

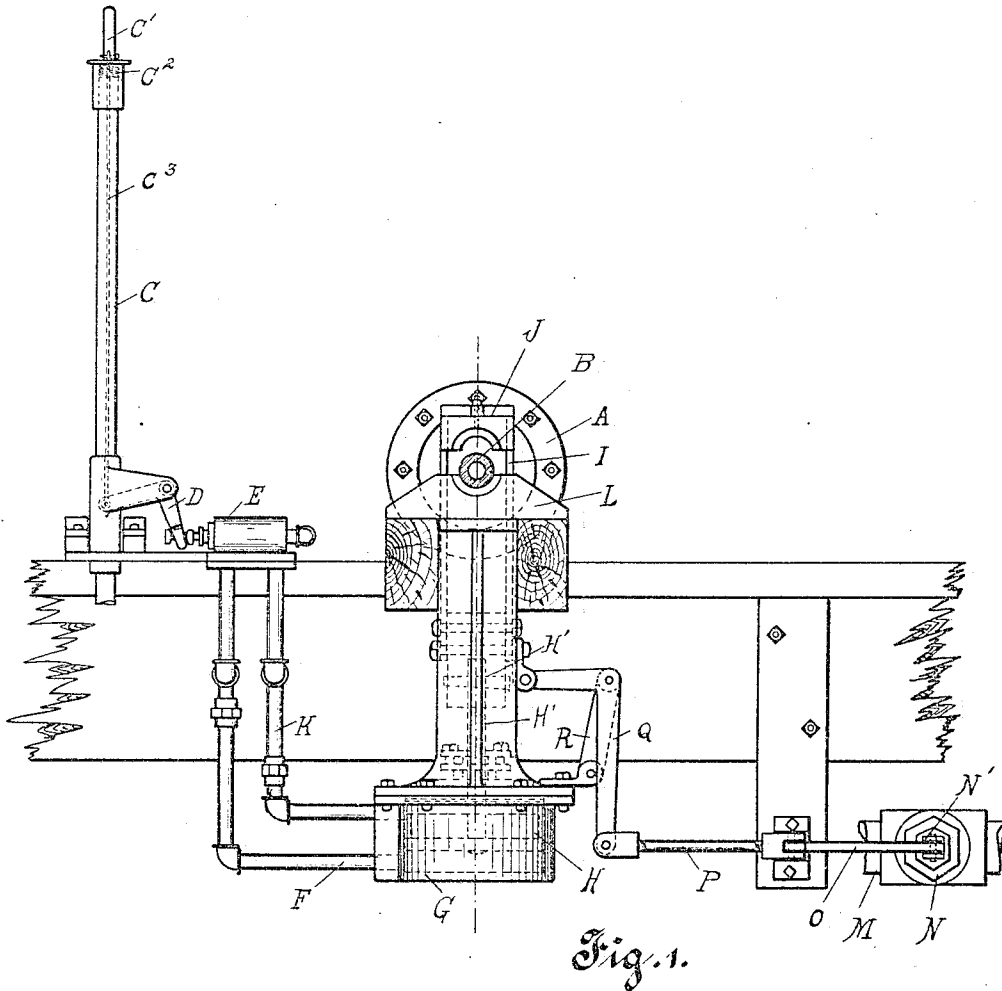
No. 787,374.

PATENTED APR. 18, 1905.

J. L. GRAHAM.
EMERGENCY BRAKE FOR SAWMILL CARRIAGES.

APPLICATION FILED DEC. 27, 1904.

4 SHEETS—SHEET 1.



WITNESSES:

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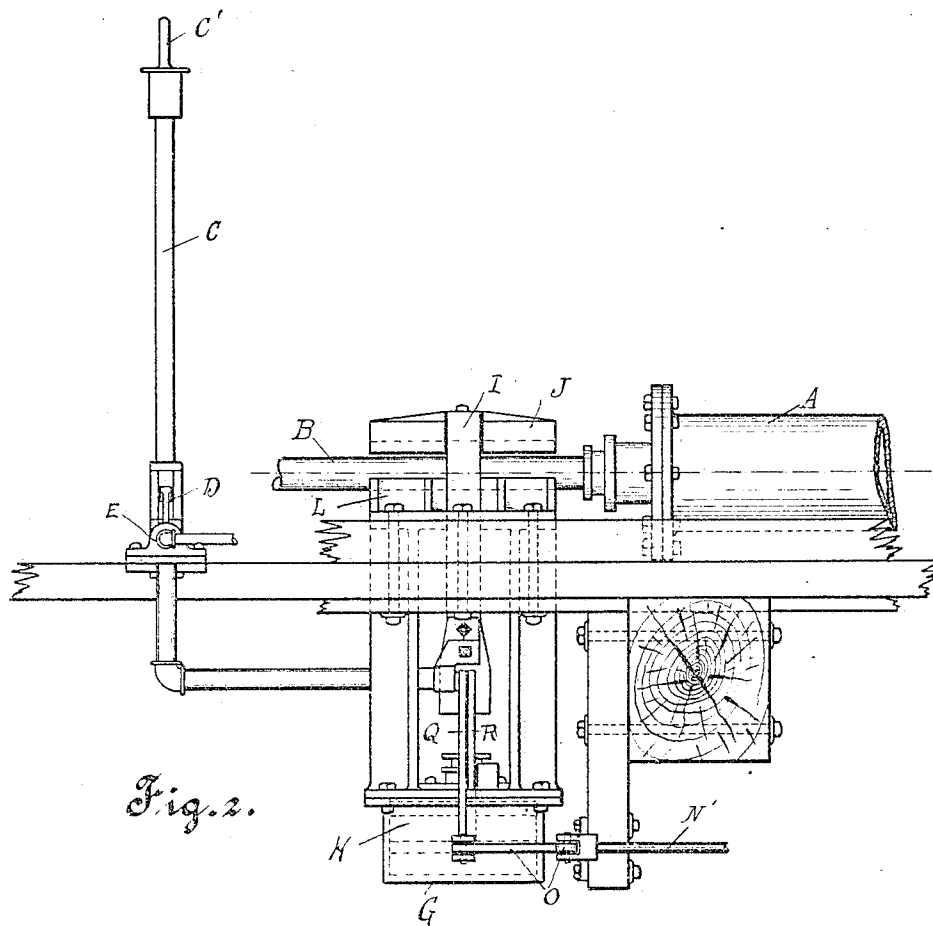
ATTORNEY

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4 SHEETS—SHEET 2.



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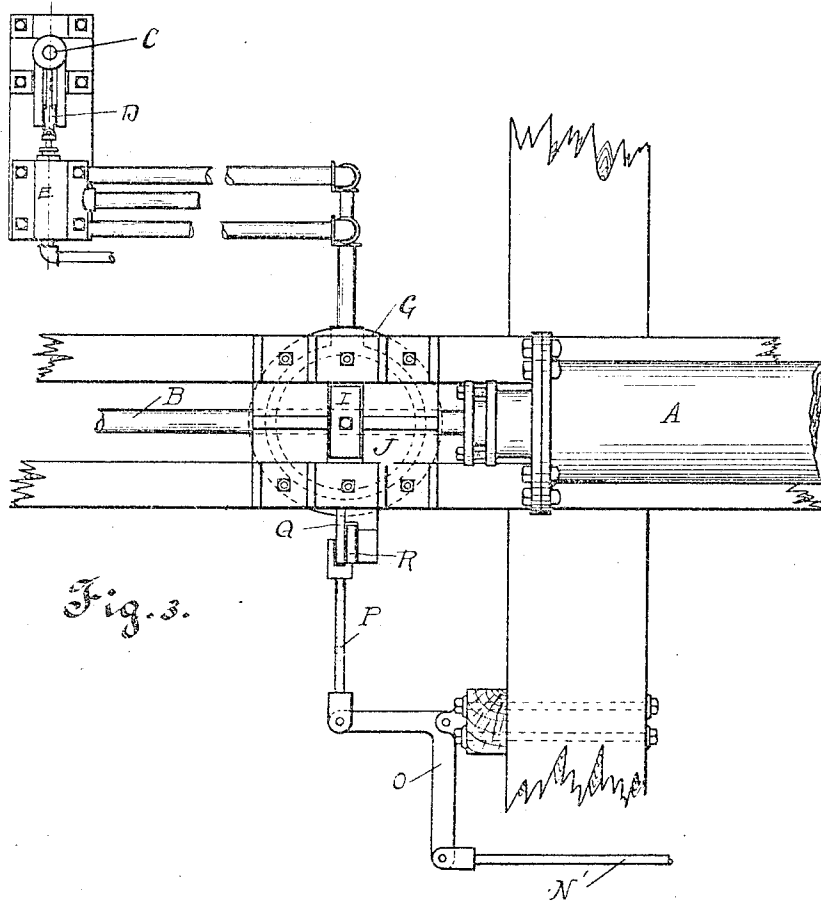
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4 SHEETS—SHEET 3.



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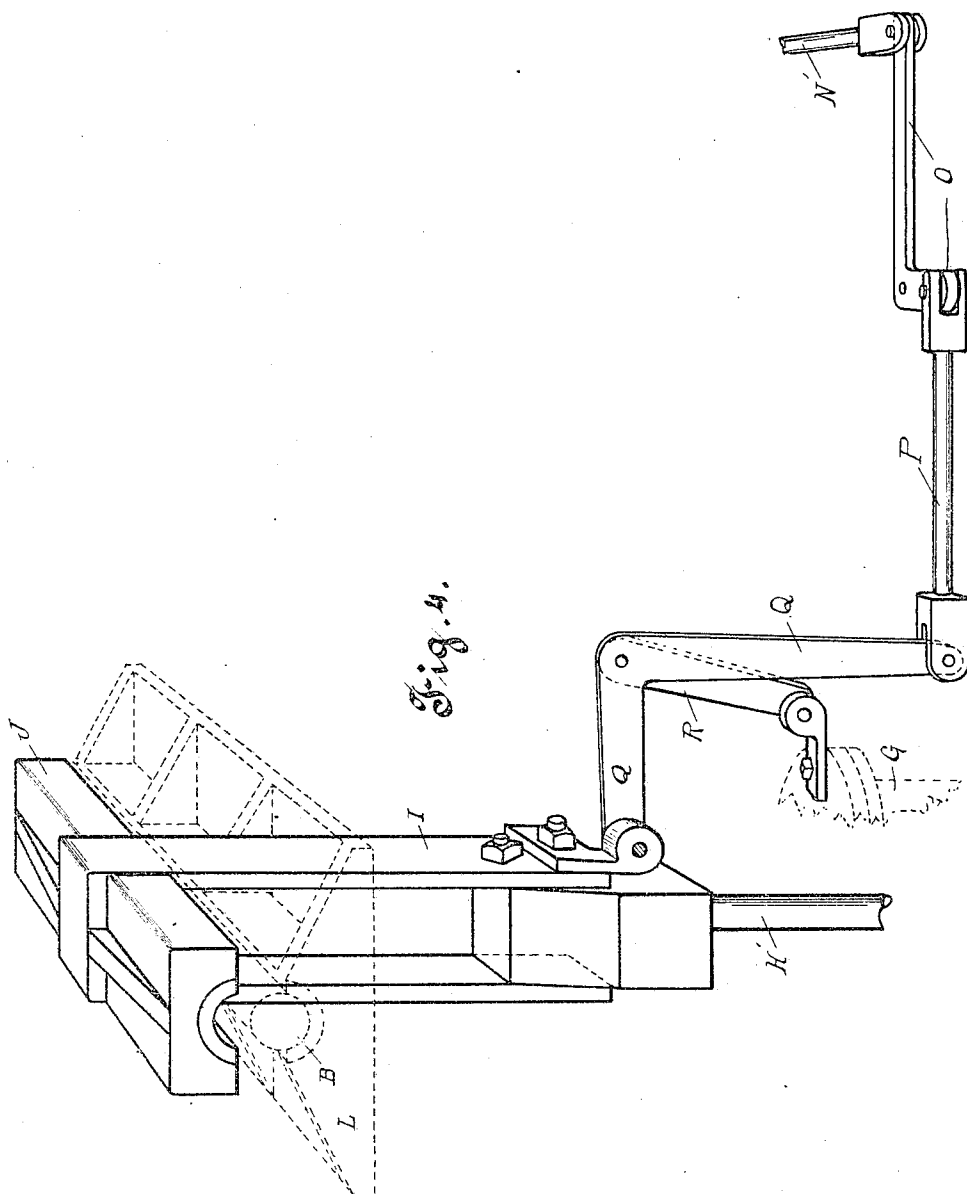
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4 SHEETS—SHEET 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN L. GRAHAM, OF HAAKWOOD, MICHIGAN.

EMERGENCY-BRAKE FOR SAWMILL-CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 787,374, dated April 18, 1905.

Application filed December 27, 1904. Serial No. 238,487.

To all whom it may concern:

Be it known that I, JOHN L. GRAHAM, a citizen of the United States, residing at Haakwood, in the county of Cheboygan and State of Michigan, have invented certain new and useful Improvements in Emergency-Brakes for Sawmill-Carriages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a safety device for quickly stopping a sawmill-carriage, and is especially adapted to that class of sawmill-carriages operated by a device commonly known as a "steam-feed," consisting in a long horizontal steam-cylinder bolted to the mill structure and having a piston to which is attached a long piston-rod, the outer end of the piston-rod being connected to the sawmill-carriage to traverse it rapidly back and forth.

It has frequently occurred that an accident to the valve which controls the admission of steam to the steam-feed cylinder causes the sawyer to lose control of the carriage, resulting frequently in a wreck and serious injury to the operators who ride on the carriage.

This invention embodies means whereby the piston-rod of the steam-feed will be instantly and powerfully clamped and brought to rest as soon as the sawyer releases his hold on the lever that controls the movement of the sawmill-carriage.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front end view of the steam-feed cylinder and clamping device. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view, and Fig. 4 is a perspective, showing the levers by which the clamping device is operated.

A is any ordinary steam-feed cylinder, such as is now in common use, and B is the piston-rod, to the outer end of which the sawmill-carriage is secured. The carriage is omitted from the drawings for the sake of clearness.

C is the sawyer's lever, which, as commonly used, operates only to admit steam to either

end of the cylinder A by properly actuating the admission-valve of the cylinder.

In this invention I employ the lever C to perform the additional function of a safety-lever, whereby the steam-feed rod may be forcibly gripped and brought to rest as soon as the sawyer releases his hold on the lever. This safety-feed may be embodied in the lever C in various ways; but I have illustrated only one construction to accomplish the desired results. This device is illustrated in Fig. 1, where the handle C is made hollow and provided with a vertically-movable hand-piece or grip C', which rests like a cup on the top of the lever. A spring C² is interposed between the top of the lever and the grip C' and is normally compressed by the weight of the sawyer's hand resting upon it. When so compressed, the grip C' pushes down on the rod C³ within the lever C and operating through the bell-crank lever D operates the steam-valve E, which may be of any suitable construction to admit steam through the pipe F to the lower end of a short steam-cylinder G, thereby pushing up the piston H of the cylinder G and its rod H'. To the upper end of the rod H' is fastened a heavy metal strap I, carrying a clamping-shoe J, adapted to fit the upper circumference of the steam-feed rod B.

When the sawyer's hand is released from the grip C', the spring C² rises, pulling up the rod C³ and drawing back the bell-crank lever D, thus opening the pipe F to exhaust and admitting steam to the pipe K, which communicates with the cylinder G above the piston H. The piston-rod H' and the clamping-shoe J are immediately pulled down, and the shoe J clamps the piston-rod down tightly upon the lower block L, quickly stopping the movement of the rod.

To further increase the efficiency of the device, I have added to the clamping means above described a device for shutting off the supply of steam to the steam-feed cylinder simultaneously with the operation of the clamping device.

In Fig. 1, M represents the steam-main through which the steam is supplied from the boilers to the valve of the steam-feed cylinder

A. The pipe connections are not shown, as their arrangement varies under different conditions.

I provide in the pipe M a suitable shut-off valve N, having a valve-rod N' connected to a bell-crank lever O, the other end of the lever being connected to a bell-crank lever P, which in turn is pivoted to the downwardly-extending arm of a bell-crank lever Q and the other end of which is pivoted to the piston-rod H'. The lever Q is carried by a suitable pivoted link R.

The operation of the device is as follows: When the operator releases his hold on the grip C' and the piston-rod H' and the shoe J drop, as previously described, the bell-crank lever Q operates the link P and the bell-crank lever O to move the valve-stem N' of the valve N, thereby shutting off the supply of steam through pipe M.

While I have described and illustrated certain specific mechanisms for accomplishing the desired result of gripping the steam-feed rod when the sawyer releases his hold on the controlling-lever, I do not desire to confine myself to these particular constructions.

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

1. The combination with the piston-rod of a steam-feed; of a clamp adapted to grip said piston-rod; a sawyer's operating-lever; a movable handpiece carried by said lever and means connecting said handpiece to said clamp and adapted to automatically actuate said clamp to grip said piston-rod when the sawyer's hand is removed from the operating-lever.

2. The combination with the piston-rod of a steam-feed; of a clamp adapted to grip said piston-rod; a valve in the steam-pipe leading to the steam-feed; a sawyer's operating-lever; a movable handpiece carried by said lever; and means connecting said handpiece, clamp and valve, said means being adapted to automatically actuate said clamp to grip the piston-rod and to actuate said valve to shut off steam in said main steam-pipe when the sawyer's hand is removed from the operating-lever.

3. The combination with the piston-rod of a steam-feed; of a clamp adapted to grip said piston-rod; a sawyer's operating-lever; a cap slidably mounted on top of said operating-lever; a bell-crank lever pivotally mounted on said operating-lever; and means connecting said cap with said bell-crank lever; a valve actuated by said bell-crank lever; a

cylinder with a movable piston and means connecting said movable piston with said clamp and adapted to actuate the clamp to grip the said steam-feed piston-rod when the sawyer's hand is removed from said operating-lever.

4. The combination with a steam-feed piston-rod; of a clamp adapted to grip said piston-rod; a sawyer's operating-lever; a cap slidably mounted on top of said operating-lever; a bell-crank lever pivotally mounted on said operating-lever; a movable rod connecting said cap with said bell-crank lever; a valve actuated by said bell-crank lever; a cylinder with a movable piston and means for connecting either end of said cylinder successively with said valve; and means connecting said piston with said clamp.

5. The combination with a steam-feed piston-rod, of an operating-lever; a cap mounted on said operating-lever; a bell-crank lever mounted on said operating-lever; and means for connecting the cap with said bell-crank lever; a valve actuated by said bell-crank lever; a cylinder with a movable piston and means for connecting either end of said cylinder successively with said valve; a piston-rod secured to said movable piston; a clamp comprising a lower stationary block adapted to support said steam-feed piston-rod, and an upper movable block and means connecting said movable block with said piston-rod, substantially as and for the purposes set forth.

6. The combination with a steam-feed cylinder, piston and piston-rod; of an operating-lever; a valve and means connecting said operating-lever to said valve and adapted to actuate said valve; a cylinder having a movable piston and means for connecting either end of said piston alternately with said valve; a piston-rod secured to said movable piston; a clamp adapted to grip said piston-rod and means for connecting said piston-rod with said clamp; together with a valve in the steam-supply pipe of said steam-feed cylinder and means connecting said movable piston to said valve, for closing said valve when the piston moves down, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN L. GRAHAM.

Witnesses:

J. STANLEY SEE,
J. R. MANSFIELD.