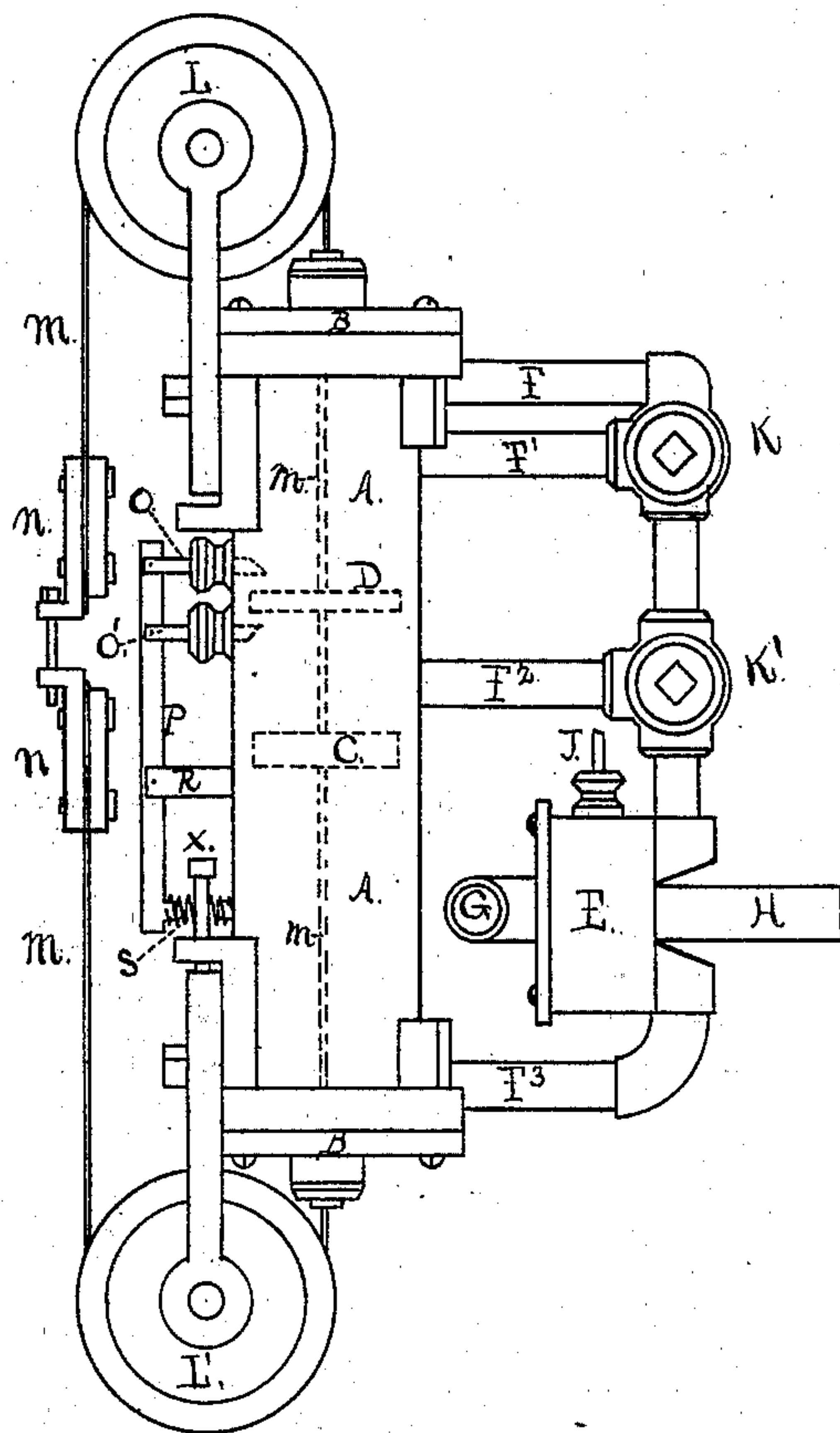


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Steam Feed and Hoisting Apparatus.

No. 219,060.

Patented Sept. 2, 1879.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

WENZEL J. ANSORGE AND JOSEPH SOMMER, OF GRAND RAPIDS, MICHIGAN.

## IMPROVEMENT IN STEAM FEED AND HOISTING APPARATUS.

Specification forming part of Letters Patent No. 219,060, dated September 2, 1879; application filed July 7, 1879.

*To all whom it may concern:*

Be it known that we, WENZEL J. ANSORGE and JOSEPH SOMMER, both of the city of Grand Rapids, county of Kent, and State of Michigan, have invented a Steam Feed and Hoisting Apparatus, of which the following is a specification.

The object of our invention is to bring the body to be moved more directly in connection with the steam or moving power. This we accomplish by attaching the piston-head to a metallic band or cable, which may be attached to a carriage or elevator without any other machinery.

In the drawing the figure represents a side view of our invention complete.

A A represent a cylinder, similar to an ordinary steam-cylinder. *m m* is a metallic band or cable, passing through the cylinder and around the band-wheels L L'.

B B represent the cylinder-heads, each provided with an air-tight packing, through which the band *m m* passes.

C is a piston-head, rigidly attached to the band *m m* in any suitable and substantial manner.

The head C may be made in two parts, each half made zigzag, so as to fit together and crimp and hold the band *m m*.

E is a steam-chest, receiving steam through the pipe G and exhausting it through the pipe H. D is a movable cylinder-head, so arranged as to be held in position by means of the pins O O', or to be crowded to the end of the cylinder, in order to allow a long or short stroke, at the will of the operator.

The head D is provided with an air-tight packing similar to the heads B B. The band-wheels L L' are adjusted by means of the screw X, so as to strain or take up the slack of the band *m m*. The pins O O' are attached to a lever, P, which has a bearing in fulcrum R, and is provided with the spring S, which holds the pins in the position shown in the drawing. The pins O O' are beveled, as shown, so that a pressure against them by the piston-head C will drive back the pins, and thereby relieve the movable cylinder-head D, and allow it to be driven before the piston-head, the object being to prevent breakage.

The body to be moved may be attached to the band *m m* at *n n*.

F<sup>1</sup> and F<sup>3</sup> are feed-pipes for the long stroke. F<sup>2</sup> is a feed-pipe for the short stroke; and F, a feed-pipe for the purpose of forcing D back to the position shown in the drawing after it has been crowded to the end of the cylinder.

The operation of our invention is as follows: The steam being introduced into the cylinder through F<sup>3</sup>, the piston-head C is driven toward the head D until the steam exhausts through F<sup>2</sup>. The steam now coming through F<sup>2</sup> drives C back in the opposite direction, thus giving the short stroke. For the long stroke the piston C is driven by the steam introduced through F<sup>3</sup> until the steam exhausts through F<sup>1</sup>, F<sup>2</sup> being closed in the meantime.

When the head D has been driven to the end of the cylinder for the long stroke, and the operator desires to place it back for the short stroke, the steam is introduced through F, and D is quickly driven to the position shown in the figure, where it will be held by pins O O'.

The slack of the band may be taken up by the device shown at *n n*.

The band *m m* may be made to run in any direction, and our device may be used for moving carriages horizontally backward and forward, or for running elevators or lifting and lowering weights perpendicularly.

Having thus described our invention, what we claim to have invented, and desire to secure by Letters Patent, is—

1. The metallic band or cable *m m*, in connection with the piston-head C and cylinder A A, the band passing through both heads of the cylinder and through the cylinder, for the purpose of conveying reciprocating motion direct to any body attached to such band, substantially as described.

2. The combination of the adjustable cylinder-head D, band *m m*, piston-head C, and pins O O', when constructed substantially as described.

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