C. Leffingwell,

Head-Block for Saw-Mills.

No. 93,724. Patented Aug. 17. 1869.

Fig: 1.

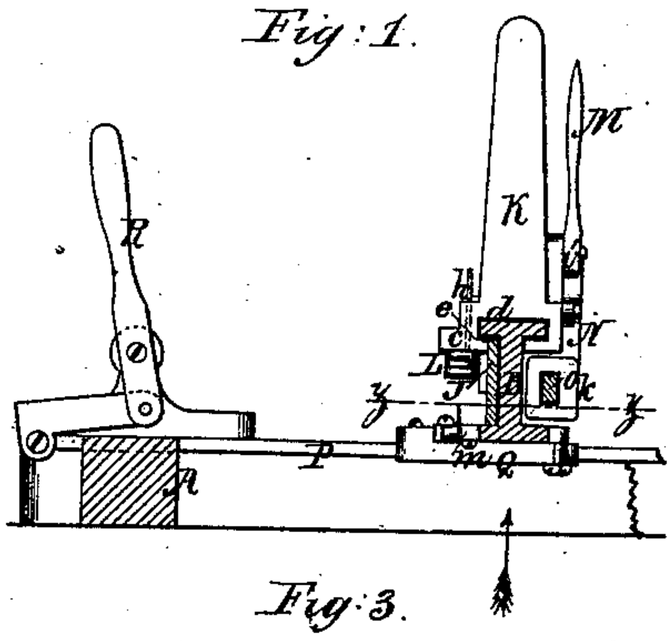


Fig: 2.

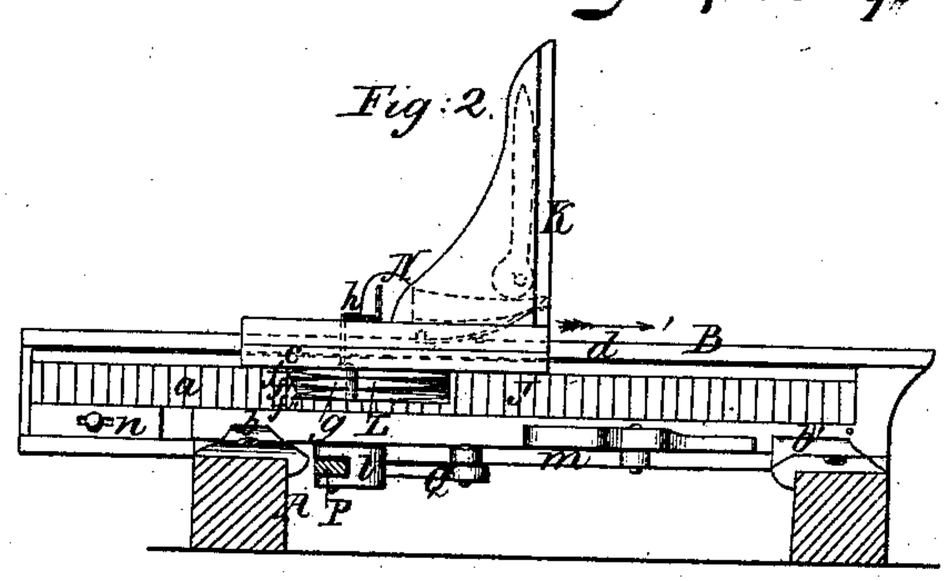


Fig: 3.

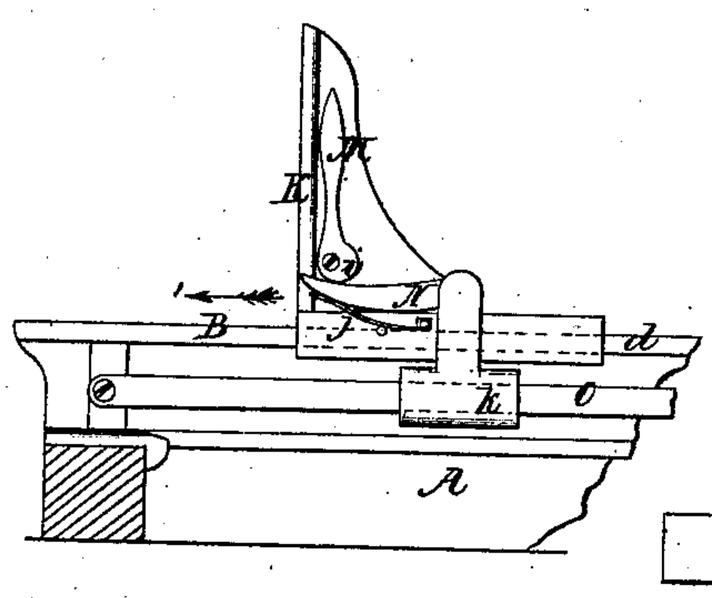


Fig: 4.

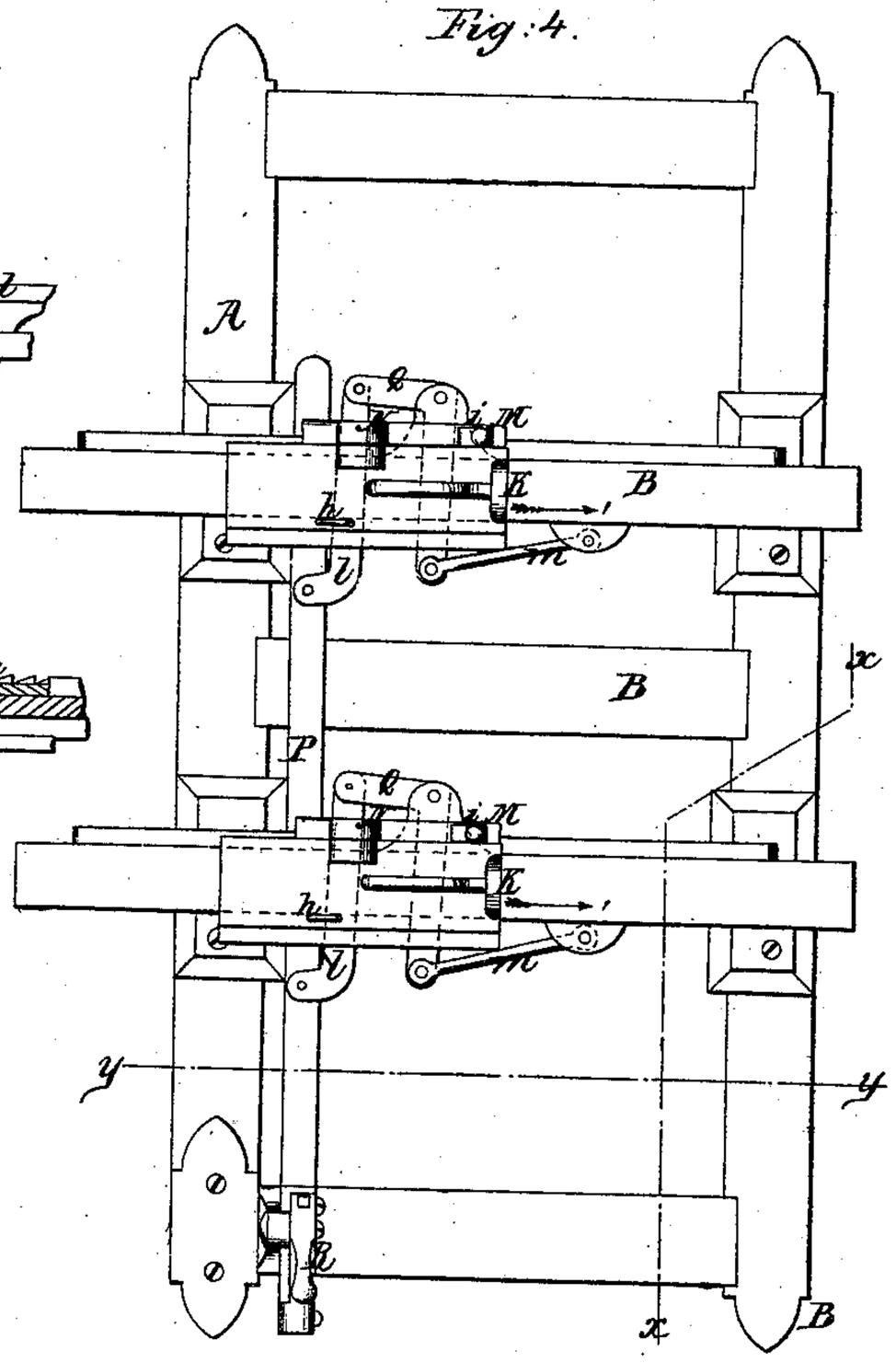
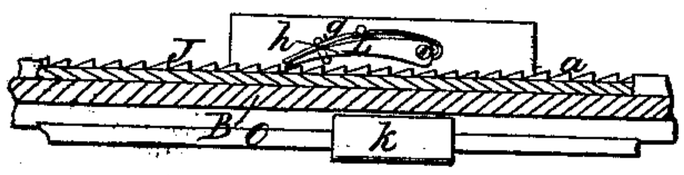


Fig: 5.



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C. LEFFINGWELL, OF CLARKSBURG, OHIO.

Letters Patent No. 93,724, *dated August* 17, 1869.

IMPROVEMENT IN HEAD-BLOCKS FOR SAW-MILLS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, C. LEFFINGWELL, of Clarksburg, in the county of Ross, and State of Ohio, have invented a new and useful Improvement in Head-Blocks for Saw-Mills; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim, and desire to have secured to me by Letters Patent.

This invention relates to a new and improved head-block for saw-mills, and is an improvement on a head-block for which Letters Patent were granted to me, bearing date July 3, 1866.

The invention consists in a peculiar means employed for holding the knees in position, the mechanism for moving the knees, and stops arranged in a novel way for regulating the movement of the knees in order to saw boards and planks of different thicknesses, as may be required.

In the accompanying sheet of drawings—

Figure 1 is a vertical section of my invention, taken in the line *x x*, fig. 4.

Figure 2, a vertical section of the same, taken in the line *y y*, fig. 4.

Figure 3, a side view of one of the knees and a portion of the head on which it works.

Figure 4, a plan or top view of the whole device.

Figure 5, a horizontal section of a portion of the same, taken in the line *z z*, fig. 1.

Similar letters of reference indicate like parts.

A represents the log-carriage, and

B B, head-blocks, permanently secured thereto in any proper manner.

These blocks are of I-form in their transverse section; and to one side of the same there are placed racks J, which are provided with vertical teeth *a*.

These racks are allowed to slide freely at the sides of the blocks, and are retained in position at their lower edges by guides *b b'*, and at their upper edges by the bases *c* of the knees K, the lower edges of the bases at one side extending under the upper flanges *d* of the blocks, and bearing against the rack-bars, as shown at *e* in fig. 1.

To each base, *c*, of the knees there is attached by a pivot, a pawl, L, and these pawls have each a plurality of edges *f f'' f'''*, one a trifle in advance of the other, as shown clearly in fig. 2, in order to admit of the racks engaging with the pawls without any lost motion.

These pawls have springs *g*, acting upon them to keep them in contact with the racks, but the pawls may, when desired, be thrown out from the racks by means of cranks or eccentrics on vertical shafts, *h*, in the bases.

The pawls may be arranged in pairs on studs, each pair being provided with a crank, *h*, so that one set may be held out of gear while the other is in use, or, if desired, both sets may be used at the same time.

To each knee K, at one side, there is attached a lever, M, having an eccentric, *i*, on its lower end, against which the upper arms of bent or right-angular levers N are made to bear under the influence of springs *j*. (See fig. 3.)

The lower arms of these levers have sockets *k* attached to or formed on them; and through these sockets fixed bars O, which are attached to the sides of the head-block, pass.

By means of the springs *j*, the lower end of the lever N is pressed forward, forcing the sockets *k* to gripe the bar O, holding the knees firmly in place.

By depressing the upper arms of the levers by means of the eccentric levers M, the sockets *k* are released from the bar O, so that the knees may be moved in either direction upon the head-blocks.

The racks J are operated as follows:

P is a sliding bar, placed underneath the blocks B B, and fitted in recesses in the cross-bars of the log-carriage. This bar P is connected by arms *l* to one end of bent or right-angular levers Q, secured to the under sides of the blocks, the opposite ends of said levers being connected by rods *m* to the racks J. The bar P is connected at one end to a lever, R, by moving which the bar P is operated, and consequently the racks, and from the latter the knees K, the knees being moved in one direction only, that indicated by arrow 1, in order to feed the log to the saw, as the teeth of the racks catch or engage with the pawls, when the former are moved in the direction of arrow 1, the teeth slipping past the pawls when the racks move in the opposite direction, a retrograde movement of the knees being avoided by the friction produced by the pressure of the sockets *k* on the bars O.

The extent of the movement of the racks J is an important feature, as by that the thickness of the boards or planks to be sawed is determined.

The length of the movement of the racks is controlled by stops *b'* and *n*, the former having been previously referred to as guides. The latter are adjustable, being secured to the blocks by screws *o*. The excess of the length of the distance between the inner edges of the stops *b' n* (see fig. 2) over the length of the racks J is equal to the setting movement of the knees, and consequently equal to the width of the boards or planks to be sawed, and the width may be varied as desired by adjusting the stops *n*.

By placing the stops *b' n* at the extremities of the setting-apparatus, the lost motion caused by the dif-

ferent weight of the logs to be sawed is equalized; that is to say, by operating the lever R, and through its connections the knees, the latter are moved, feeding the log forward until the rack at the lighter end of the log strikes the stop *b'* upon the head-block, thereby reaching the limit of its throw, while the rack at the heavier end of the log has not, through different causes, reached the other stop.

If the log should be sawed in this position, the lumber would necessarily be thicker at one end than at the other. It is, therefore, necessary that the heavier end should be fed forward to overcome this difficulty, which is accomplished by continuing the pull upon the lever R, the last motion of the lever-connections in the rack already in position permitting this extra pull, continuing the motion produced thereby to the lever-connections of the rack at the heavier end of the log. The stops *n* limit the backward throw of the racks.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. The device for preventing a casual retrograde movement of the knees K, to wit, the bent or right-angular levers N, with sockets *k* and the bars O, which pass through the sockets, all being arranged and applied substantially as shown and described.

2. The pawls L, one or more, in combination with the sliding or reciprocating racks J, the eccentric or crank-shafts *h*, fixed stops *b'*, and the adjustable stops *n*, the whole constructed, arranged, and operating substantially as and for the purpose specified.

C. LEFFINGWELL.

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