C. A. LEAMAN & J. A. HECKART.

HYDRAULIC PROPULSION OF VESSELS.

No. 184,090. Patented Nov. 7, 1876.

Fig. 1.

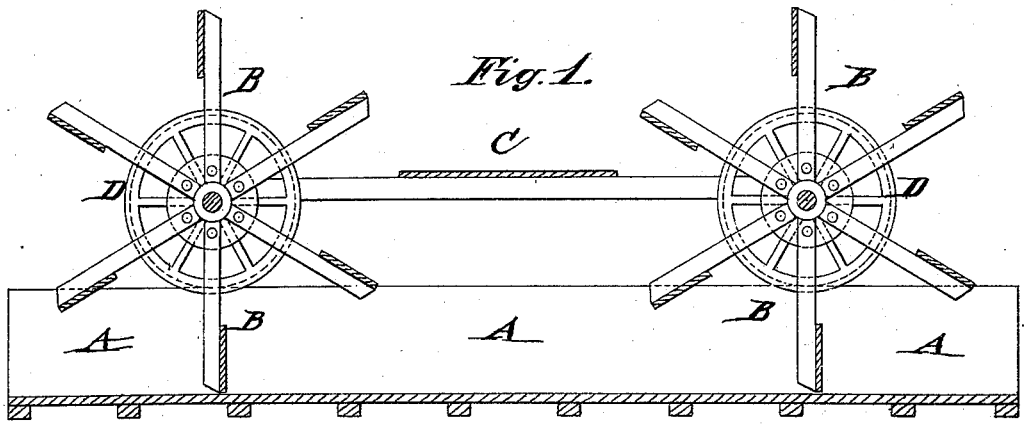


Fig. 2.

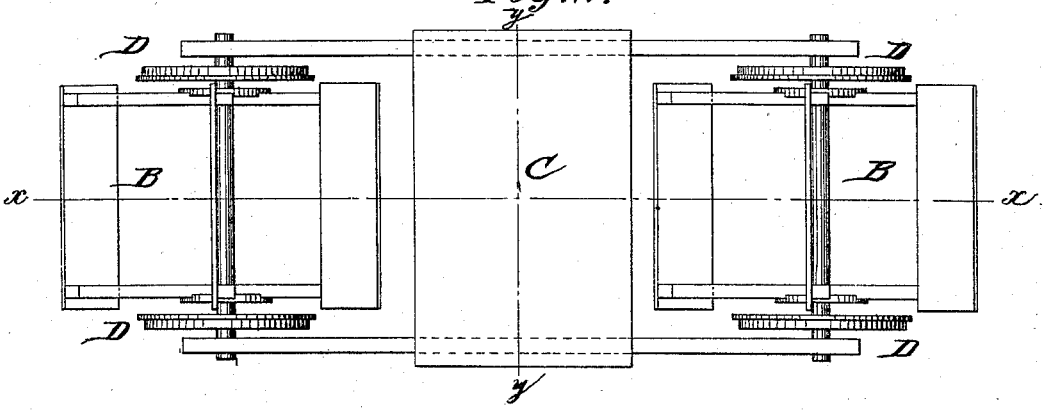
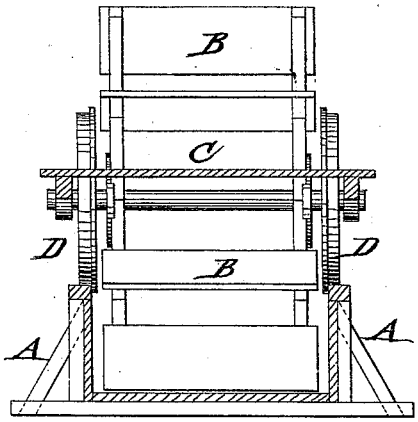


Fig. 3



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COLUMBUS A. LEAMAN AND JOHN A. HECKART, OF PENTZ RANCH, CAL.

IMPROVEMENT IN HYDRAULIC PROPULSION OF VESSELS.

Specification forming part of Letters Patent No. **184,090**, dated November 7, 1876; application filed September 22, 1876.

To all whom it may concern:

Be it known that we, COLUMBUS A. LEAMAN and JOHN A. HECKART, of Pentz Ranch, in the county of Butte and State of California, have invented a new and Improved Hydraulic Locomotive, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved hydraulic locomotive, taken on the line *x x*, Fig. 2. Fig. 2 is a top view; and Fig. 3 a vertical transverse section of the same on the line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts.

My invention relates to a carriage or locomotive propelled up or down stream by the current of the water-flume, so as to convey a load of freight, passengers, &c., at considerable speed, the power being in proportion to the cross-section of the water-head.

The invention consists of a carriage or locomotive that is propelled on the side rails of a water-flume by paddle-wheels driven by the current.

In the drawing, A represents a water-flume, which is made square or V-shaped, and B the paddle-wheels of a carriage or locomotive, C, that runs by wheels D on the side rails of the flume. The paddles of the wheels B correspond in shape to the section of the flume, and are acted upon by the current of the flume, which furnishes the motive power.

The load that may be carried is in proportion to the size and strength of the flume, while the speed is governed by the grade and velocity of the water. The speed may be regulated by suitable brakes.

The paddle-wheels are attached to their shafts with clutch-gear, to be unshipped at pleasure.

The wheels D of the carriage C run on side rails of the flume, and are placed on the same shaft with the paddle-wheels or not, as desired, bearing on the track with sufficient friction to propel the carriage up stream.

In running down stream, the paddle-wheels are unshipped, and the car is propelled by the force of gravity on the grade, or the paddle-wheels can be stayed stationary, and the current used as an additional motor, if required.

The carriage-frame may be made in two sections, with the platform resting on anti-friction balls, so as to facilitate the turning of curves.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

A hydraulic carriage or locomotive, propelled by paddle-wheels by the current of a water-flume, &c., and running by truck-wheels on side rails of the flume, substantially in the manner and for the purpose set forth.

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