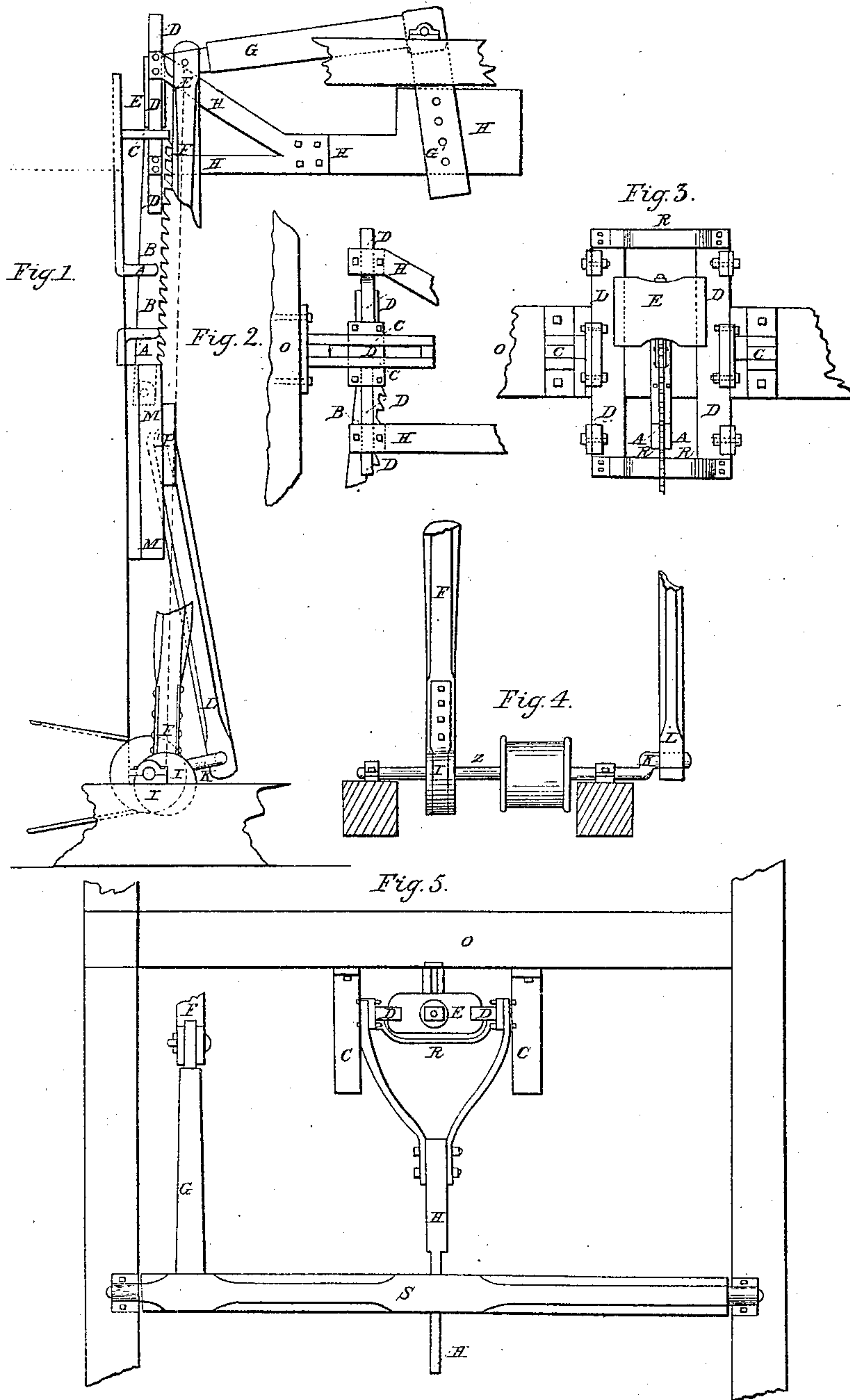


J. D. Richardson,
Reciprocating Saw Mill,
No. 42,965, *Patented May 31, 1864.*



Witnesses.
John W. Richardson
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JOSEPH D. RICHARDSON, OF ELIZABETHTOWN, KENTUCKY.

IMPROVEMENT IN SAW-MILLS.

Specification forming part of Letters Patent No. 42,965, dated May 31, 1864.

To all whom it may concern:

Be it known that I, JOSEPH D. RICHARDSON, of Elizabethtown, in the county of Hardin and State of Kentucky, has invented a new and useful Improvement in Reciprocating-Saw Mills, (Upright Saws;) and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

Figure 1 represents a side view of the working parts of my mill. Fig. 2 represents a side view of the upper slides. Fig. 3 represents a front view of the upper slides and beam to which they are attached. Fig. 4 represents a front view of the main shaft with the crank and pitmen attached. Fig. 5 represents a top view of the upper slides and slide-block, together with the bars H H, rocking shaft S, and connecting-arm G.

The manner of constructing a saw-mill of this kind consists in providing the mill-house with two horizontal beams sufficiently large to hold the slides, the lower one level with the floor and the upper one about seven feet above the lower one and plumb over it, being represented at O with the upper slides attached. Underneath of these, at a suitable distance, provide suitable timbers, upon which the shaft *z* is to rest. On the shaft *z* is a crank, *k*, and an eccentric, I, which is a sufficient distance from the pitman L as not to bring the pitman F in the way of the carriage for the logs. The power is to be applied to the shaft *z*, whether it be water or steam power. Upon the shaft *z* is the eccentric I, which is set at a right angle with the crank *k*. To the eccentric I is attached the pitman F, to which is attached the lever G of the rocker S. The perpendicular slide M is screwed to the lower fender-beam, and is provided with a sliding block, P, (which is fully represented by E,) which is provided with couplings, after the usual form, to hold the pitman L and the saw B, the saw being allowed to move backward and forward at the top without causing the sliding block P to bind the slides. The upper slides, D D, are not secured to the upper fender-beam, but rest on the horizontal slides *c c*, which are secured to the beam O. The upper slides, D D, are secured in their places by the bars R R, which are provided with slots in

each end, so that the slides D D can be adjusted to the slide-block E when necessary. There are also attached to the slides D D the bars H H, which are divided into four parts, constituting brace-bars, the ends of which are firmly screwed to the slides D D, which, in connection with the bars R R, constitute a perfect iron frame for the slide-block E to work in. The top part of the horizontal slide *c* is movable, so that it can be kept tight against the slides D D. It is evident that as the pitman F is drawn down by the eccentric I the saw B comes against the timber, and as the pitman F ascends the saw B leaves the timber; but as the eccentric I is set at a right angle with the crank *k* the saw B begins to recede from the timber when it has completed something over half of its downward stroke, leaving the saw when it has completed its stroke perfectly loose in the log. As the saw continues to recede from the timber until it has completed half of its upward stroke, there is room for the sawdust to fall out, and by this motion the saw is prevented from binding against the kerf when it begins its upward stroke, and also prevents the saw from choking with the dust or grinding the same. It also permits the running of a saw with hooked teeth, which do not bring up any dust. The reciprocal motion of the saw allows the dust to fall out, which if it does not do the saw will jerk it out the next stroke. When the saw is receding from the timber, it is best that it should not go beyond a perpendicular position. When all the motion the saw has will be forward from the perpendicular, thus avoiding the necessity of giving the saw a vibratory motion at the bottom. The reciprocal motion of the saw can be altered at any time by moving the pin where the bar H goes through the arm of the rocker S, the bar H having holes to correspond to the holes in the arm.

It is desirable that the pitman F should be of such a length that when it has completed half of its upward or downward stroke it will bring the lever G to a horizontal position, which will also bring the arm G' to a perpendicular position. Then, whether the reciprocal motion be long or short, the slides D D will remain always in a perpendicular position.

This invention allows the running of a saw with or without a sash. It is only necessary

to set the slides far enough apart to receive the sash to enable it to be run.

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

The arrangement of the slides D D and C C, braces R R and H H, in combination with the eccentric I, pitman F, connecting-arm G, rocking shaft S and the connecting parts, giv-

ing a vibratory motion to slides D D and the upper end of the saw, substantially as described, and for the purposes as set forth.

JOSEPH D. RICHARDSON.

Attest:

EZRA W. RICHARDSON,
DANIEL L. RICHARDSON.