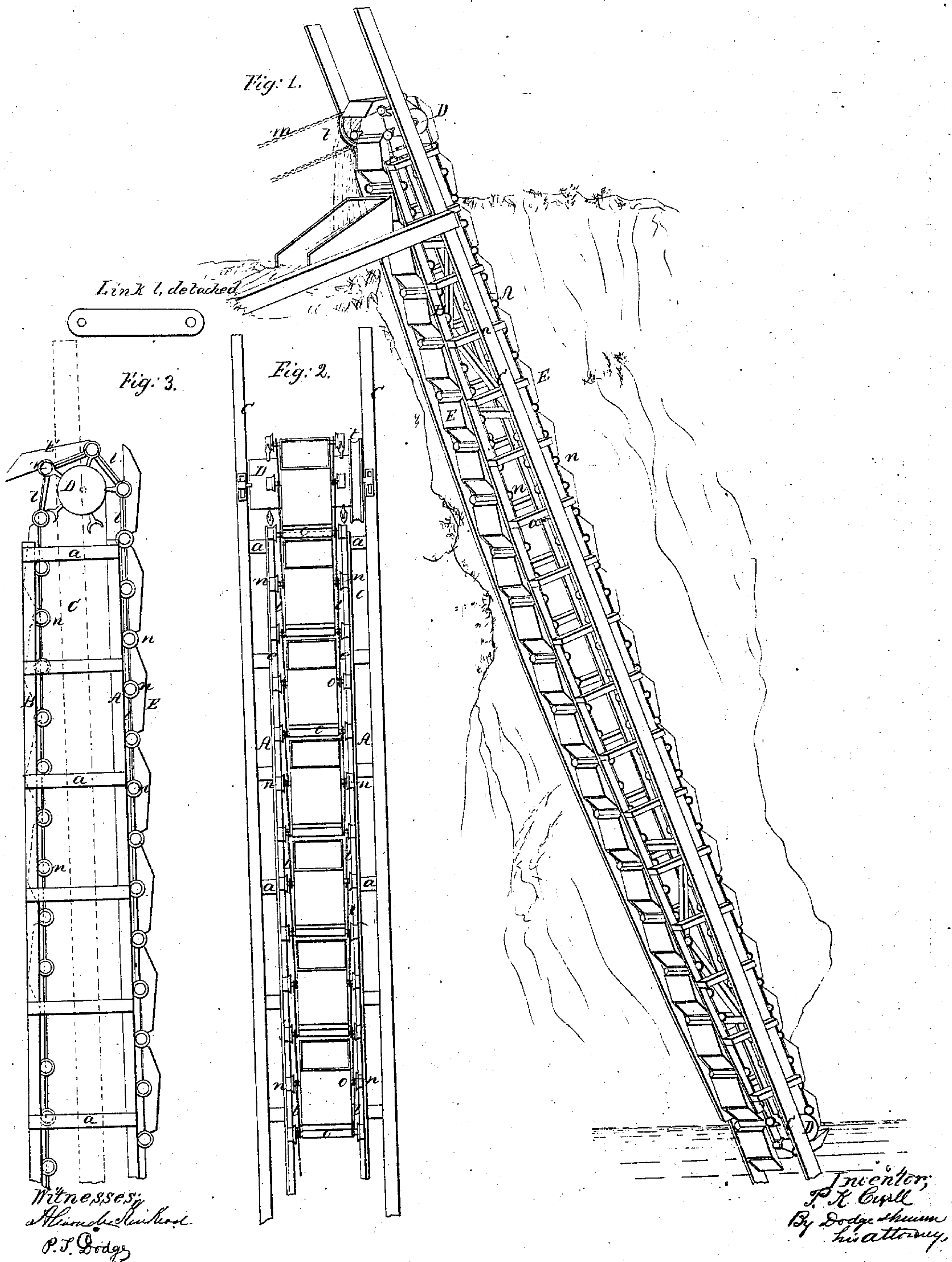


P. H. Curll,
Chain Pump,

No 68,847,

Patented Sept. 17. 1867



Witnesses;
Almon H. Smith
P. J. Dodge

Inventor,
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United States Patent Office.

PEARCE K. CURLL, OF ELKRIDGE LANDING, MARYLAND.

Letters Patent No. 68,847, dated September 17, 1867.

IMPROVED WATER-ELEVATOR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, PEARCE K. CURLL, of Elkridge Landing, in the county of Howard, and State of Maryland, have invented certain new and useful Improvements in Water-Elevators for use in mines, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention consists in arranging a series of buckets in the form of an endless chain, and mounting them on a frame of novel construction, as hereinafter more fully described.

Figure 1 is a perspective view of my apparatus, as arranged for use in a mine or other similar purpose.

Figure 2 is a front elevation, and

Figure 3 is a side elevation of the same.

I construct a frame consisting of long timbers C, placed parallel, and held by suitable cross-pieces. At right angles to these, on their inner sides, I attach a series of short pieces or cross-bars, *a*, projecting on each side of the timbers C, as shown in figs. 1 and 3. To the upper ends of these pieces *a*, on their inner faces, I then bolt or otherwise secure long strips or timbers A, and corresponding with these, at the lower inner ends of the cross-pieces *a*, I secure another set of strips or timbers B, as shown in the drawings, the timbers A and B, when thus arranged, constituting two railway tracks, one over the other, and parallel with each other. To the side timbers C, at both upper and lower ends, is secured a sprocket-wheel, D, one or both of which should be mounted in adjustable bearings, for the purpose of tightening up the chain of buckets when required. I then construct a series of buckets, E, of the form represented in the drawings, and secure to each of them, on their under side, two rods *o*, which project at each side of the buckets, to form journals or axles, for the double purpose of uniting the buckets to each by metal links *l* on each side, and also to form bearings for friction-rollers *n*, which are provided with flanges like car-wheels, and are placed loosely on the journals. One of the rods or journals *o* is attached at the lower end of the buckets E, and the other is secured underneath the centre of the bucket, as shown clearly in fig. 3. I then connect these buckets E by two metal links *l*, which are made of proper length to reach from one to the other of the rods or axles *o*, and are provided with a hole at each end, of proper size to fit loosely on the journals. After slipping on the links *l* one of the flanged rollers *n* is slipped on to each end of the rod or journals *o*, and the chain of buckets thus connected are hung in the frame in such a manner as to pass around the sprocket-wheels D, at each end, and have the rollers *n* rest on the upper surface of the rails A and B, as shown in figs. 1 and 3. A pulley, *t*, is secured to the shaft of the upper wheel D, around which a chain or cord, *m*, passes, and by imparting motion to the wheel D, causes the chain of buckets to ascend on the rails A, and descend on the under rails B. By this means, when the lower end of the apparatus is immersed in the water, the ascending buckets will pass up full, and, as they pass over the upper wheel D, will empty the water into a trough placed to receive it, as shown in fig. 1, where the apparatus is represented in place in the shaft of a mine. By using the rails or track, and having the rollers *n* flanged, there is less friction and strain on the parts, and less power is required to operate it, and at the same time the links and rollers are kept from working off the journals while still being loose, so as to be readily removed whenever necessary for any purpose. In case very long series of buckets are required, it will be desirable to locate several of the wheels D at suitable distances along the frame, and connect them on the outside of the frame by means of sprocket-wheels and chains, or some similar means, in order to relieve the links and journals of the excessive strain and wear that would be otherwise thrown upon them.

It is obvious that the apparatus may be used also as a dredge or excavator for clearing out channels, docks, &c., where the material to be raised consists of mud, sand, or other soft substance. When used for such purposes it would be safer to secure the rollers to the journals in such a manner as to prevent the possibility of their becoming detached.

A simple form of constructing the journals is to use a simple round rod, and pass it through lugs or ears attached to the under side of the buckets, so that when worn, or it is desired for any purpose to separate the chain of buckets, the rod can be withdrawn; or they may consist of short journals, bolted or otherwise secured

to the buckets. Where the buckets are large, and the amount to be raised is large, it will be desirable to secure iron rails to the timbers composing the tracks, as represented by *c* of fig. 2, for the rollers *n* to run on, and thus prevent wear.

Having thus described my invention, what I claim is—

A water-elevator, consisting of a series of buckets *E*, having journals attached as described, and connected by the detachable links *l* with the flanged rollers *n* applied to the journals, the whole mounted in a suitable frame, having tracks *A* and *B* for guiding and supporting the series of buckets, all constructed and arranged to operate substantially as described.

PEARCE K. CURLL.

Witnesses:

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