S. R. Smith,

Saw-Mill Head-Block.

No. 36,552. Patented Sep. 23, 1862.

Fig 1

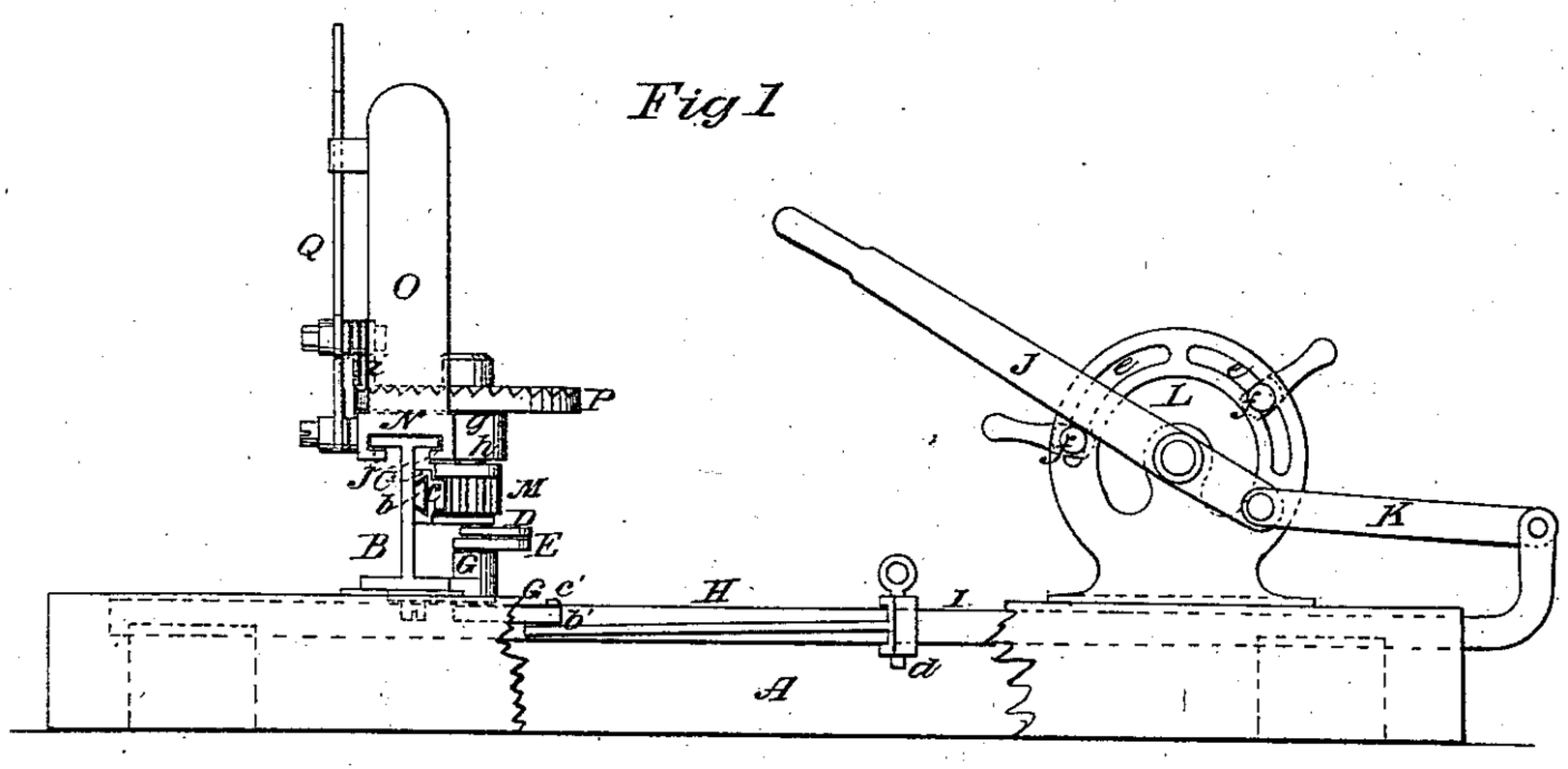
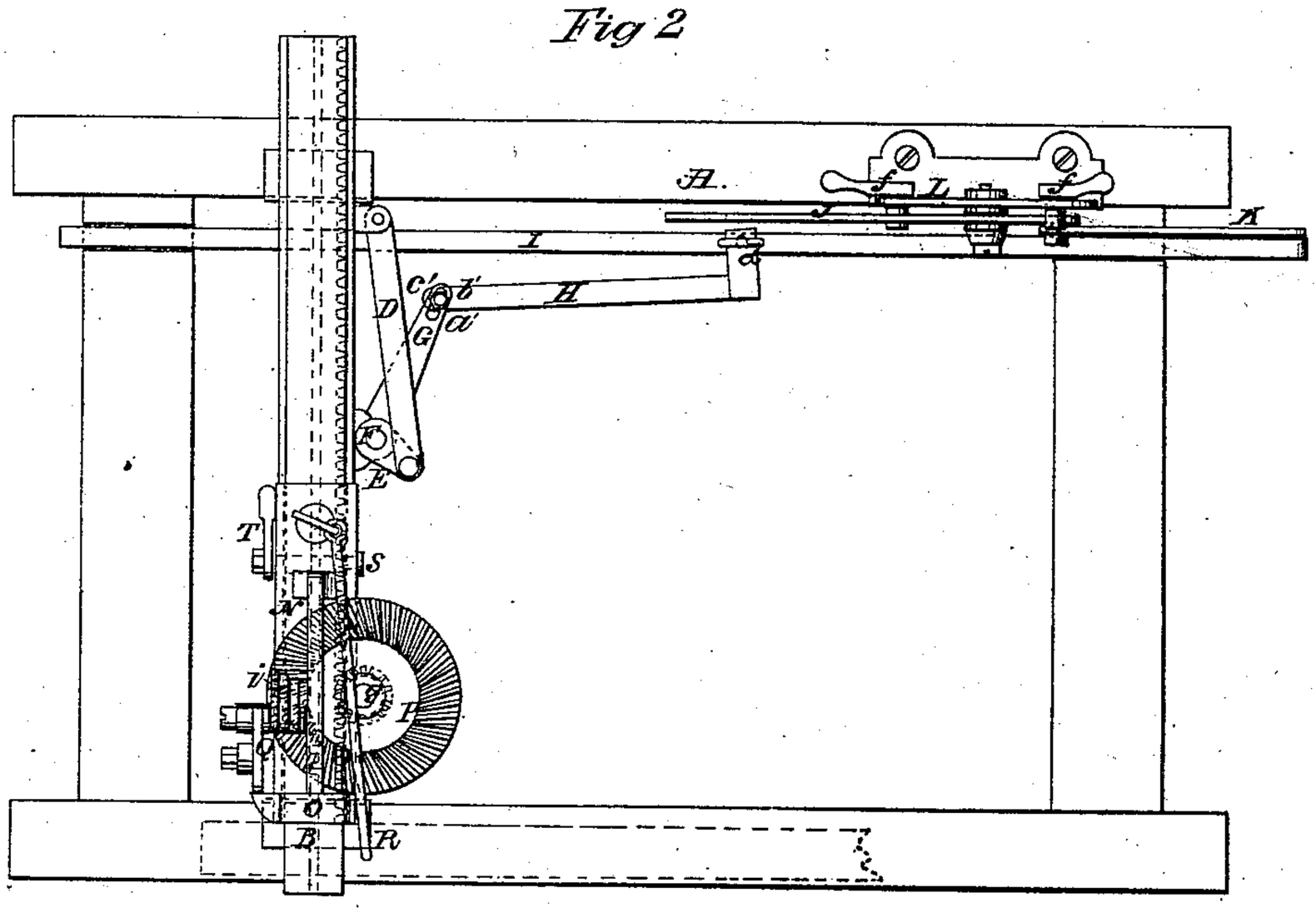


Fig 2



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL R. SMITH, OF CINCINNATI, OHIO, ASSIGNOR TO LANE & BODLEY, OF SAME PLACE.

BLOCK FOR CIRCULAR-SAW MILLS.

Specification of Letters Patent No. 36,552, dated September 23, 1862.

To all whom it may concern:

Be it known that I, SAMUEL R. SMITH, of Cincinnati, in the county of Hamilton, and State of Ohio, have invented certain new and useful Improvements in Head-Blocks for Circular-Saw Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my invention. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates 1st to an improved block or base-piece constructed of wrought-iron and 2nd to a new and improved means for operating the knees of the head blocks as hereinafter fully shown and described, whereby the log may be adjusted accurately to the saw, any variation in the racks or mechanism connected therewith being duly compensated for by a very slight adjustment of parts so that both knees of a mill carriage may be operated simultaneously and with an equal movement.

The invention relates 3rd to an improved manner of attaching the racks to the blocks or base pieces on which the knees slide, whereby said blocks or base-pieces are not weakened as hitherto by being perforated with holes.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A represents a saw-mill carriage which may be constructed in the usual or in any proper way and B is a block or base-piece which is secured transversely to the carriage. This block or base piece is constructed of wrought iron and it is of **I**-form in its transverse section as shown clearly in Fig. 1, and may be formed or constructed by rolling similar to railroad rails.

At one side of the neck *a* of the block or base-piece B, there is a horizontal rib or projection *b*, the upper and lower surfaces of which are beveled or inclined so as to form a dovetail as shown in Fig. 1, and on this rib or dovetail projection a rack C, is placed, said rack having a recess *c*, made longitudinally in its back surface which is provided with beveled or inclined upper and lower surfaces corresponding to the rib or projection *b*, the latter fitting snugly in the recess but the rack being allowed to slide freely on the rib or projection as will be fully understood by referring to Fig. 1. The rack C, has its teeth at its outer side and it is connected by an arm D, to a short crank E, at the upper end of a shaft F, the bearing G, of which is attached to the lower part of the block or base-piece B. To the lower end of the shaft F, there is secured a crank G, which is at right angles to the crank E, at its upper end.

The crank G is considerably larger than the crank E, and the former has an oblong slot *a'*, made longitudinally near its outer end in which a bolt *b'*, attached to an arm H, is fitted. This bolt *b'*, is secured at any point in the slot *a*, by means of the nut *c'*, on its upper end. The arm H, is attached by a pin *d*, to a slide bar I, which is operated by a lever J, the latter being connected at its lower end to the bar I, by means of a link K. The lever J, is placed by the side of a circular plate L, which has segment slots *e*, *e*, made in it to receive adjustable stops *f*, *f*, between which the lever J, works see Fig. 1. The rack C, it will be seen is moved or operated by actuating the lever J.

M, is a pinion which gears into the rack C, and is attached to the lower end of an upright shaft *g*, which is fitted in a bearing *h*, that is secured to a side N, on the block or base-piece B. This side N, has an upright knee O, attached to it and on the upper end of the shaft *g*, there is secured a ratchet wheel P, into which pawls *i*, attached to a lever Q, engage. The slide N, is allowed to slide freely on the block or base-piece B; it is simply a plate provided at its sides with pendant lips *j*, of hook form which catch under the upper edges of the block or base-piece B, as shown in Fig. 1.

The operation is as follows: The log to be sawed is placed on the blocks or base-pieces B, (there being two on the carriage one near each end of it,) and the knees O, are adjusted snugly to the log and the latter placed or disposed properly on the blocks or base-pieces by actuating the levers Q, the pawls *i*, and ratchet wheels P, turning the pinions M, and causing the slides N, and knees O, to move. The logs are secured to the knees by dogs R, which may be arranged in the usual way. The log is fed laterally to the saw after each cut is made and the carriage gigged back, by actuating

the lever J; in this case it will be understood that the pinion is held stationary by means of the pawls *i*, and ratchet wheels P, the pinions M, forming the connection between the racks C, and the slides N. The length of movement of the slides N, is regulated by adjusting the stops *f*, *f*, as previously alluded to.

The arms H, of both racks are attached to one and the same bar I, and consequently both knees are moved simultaneously.

The advantages obtained by this invention are as follows.

1st The block or base-piece B, in consequence of being constructed of wrought-iron is extremely light and durable and may be readily adjusted to the carriage at any desired point. The ordinary cast-iron blocks are heavy and consequently moved or adjusted with great difficulty and labor and are much inferior in strength.

2nd By attaching the rack C, to the block or base-piece as shown, to wit by means of the dovetail rib or projection *b*, fitting in the recess *c*, in the back or inner side of the rack the block or base-piece is not at all weakened by the application of the rack to it—in fact the former is rather strengthened than otherwise. The reverse is the case when the rack is fitted between guides attached to the blocks, the bolt holes rendering the latter quite weak.

3rd The arrangement of the arms cranks and bars form a simple means for actuating the racks C, and by having the arm H, connected to the crank G, by a bolt *b'*, passing through an oblong slot *a'*, in the crank G, the latter, by adjusting the bolt *b'*, in the slot *a'*, nearer to or further from the shaft E, is of course increased or diminished in length, and any irregularity between the racks C, or pinions M, of the two blocks may be compensated for so as to insure an equal movement of both knees O, O.

I would remark that the slide N, may be prevented from casually moving by means of a clamp or eccentric S, having a lever T, attached to one end of it, the clamp or eccentric being so arranged as to bind or bear upon the upper surface of the block or base-piece B, by turning the lever T.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is,

1. A head block for saw mill carriages provided with a block or base-piece B, of wrought-iron substantially as set forth.

2. Connecting the rack C, to the block or base-piece B, by means of a dovetail rib or projection *b*, on the rack *a*, of the block or base-piece and fitted in a recess *c*, in the back surface of the rack substantially as described.

3. The combination of the arms D, H, cranks E, G, and slide bar I, arranged in connection with the lever J, and stops *f*, *f*, in the plate L, for actuating the rack C, and knee O, as specified.

4. Securing the crank G, to the arm H, by means of the bolt, *b'*, fitted in the oblong slot *a'*, of the arm H, for the purpose of varying the length of crank G, and equalizing the movement of the knees O, as set forth.

S. R. SMITH.

Witnesses:

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