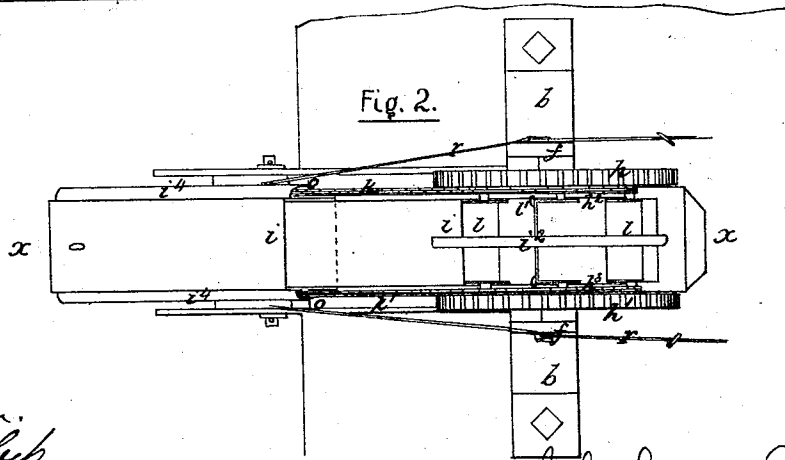
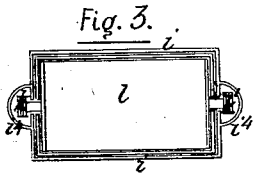
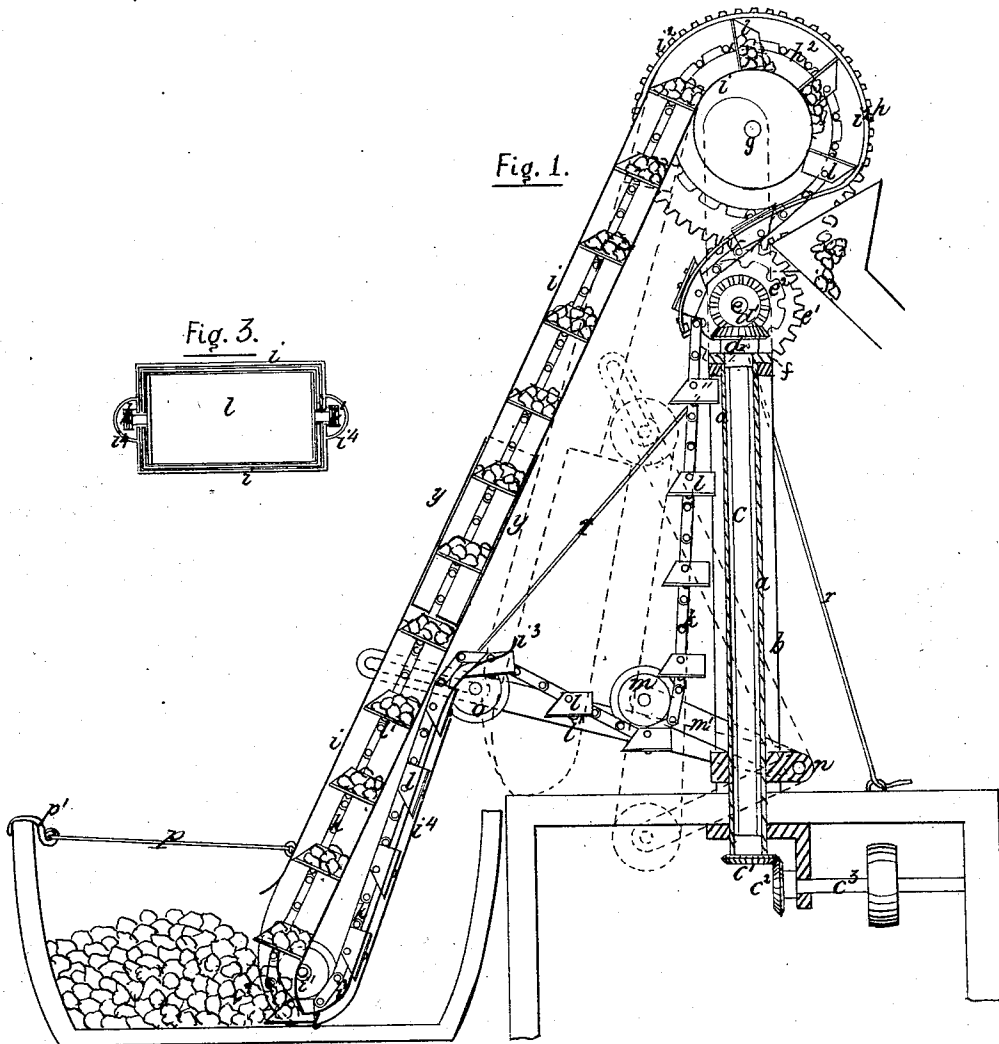


J. L. BATES.
Elevators.

No. 155,135.

Patented Sept. 22, 1874.



Witnesses.
Thomas Holman,
Alfred Harkock

John Samuel Bates
Inventor.

Inches 1 2 3 4 5 Feet.

UNITED STATES PATENT OFFICE.

JOHN L. BATES, OF NEW YORK, N. Y.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **155,135**, dated September 22, 1874; application filed March 20, 1874.

To all whom it may concern:

Be it known that I, JOHN LEMUEL BATES, of New York, county and State of New York, have invented a certain Improved Elevator, of which the following is a specification:

This invention has for its object the raising or elevating of coal or other heavy material from the ground or out of boats into trucks or carts, or onto a conveyer, so that the material may be moved any desired distance from the place of hoisting. It consists, first, in making the elevating-channel in two parts, one sliding within the other telescopically, so that the mouth of the channel may be brought in contact with the material to be raised. The object of this is to obviate the necessity of lowering the whole of the elevator to the material, thereby saving considerable in the altitude of the machine and in power, as the material is raised only the necessary height. Second, in so pivoting the shovel or buckets to two endless chains that, as they come out of the mouth of the channel, they are pushed under the material before they begin to rise, imitating as near as possible the motions of a shovel when used by man. The shovels or buckets are raised by wheels or pulleys at the top of the elevating-channel, and they discharge their loads as they pass over to come down for a fresh load. On traveling from the top pulleys to the mouth of the channel they pass under tightening-pulleys, so that they are kept taut in the channel, whatever the height of the movable part may be. Third, in having the elevating-channel, chains, &c., carried by a hollow vertical column, which is supported in bearings in such a manner that the whole of the elevating mechanism may move in a circle, thereby allowing the mouth of the elevating-channel to be moved over considerable space without moving the elevator or boat, &c. The chain-wheels are operated by means of gearing and a vertical shaft passing up through the hollow vertical column, the power being applied at the lower end thereof.

But to describe my invention more particularly I will refer to the accompanying drawings forming part of this specification, in which—

Figure 1 is a central sectional elevation cut through the line *x x* of Fig. 2. Fig. 2 is a

plan view; and Fig. 3 is a sectional view of the elevating-channels and chains cut through the line *y y*, Fig. 1, on an enlarged scale.

a is the vertical hollow column, supported by the frame *b*. Through the column *a* passes the shaft *c*, to the lower end of which is secured the miter-wheel *c*¹, meshing into the wheel *c*², fastened to the horizontal shaft *c*³, to which the motive power is applied. To the upper end, after shaft *c*, is also secured the miter-wheel *d*, which operates the wheel *d*¹, fastened to the horizontal shaft *e*, said shaft *e* having bearings in the forked frame *f*, which is secured firmly to the top of the column *a*. At the upper end of the frame *f* is the shaft or axle *g*, on which runs loose the two gear-wheels *h* and *h*¹, these wheels being driven by two wheels, *e*¹ *e*¹, keyed to the shaft *e*. To the wheels *h* and *h*¹ are fastened the chain-wheels or pulley *h*² and *h*³, and between these wheels, and supported by the shaft *g*, is the upper end of the elevating-channel *i*, which is free to partly rotate on the shaft or axle, allowing the lower end of the channel a motion to or from the column *a*, the column *a*, at the same time, being an axis upon which the channel *i* is allowed to move in about one-third of a circle. The channel *i* is rectangular in section, with slots cut through the sides, as shown in Fig. 3, and is made in two parts, one sliding within the other. At the lower end or mouth *i*¹ are pulleys, under which the two endless chains *k* and *k*¹ pass. To the chains *k* and *k*¹ are pivoted the shovels or buckets *l l*, which are made of sheet metal, with the sides bent up at right angles, the pivots of the chains being at the upper part of the sides of the buckets.

Upon power being applied to the driving-shaft the chains *k* and *k*¹ are moved by the pulleys *h*² and *h*³, carrying the shovels *l l* with them. The chains *k* and *k*¹, in leaving the wheels or pulleys *h*² and *h*³, pass over pulleys *e*² *e*², secured to the gear-wheels *e*¹ *e*¹. The shovels *l l*, in passing over the upper end of the channel *i*, are held in their places by the guide *i*², which also controls them as they pass over the wheels *e*² *e*². From these wheels the chains go under tightening-wheels *m m*, which have bearings in one end of a frame, *m*¹, said frame being pivoted at the other end to the collar *n*, secured to the hollow column *a*. The chains, in leaving

the tightening-wheels *m m*, pass over the wheels *o o*, having bearings in a frame attached to the back of the lower half of the elevating-channel. In passing over the wheels *o o* the buckets *l l* are turned by the guide *i²* so as to go down behind the channel *i* front foremost, and they are held in this position until they get to the bottom of the channel, when, in passing under the wheels or pulleys *i¹*, they are turned into a horizontal position, and pushed through the mouth of the channel and under the material to be raised, as shown in Fig. 1. The shovels are provided with projections *l' l'*, which fit into the slots in the sides of the channel, thereby keeping them in the proper position, as the pivots which fasten the chains to the shovels also pass up these slots. The chains, being outside the channel, are protected from the coal, &c., by the covering *i⁴*, as shown at Fig. 3, said covering also inclosing the shovels as they pass down at the back of the channel. The cord *p*, attached to the front of the channel *i*, passes through the pulley or eye hook *p'*, attached to the side of the boat. It is used to keep the mouth of the channel up to the material to be raised.

The channel *i* is raised up into the position shown by the dotted lines in Fig. 1 by the lines *r r*.

In using the elevator for raising any bulky material, the front of the channel *i* I propose to leave open. The buckets may be fastened to an endless belt instead of to the chains.

I claim—

1. The telescopic elevating-channel *i*, made in two or more parts, in combination with buckets or shovels attached to endless chains or belts, as and for the purposes hereinbefore set forth.

2. The shovels or buckets *l l*, pivoted to the two endless chains *k k'*, in combination with the pulleys *i¹* and guide *i²*, substantially as hereinbefore set forth.

3. The elevating-channel *i*, in combination with the hollow vertical column *a* and horizontal axis *g*, as and for the purposes hereinbefore set forth.

JOHN LEMUEL BATES.

Witnesses:

THOMAS HOLMAN,
ALFRED SHEDLOCK.