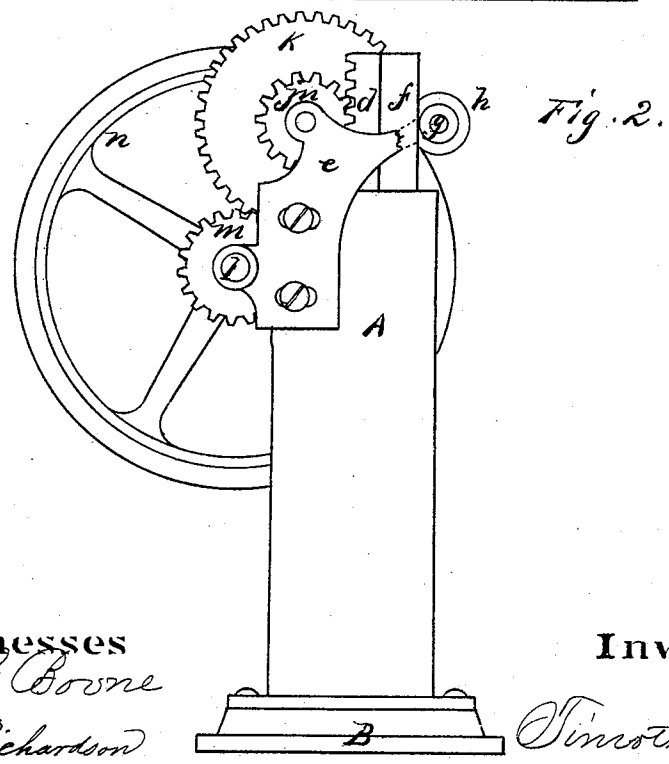
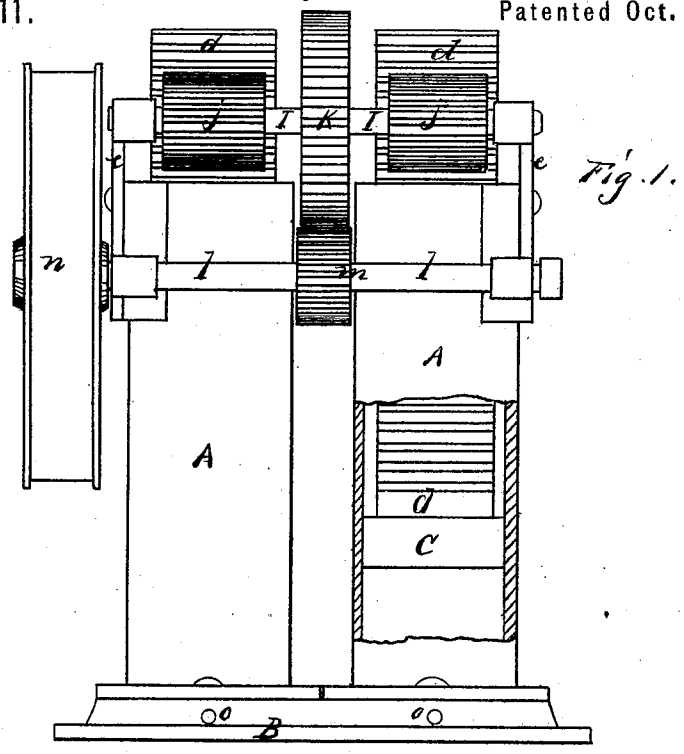


T. STEBINS.
 Improvement in Hydraulic-Elevators.
 No. 132,111. Patented Oct. 8, 1872.



Witnesses
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Attys

UNITED STATES PATENT OFFICE.

TIMOTHY STEBINS, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN HYDRAULIC ELEVATORS.

Specification forming part of Letters Patent No. 132,111, dated October 8, 1872.

To all whom it may concern:

Be it known that I, TIMOTHY STEBINS, of San Francisco city and county, State of California, have invented Improvements in Hydraulic Elevators; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My invention relates to improvements in that class of hydraulic elevators which is used for elevating persons and things from one floor of a building to another.

My improvement consists of an arrangement whereby the power of either one or two upright cylinders can be employed for elevating the load according to the weight which it is desired to lift. Heretofore when two cylinders have been used for this purpose their arrangement has been such that the pressure in both cylinders was applied in all cases, whereas frequently and in most cases the power of a single cylinder is sufficient, thus causing a waste of water, which, especially in cities where water is paid for by the gallon, is a heavy and unnecessary expense.

In the following description my invention is fully described, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a front elevation of my machine, and Fig. 2 is a side elevation.

A A represent two upright cylinders which are secured to the same bed-piece B at a short distance apart, or any number of such cylinders can be used. Inside of these cylinders is a piston, C, and each of the pistons has a bar, *d*, extending upward from its center in the manner of a piston-rod. These bars have each a rib, *f*, extending the entire length along the middle of one side, as shown, while their opposite faces are formed into a rack. A strong metal side-piece, *e*, is secured to the outside of each of the cylinders A at their upper ends so as to project above them. A shaft, *g*, extends across above the cylinders back of the piston-bars *d* and bears in these side-pieces. A spool, *h*, is secured upon this shaft opposite the rib *f* of each bar, in which the ribs fit so that they form guides for the bar *d*. A shaft, I, passes across above the cylinders on the opposite side of the bars *d*, and also bears in the side-pieces *e*. Opposite each of the rack-bars *d* a broad spur-wheel, *j*, is secured to the

shaft I so as to engage with the teeth on the vertical bars, and between the two broad wheels *j* a large spur-wheel, K, is fixed to the shaft; thus, when the rack-bars *d* are raised, the wheels *j* and K on the shaft I are revolved by the engagement of the rack. Below the wheels K a shaft, *l*, passes across parallel with the shaft I and bearing in the lower end of the side-pieces *e*. This shaft has at its middle a pinion, *m*, which engages with the wheel K, and at its extremity a large driving-pulley is secured, marked *n*, around which the belt from the elevator or car passes. By this arrangement the cylinders A A can be made quite short so that they can be placed in a cellar or other small compartment, as the speed of the driving-pulley can be multiplied at pleasure and thus obtain a large amount of elevation for a short stroke of the piston-bar. Either one or both of the rack-bars can be used to transmit the power to the gearing. The water which lifts the pistons C and rack-bar *d* is introduced into the cylinders through branch pipes which are secured in the holes *o* in the bed piece. These pipes are so arranged that the water can be turned into either one or both cylinders as required. By this means the ordinary work of the elevator can be accomplished by one of the cylinders, and when an extraordinary pressure is required both cylinders can be employed, thus providing an elevator that will answer in any place and do its work with great economy of water.

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

1. The upright cylinders A A with their pistons C C, each of said pistons being provided with an upright rack-bar *d* in combination with the shaft I with its spur-wheels *j j* and K, shaft *l* with its pinion *m* and driving-pulley N, whereby I am enabled to employ the pressure in either one or both cylinders for hoisting purposes, substantially as and for the purpose above described.

2. The upright rack-bars *d* provided with the rib in combination with the guide-spools *h*, substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

TIMOTHY STEBINS. [L. s.]

Witnesses:

J. L. BOONE,

C. M. RICHARDSON.