E. H. STEARNS.

HEAD BLOCK.

No. 81,837. Patented Sept. 1, 1868.

Fig 1

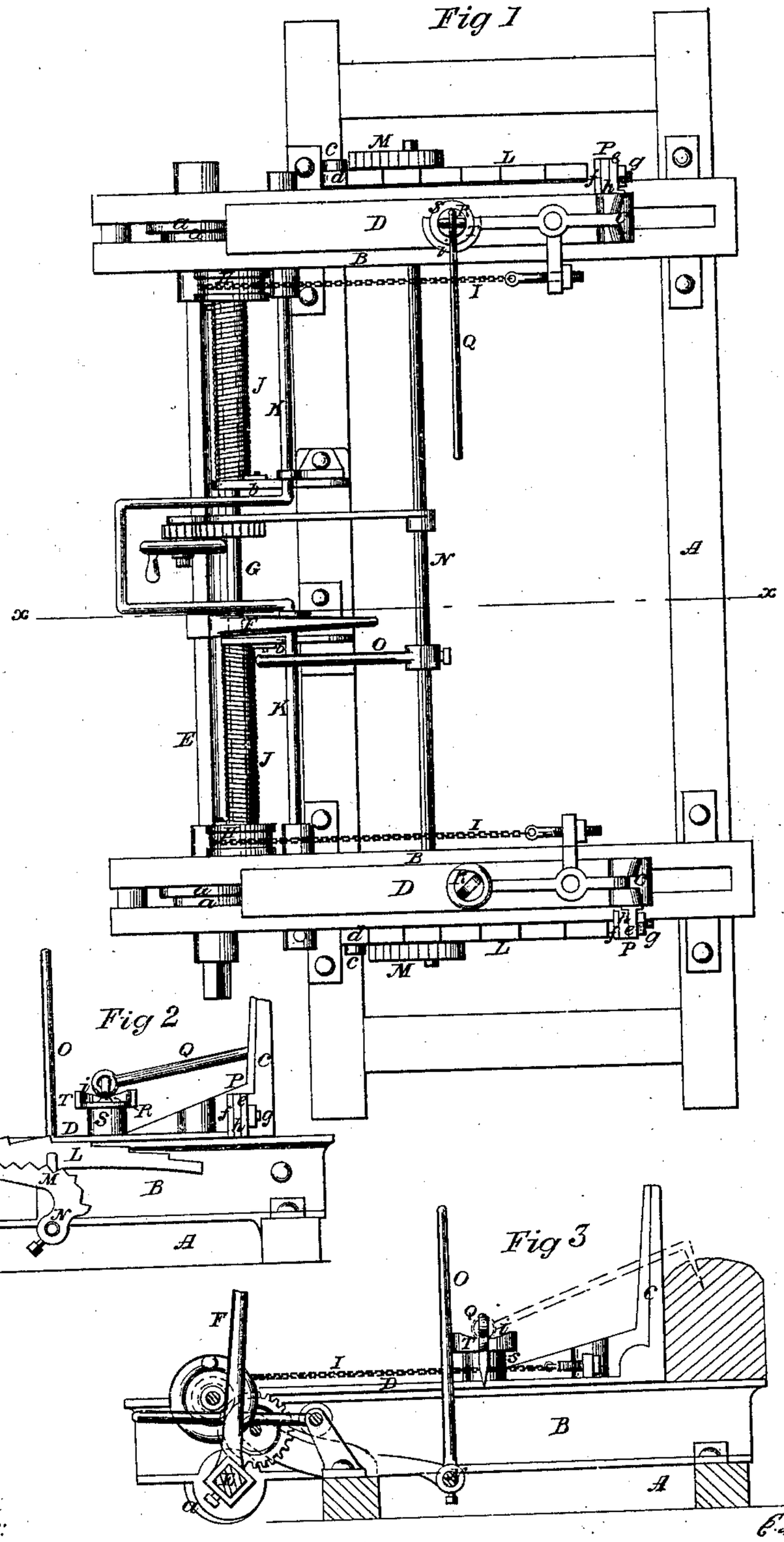

Fig 2

Fig 3

Witnesses:

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UNITED STATES PATENT OFFICE.

E. H. STEARNS, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN HEAD-BLOCKS.

Specification forming part of Letters Patent No. **81,837**, dated September 1, 1868.

To all whom it may concern:

Be it known that I, E. H. STEARNS, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement in Head-Blocks for Saw-Mills; 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 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan or top view of my invention. Fig. 2 is an end view of the same. Fig. 3 is a transverse vertical section of the same, taken in the line *x x*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved head-block for saw-mills; and it consists, first, in an automatic means employed for throwing back the knees of the head-block after a log has been sawed, so that the knees will be in proper position to have a succeeding log dogged to them. The object of this part of the invention is to avoid the labor and time now expended in moving back by hand the knees every time a log is sawed or turned upon the blocks or knee-guides.

The invention consists, second, in a novel stop mechanism for limiting the backward movement of the knees in accordance with the size or diameter of the logs to be sawed, the object of this feature of the invention being to obtain a stop mechanism which may be operated and adjusted with the greatest facility, in order to control or limit the backward movement of the knees.

The invention consists, third, in a means employed for avoiding jars and concussions at the termination of the backward movement of the knees; and, finally, in a means by which the dogs, after being liberated from the remnant of a sawed log, will automatically adjust themselves out of way, so that they cannot interfere with the backward movement of the knees or any mechanism pertaining to the head-block, and will be in a position most convenient to grasp for the dogging of a succeeding log.

In the accompanying sheet of drawings, A represents the carriage on which the head-block is placed, and which may be constructed, arranged, and operated in the usual or any proper manner.

B B represent the two knee-guides of the head-block, which guides are firmly bolted transversely on the carriage at a suitable distance apart.

C C are the knees connected to or cast with slides D D, which are fitted in the guides in such a manner that they may move freely back and forth thereon. The knees C C may be moved forward to set the log to the saw by any of the known means. The plan I shall probably use will be one formerly patented by me, consisting of pawls operated by eccentrics *a* on a shaft, E, the pawls engaging with racks at the under sides of the slides D D, and the shaft E operated by a hand-lever, F.

G is a shaft, which has its bearings in the guides B and in lugs *b b*, attached to the carriage A. This shaft has a pulley, H, keyed on each end of it, and these pulleys have each a chain, I, attached, which are connected to the slides D D. (See Figs. 1 and 3.)

On the shaft G there are two spiral springs, J J, which are connected at one end to the pulleys H H, the opposite ends being connected to the bearings or lugs *b b*. These springs, when the knees C C are being moved forward or the log set to the saw, are wound up, owing to the turning of the shaft G, through the media of the chains and pulleys, and hence it will be seen that at any time, when the slides D D are liberated from the means which moved them and the knees forward to set the log to the saw, the spring J J will draw the slides and knees instantly back. In the present instance I employ two shafts, K K, with cams on their ends to throw the pawls out of gear with the racks at the under side of the slides; but other means would of course be employed with a different mechanism for setting the knees and log to the saw.

I do not confine myself to the pulleys and chains for forming a connection between the slides and springs J, for a rack and pinion may be used, and probably various other means which will answer equally as good a purpose may suggest themselves to one skilled in the art. Neither do I confine myself to spiral springs J, for coil-springs may be used, and also other springs; but probably the spiral springs will be most generally used. By this

arrangement it will be seen that I avoid all hand-work or manipulation of any kind in drawing back the slides and knees, and thereby economize in both time and labor; and it will further be seen that each knee may at any time, when necessary, be operated independently of the other, and both brought instantly back in line with each other when required. The backward movement of the slides and knees is limited at different distances by means of notched segment-bars L, which are pivoted one to the outer side of each knee-guide, as shown at *c*. These segment-bars L L may be raised and lowered to greater or less height by means of eccentric-dogs M at the ends of a shaft, N, operated by a hand-lever, O. When the dogs M are so adjusted as to admit of the bars L being fully down, the knees are allowed to be brought back their extreme distance, a stop or projection, P, on the knees coming in contact with the rear shoulder, *d*, of the segment-bars L; but when the bars L are raised in a greater or less degree a more forward shoulder will serve to resist the backward movement of the knees. The more elevated the bars the less backward movement the knees will have; hence it will be seen that the backward movement of the knees may be regulated according to the size or diameter of the logs being sawed, and from the same position or standpoint that the setting-lever F of the shaft E is operated.

I do not confine myself to the eccentric-dogs M for adjusting the bars L, for other equivalent means may be used for the purpose.

The stops or projections P, I construct on the buffer principle in order to avoid jars and concussions. One portion of the stop is comprised of an ear, *c*, which projects laterally from the lower part of each knee, and the other portion is comprised of a plate, *f*, which is secured to *e* by a screw-bolt, *g*, a piece of india-rubber, a spring, or any elastic substance, *h*, being interposed between *e* and *f*, and the bolt allowed to work or move freely in *e*. By this arrangement a good and efficient buffer-stop for the knees is obtained, one which will effectually obviate all jars and concussions, and prevent unnecessary wear and tear.

Q Q are the dogs, which may be constructed in the usual or any proper manner. The inner ends of these dogs are hooked in a swivel, R, fitted in sockets S on the upper surfaces of the slides D D. This feature of the swivel is not new; but the socket S, instead of being of equal height all around, as usual, I construct with a flange, T, which projects upward at the inner sides of the socket S. These flanges have concave upper edges, as shown clearly in Fig. 3, at *i*, so that when a dog is freed or raised from a log and drops, it will, on coming in contact with the flange T, slide to the center of the concave *i* in the upper edge of the flange, and in so doing will assume a position at right angles with the knee-guide and parallel with the sides of the log-carriage. (See more particularly Fig. 1.) This position of the dogs places them out of the way of all the working parts of the head-blocks, so that knees cannot be obstructed in their backward movement, and said position of the dogs renders them capable of being grasped with facility in order to be fitted into the log again, or into a succeeding log. The dogs therefore, it will be seen, adjust themselves automatically to this desirable position, no attention on the part of the sawyer being required in order to effect that end.

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

1. In head-blocks for saw-mills, the employment of springs so applied that when the knees are released from the setting mechanism the springs will automatically bring back the knees to the required position for the next advancing movement, substantially as set forth.

2. The segment-bars L, constructed, arranged, and applied in the manner shown, or in an equivalent way, for the purpose of limiting the backward movement of the knees, as set forth.

3. The elastic stops P upon the knees of the head-blocks, in combination with the segment-bars L, substantially as described, for the purpose specified.

4. The flanges T, for the purpose of carrying and adjusting the dogs when disengaged from the log or remnant thereof, substantially as described.

The above specification of my invention signed by me this 16th day of July, 1868.

E. H. STEARNS.

Witnesses:

FRANK BLOCKLEY,

ALEX. F. ROBERTS.