerted thereon during the operation thereof.

Upon the axles, E, of the rollers, E', between the bifurcated lower portions, D', of the knee, D, I mount a rack-bar, G, which is provided with elongated slots, g , through which the roller-axles, E, pass, so that there may be a longitudinal movement of the axles, E, therein, and to prevent wear upon the axles, E, and the wall of the slots, g , of the rack-bar, G, I preferably place sleeves, e , on the axles, E, where they operate in the slots, g , as is clearly shown in Figs. 1 and 3. On the lower edge of the rack-bar, G, there is a continuous rack, G', adapted to be engaged by the gear-pinion H, on the setting-shaft, H', and on the upper edge of the rear portion of the rack-bar, G, I place a section of rack-gear, g' , for the purpose hereinafter set forth, and on the rear end of the rack-bar, G, there is a cross-head, G², projecting beyond the plane of the sides of the rack-bar which is provided with set-screws, g^2 , adapted to engage the rear ends of the bifurcated portion, D', of the knee, D, whereby the rack-bar, G, can be given a normal adjustment with relation to the knee, D.

In the rear portion of the knee, D, I mount an upright lever, J, upon a pivot, j , intermediate of its length, and from the lower end of the lever, J, there is a link J', which is pivoted to an ear, g^3 , on the upper edge of the rack-bar, G, and mounted in the rear portion of the knee, D, there is a dog, K, pivoted intermediate of its length on a pivot, k , which dog, K, is adapted to engage the section of rack-gear, g' , on the upper edge of the rack-bar, G, whereby the rack-bar, G, and knee, D, can be quickly adjusted with relation to each other, to suit the taper of a log, or for other purpose, and firmly retained in such temporary adjustment as long as may be desired. For operating the dog, K, a grip-lever, L, is piv-

oted to the upper end of the lever, J, having a link, L', extending therefrom to the arm K', on the dog, K, and to prevent the accidental disengagement of the dog, K, I provide a spring, M, which operates on the end of said dog to retain it in engagement with the teeth, g , on the rack-bar, G.

In operation, when it is necessary to adjust the knee, D, somewhat forward so as to split a squared cant of timber into boards in such a manner that the last board will be of even thickness with the others, the knee, D, can be adjusted with relation to the rack-bar, G, by means of the lever J, and dog, K, the operator can throw the knee forward or backward with relation to the rack-bar, G, for the purpose of overcoming the taper of a log so that the saw will cut a line parallel with the longitudinal center of the log, and the dog, K, when in engagement with the section of rack-gear, g' , will firmly retain the knee and rack-bar in the relative positions to which they have been so adjusted until it is desired to move them back to their normal position as established by the set-screws, g^2 by means of the set-screws g^2 , in the rear of the rack-bar G, any lost motion between the dog K, and the rack-teeth G' , on the rack-bar G, can be taken up. In all the other respects the head-block is operated in the usual manner.

Having thus described my invention so as to enable others to construct and utilize the same, what I claim as new and desire to secure by Letters-Patent is:

1. In a structure of the character described, head-block beams having longitudinal channels in their adjacent faces, a knee having a channel in the lower portion thereof, mechanism extending through the lower part of said knee and projecting into the channels in the head-block beams adapted to support said knee, and a rack-bar mounted in the channel in said knee and supported therein by the mechanism extending

through and supporting said knee substantially as set forth.

2. In a structure of the character described, a bifurcated knee, transverse shafts pivoted in the lower bifurcated portion thereof, a rack-bar slidably mounted on said transverse shafts, teeth on said rack-bar, dog mechanism pivoted in said knee and engaging said teeth, means to operate said dog mechanism, and lever mechanism for adjusting said rack-bar with relation to said knee, substantially as set forth.

3. In a structure of the character described, a head-block having channels on the inside faces thereof, a knee operating on said block, rollers on said knee operating in the channels of the head-block, axles passing through the knee and connecting said rollers, a rack-bar mounted on and carried by said axle within said knee and spaced therefrom, and setting-gear mounted in said head-block and engaging said rack-bar, substantially as set forth.

4. In a structure of the character described, head-block beams having channels therein, a bifurcated knee, transverse shafts journaled in the lower portion of said bifurcated knee, anti-friction devices on the ends of said shafts at each side of said knee operating in the channels in said head-block beams, a rack bar slidably supported within said knee upon said transverse shafts and spaced from each side of said knee, means to adjust said rack-bar with relation to said knee, means adapted to maintain said rack-bar in adjusted position, and means to move said knee and rack-bar forward and backward on said head-block beams, substantially as set forth.

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

WILLIAM M. WILKIN.

Witnesses:

H. M. STURGEON,
P. V. GIFFORD.