

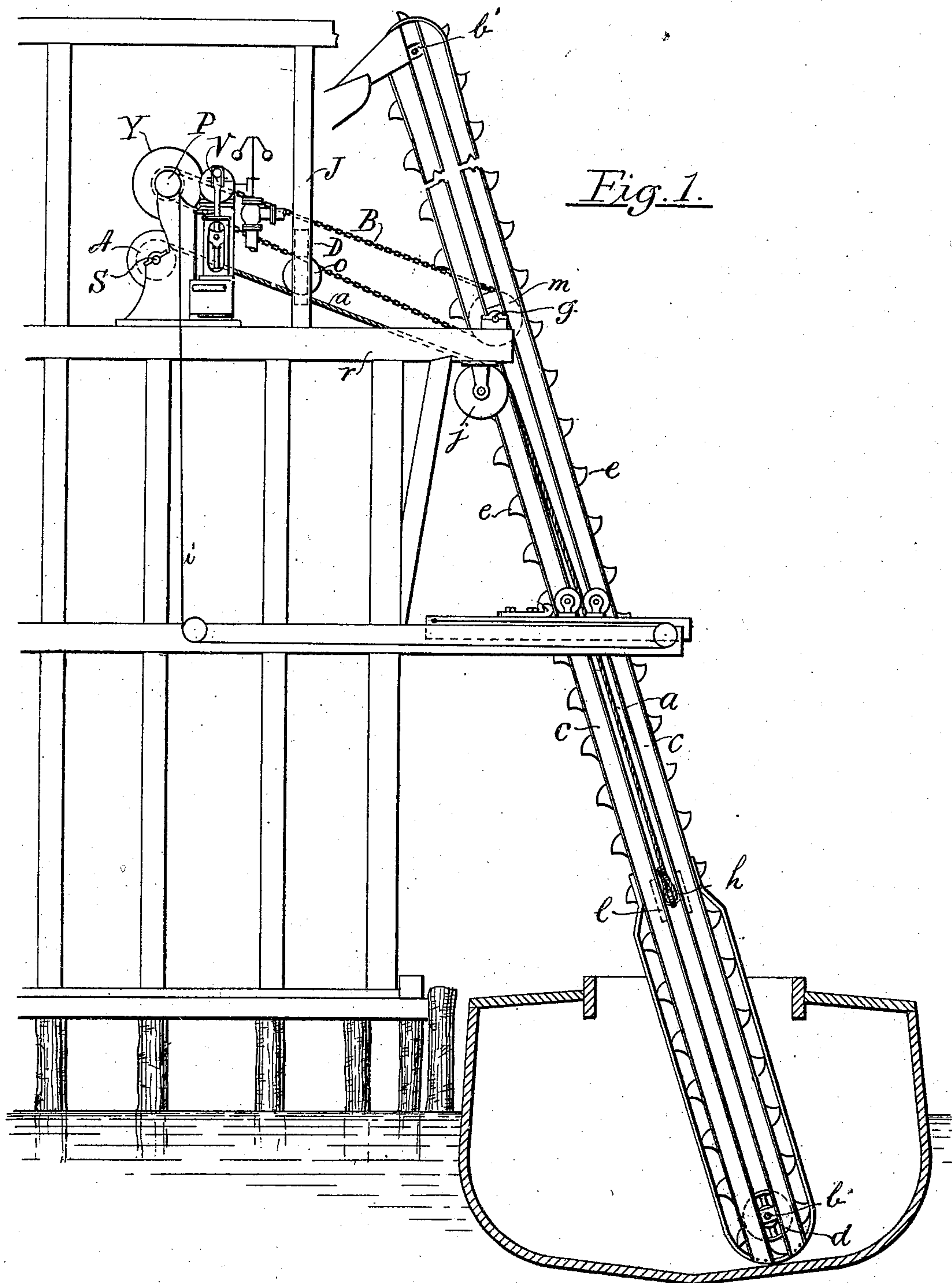
(No Model.)

2 Sheets—Sheet 1.

J. P. MANTON.
ENDLESS CHAIN ELEVATOR.

No. 504,044.

Patented Aug. 29, 1893.



Witnesses:
James Tribe
James E Arnold

Inventor.
Joseph P Manton
Atty Benz Arnold & Co

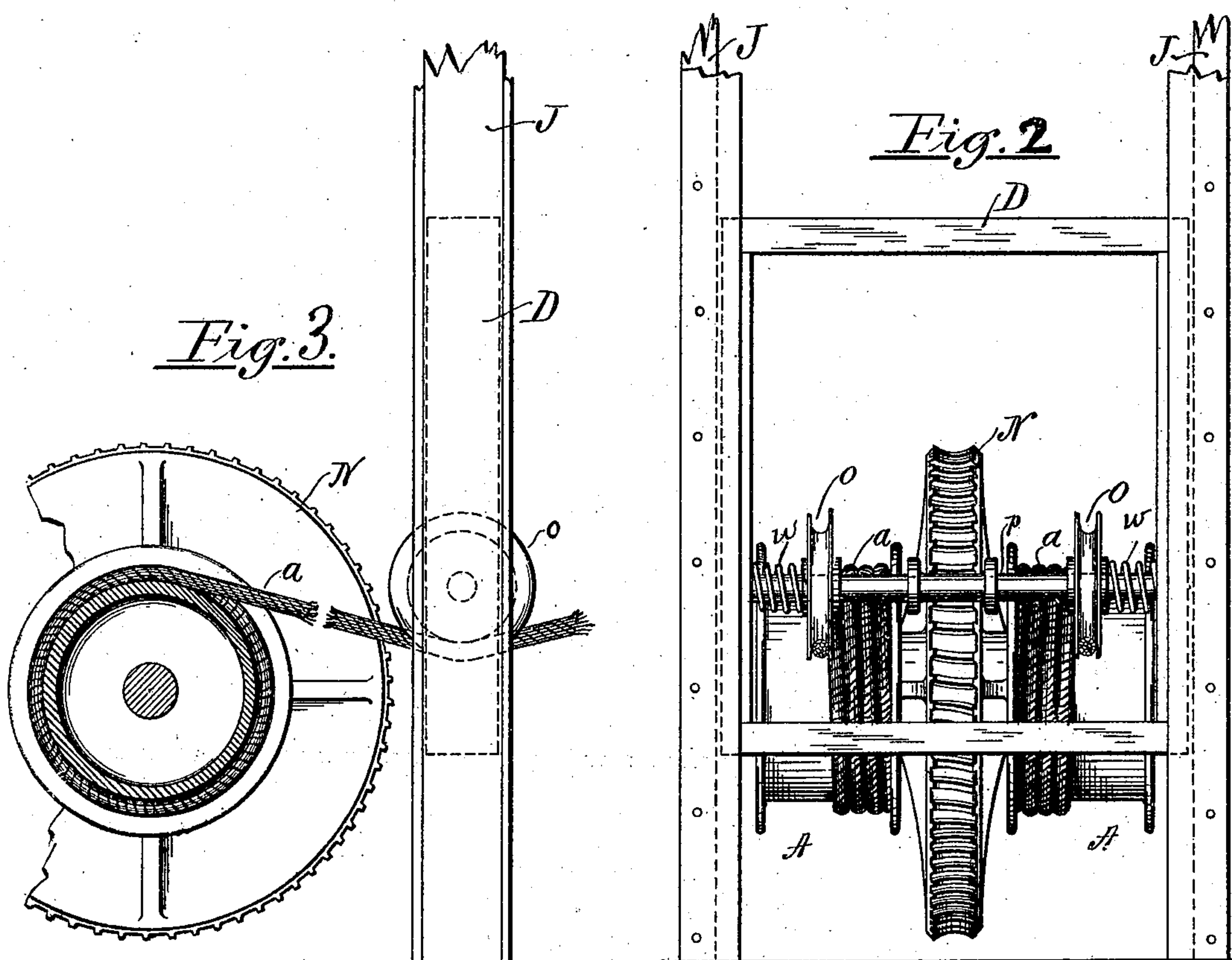
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UNITED STATES PATENT OFFICE.

JOSEPH P. MANTON, OF PROVIDENCE, RHODE ISLAND.

ENDLESS-CHAIN ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 504,044, dated August 29, 1893.

Application filed October 7, 1891. Serial No. 408,003. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. MANTON, of Providence, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in Endless-Chain Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of
10 this specification.

My invention relates to that class of elevators called "endless chain elevators," consisting of an arrangement of endless chains
15 carrying a series of buckets, and generally used for the purpose of raising and delivering coal, sand, grain, or other commodity coming in similar shape, from one vessel to another, or to cars, or receptacles constructed
20 for storing them.

My improvements refer mainly to the mode of applying power to raise or lower the elevator to accommodate it to the position of the vessel unloading, as affected by the rise and
25 fall of the tide, and different levels of the coal, &c., as the unloading goes on. It is fully illustrated in the accompanying drawings.

Figure 1, is a side elevation of an elevator of this description in connection with a barge
30 in section, and a representation of the engine for operating and raising the elevator, and its connections therewith. Fig. 2, is a front view of the devices, and their arrangement, for taking up the slack of the wire ropes used
35 for hoisting the elevator. Fig. 3, is a side view, partly sectional, of the parts shown in Fig. 2.

In Fig. 1, is shown a part of the wharf having a heavy frame-work erected thereon to
40 support the elevator proper, and the engine furnishing the power to run the chains with the buckets, and for raising or lowering the elevator, as may be required, to which latter purpose my improvements relate

45 The elevator belongs to the class called, "endless chain elevators," and consists of heavy side plates *c*, having transverse shafts *b*, *b'*, at the bottom and top, respectively, and endless chains with a series of buckets *e*, *e*,
50 attached thereto, passing over pulleys held on said shafts. The elevator is held between

beams *r*, which support the engine that operates the chains of buckets through a heavy chain *B*, passing over the chain wheel *m*, on shaft *g*, and wheels fast on shaft *P*, which re- 55 ceives motion from shaft *V*, of the engine.

The connecting arrangement between the engine and the elevator proper, for raising and lowering the latter, consists of two wire ropes *a*, *a*, one end of each rope being attached 60 to and wound around the drums *A*, *A*, on shaft *S*, and the other ends of the ropes carried out, one on each side, over pulleys *j*, *j*, secured to the beams *r*, and down each side of the elevator to the outer ends of an equal- 65 izing bar *h*, held in plates *l*, to which they are securely fastened. When the drums *A*, *A*, are run back to let the elevator down, it is not always possible to stop them just when the elevator rests on its lower end, and 70 as the drums turn a little farther, a slack in the wire ropes is made, which, as it is stiff, causes the coils on the drums to become loose and get displaced. This trouble is obviated by a tightener or binder, consisting of a rect- 75 angular frame *D*, which is held in an upright position, free to slide up and down between guides secured to two vertical stanchions *J*, *J*, extending up between two floors of the frame structure. The stanchions are placed 80 one on each outer side of the two wire ropes *a*, *a*, so that the frame *D*, will come over those ropes, and two grooved pulleys *o*, *o*, held loosely on a shaft *p*, extending across the mid- 85 dle of the frame, rest on the wire ropes. It will be plainly seen that when any slack is made in the ropes between the drums *a*, and the pulleys *j*, *j*, the frame *D*, will slide down in its guides, and keep the ropes tight on the drums by taking up the slack by the pulleys 90 *o*. There is also a tendency in the coils of the ropes as they are unwound from the drums and rewound many times, to travel apart toward the outer ends of the drums. To correct this, I put open spiral springs *w* *w* on the 95 shaft *p*, between the pulleys *o*, *o*, and the sides of the frame. The pressure of the springs, keeps the pulleys *o*, *o*, pressing against the ropes, so that they will coil closely on the drums. 100

Having thus described my improvements, I claim as my invention—

The combination with a steam windlass having a drum to operate a wire rope or chain to raise the elevator, of a binder to take up the slack of said rope, said binder comprising a
5 slidable frame and one or more grooved pulleys movable freely on a cross shaft, and a spring bearing against each pulley to guide

the rope and make it follow properly in winding on the drum, substantially as herein set forth.

JOSEPH P. MANTON.

Witnesses:

JAMES G. ARNOLD,
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