

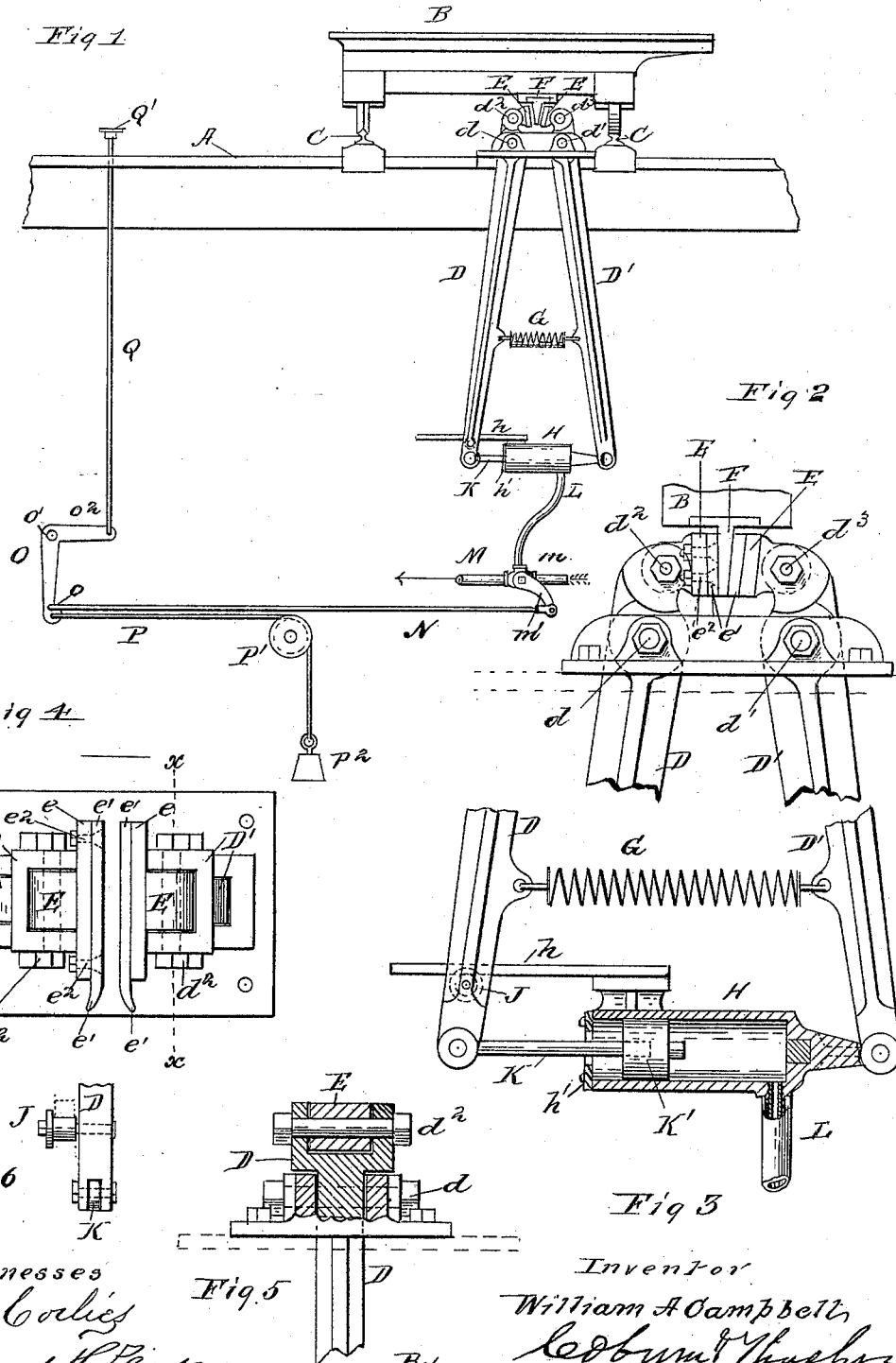
(No Model.)

W. A. CAMPBELL.

STEAM BRAKE FOR SAW MILL CARRIAGES.

No. 301,091.

Patented July 1, 1884.



Witnesses  
*M. C. Coates*  
*Thomas H. Pease*

Inventor  
*William A Campbell*  
*Edmund Thusher*  
 Attorneys

# UNITED STATES PATENT OFFICE.

WILLIAM A. CAMPBELL, OF FRANKFORT, MICH., ASSIGNOR OF ONE-HALF  
TO THE MARINETTE IRON WORKS COMPANY, OF MARINETTE, WIS.

## STEAM-BRAKE FOR SAW-MILL CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 301,091, dated July 1, 1884.

Application filed January 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. CAMPBELL, a citizen of the United States, residing at Frankfort, in the county of Benzie, in the State of Michigan, have invented certain new and useful Improvements in Steam-Brakes for Saw-Mill Carriages, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is an end view of my improved brake applied to the log-carriage of a saw-mill. Fig. 2 is a detailed and enlarged end view of the upper ends of the swinging levers with the jaws attached thereto, and the projecting rail or flange of the carriage. Fig. 3 is a similar view of the lower ends of the levers with the brake-cylinder in section. Fig. 4 is a top plan view of the jaws. Fig. 5 is a section on the line *xx* in Fig. 4. Fig. 6 is an edge view of the lower end of the left swinging lever.

The same letters denote the same parts in all the figures.

My invention relates to brakes for arresting the motion of the log-carriages of saw-mills, and more particularly to brakes for that purpose which are operated by steam-power; and it consists, primarily, in the combination of a pair of swinging levers, which put on and take off the brake, with a steam-cylinder and piston attached, respectively, to the outer end of the one lever and of the other; and, secondarily, in certain mechanism subsidiary to this combination, which will be fully set forth hereinafter, and definitely pointed out in the claims, the object being to promote simplicity of construction and convenience and efficacy of operation.

In the drawings, A denotes the floor of the saw-mill, B the log-carriage, and C the rails on which it travels, all these being of a usual construction. Between the rails, and preferably about midway of the distance through which the carriage travels, is an aperture in the floor large enough for the passage of a pair of nearly upright levers, D and D', which extend a short distance above the floor, and are pivoted at *d* and *d'*, respectively, on supports a short distance apart, and both in a line at right angles to the rails C. Each lever extends for a con-

siderably greater distance below than above the pivot. As shown in the drawings, the longer arm is about nine times the length of the shorter; but of course this proportion may be varied according to circumstances and to the leverage required. On the upper ends of these levers, at *d*<sup>2</sup> and *d*<sup>3</sup>, respectively, are pivoted a pair of jaws, E, arranged to close on a T rail or flange, F, which projects downward from the carriage B, parallel with the track-rails C, and in a line passing midway between the upper ends of the levers. Obviously the separation of the lower ends of the levers will cause the jaws to approach each other, and if carried far enough will cause them to gripe the rail F and arrest the motion of the carriage B along the track. The approaching of the lower ends of the levers, on the other hand, will as evidently open the jaws. Each jaw consists of a back plate or block, *e*, and a face-plate, *e'*, preferably made of wrought-iron, and affixed to the block by countersunk bolts *e*<sup>2</sup>. The face-plate, which comes in contact with the rail F, can thus be replaced as often as it becomes worn without disturbing the rest of the machinery. The pivotal connection of the jaws with the levers causes the face-plate to apply its whole surface to the corresponding surface of the rail, which is of such a length that part of it will be in a position to be grasped by the jaws, whatever the position of the carriage may be.

A spring, G, connects the two levers D and D' near their lower ends, and tends to draw those ends toward each other into a position such that the jaws on the upper ends will not be in contact with the rail F. The same object will, however, under ordinary circumstances be effected by the greater weight of the lower and longer arms of the levers drawing them toward a perpendicular position, in which, of course, the upper ends would not close on the rail F, so that the spring is only useful as an auxiliary.

A steam-cylinder, H, is supported in a horizontal position by having a prolongation of its head pivotally attached to the lower end of one of the levers, D', and by means of a rod, *h*, rigidly affixed to its convex surface a little to one side of the highest point, and extend-

55

60

65

70

75

80

85

90

95

100

ing past the other lever, D, so as to rest on a short roller, J, mounted on the lever near its lower end, and projecting in a direction at right angles to that of the cylinder. To the lower end of this same lever D is pivoted a piston-rod, K, whose piston-head K' slides in the cylinder, which is open at the end toward the lever D, except a flange, h', or other equivalent device, to prevent the piston-head from being accidentally pulled out of the cylinder. At its inner end this cylinder opens into a flexible tube, L, which is connected with a pipe, M, leading from a boiler or steam-chest on one side of the junction to an exhaust-outlet on the other. A three-way cock, m, at the junction, is adjustable, so as to connect the flexible tube with either the steam-supply or the exhaust, at the same time shutting off the other. This cock is turned into either position by a bar or arm, m', whose outer end is connected by a horizontal rod, N, with one arm, o, of the bell-crank O, the rod being pivoted at both ends. The bell-crank is pivotally supported at its angle o'. To the end of the arm o is also attached one end of a cord, P, which passes over a pulley, P', and carries at its other end a weight, P<sup>2</sup>, which, in the absence of any opposing force, keeps the arm o perpendicular, and the other arm, o<sup>2</sup>, horizontal, in which position the rod N holds the cock m in the proper position to open the connection of the flexible tube with the exhaust, and shut-off the supply of steam, so that the levers D and D', being left to the position to which their weight and the spring G determine them, are nearly perpendicular, and the jaws at their upper ends do not grasp the rail F of the log-carriage, whose motion is accordingly unobstructed. This position, however, can at any time be reversed by pressing a treadle, Q', at the upper end of the upright rod Q, which projects through the saw-mill floor, and whose lower end is pivoted to the arm o<sup>2</sup> of the bell-crank. Force enough being applied to the treadle to lift the weight P<sup>2</sup>, the end of the arm o<sup>2</sup> of the bell-crank will be depressed

and the end of the arm o correspondingly raised and drawn back, drawing the arm m' to the left by means of the rod N, and turning the cock m into the proper position to connect the flexible tube L with the steam-supply and shut off the exhaust. The steam entering the cylinder H pushes the cylinder to the right and the piston to the left, thereby forcing apart the lower ends of the levers D and D', to which the cylinder and piston are respectively attached, and thus closing upon the rail F the jaws E, which are hinged to the upper end of the levers, and arresting the motion of the carriage. As soon as the pressure is removed from the treadle, the weight P<sup>2</sup> draws down and forward again the arm o of the bell-crank, thereby turning the cock so as to shut off the supply of steam and open the exhaust. The steam escapes from the cylinder H, and no more enters. The lower ends of the levers D and D' again approach, their upper ends parting and the jaws unclosing, and the brake is taken off.

Compressed air or other suitable motor may be used in the cylinder instead of steam.

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

1. The pivoted levers D and D', in combination with a piston and its cylinder, affixed, respectively, to their corresponding ends, and with means for supplying and exhausting steam between the piston-head and the bottom of the cylinder, substantially as and for the purpose described.

2. The cylinder H and the piston K', in combination with the tube L, arranged as described, supply and exhaust pipe M, three-way cock m, connecting-rod N, bell-crank O, and weight P<sup>2</sup> and treadle-rod Q, connected, respectively, with the two arms of the bell-crank, substantially as and for the purpose described.

WILLIAM A. CAMPBELL.

Witnesses:

P. C. WALKER,  
E. A. POPE.