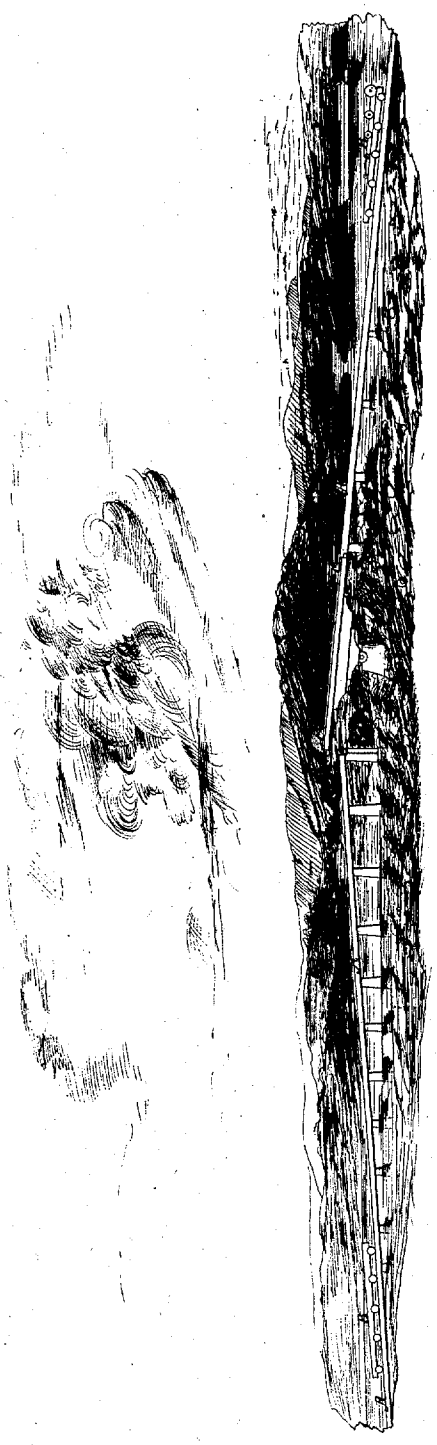
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S. UNDERWOOD.

CONVEYING BOATS OVER DAMS, &c.

Patented Mar. 19, 1836.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

Stephen Underwood of Bath in the County of Grafton State of New Hampshire

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said Stephen Underwood himself, of his improvement "In the Machine for conveying Boats, Rafts &c. over Dams, shoals, and other obstructions in rivers."

To all whom it may concern, Be it known, that I Stephen Underwood of Bath in the County of Grafton and state of New Hampshire, have invented an improvement in the manner of an apparatus for the conveying of Crafts and Boats and so forth over Dams, sluices shoals or shelves in rivers, and do hereby declare that the following is a full and exact description thereof. I construct two inclined planes, railways, which are to be made and fixed, in the manner of the well known marine railways for hauling vessels out of water for repairs. I also construct a car, carriage, or cradle, which is to run upon trucks, wheels or rollers in a manner also similar to those used for raising vessels to be drawn upon marine railways. One of the before named railways is to be constructed and fixed above the dam, or other obstruction, its lower end being up stream, and so far below the surface of the water as may be required to float the raft or other load on to the car or carriage which is then to stand thereon. The other railway is to be below the dam and so forth inclining down stream, and in all other respects constructed like that first named. The length of these railways must vary so as to adapt them to the situations on which they are to be placed, and this will be governed by the depth of the water, the height of the obstruction, and the inclination which must be given to cause the power applied to be sufficient to raise the load. Should there be no ascending traffic, the inclination of the lower may exceed that of the upper railway.

The upper ends of these railways are to be on the same horizontal

lines or nearly so, but they are not to meet together by the whole distance occupied by the length of the car or carriage, which is to sustain the load, say thirty feet more or less, according to circumstances. This distance is to be occupied by what I denominate a vibrating railway, which so far as the rails are concerned, has its upper surfaces inwardly inclined like that of the inclined planes, so that the pan or carriage may run thereon. The timbers of which it is composed must be strongly framed together and so stayed that they will sustain the car and its load without sensibly yielding where it has no support but that of the shaft or gudgeons, upon which it is itself sustained at its center. The vibrating railway is elevated above the level of the upper ends of the inclined planes, and turns upon gudgeons formed by the terminations of a shaft, which are fixed at the center. The boxes or bearings for these gudgeons consist of mortises firmly fixed, as they also are to bear the whole weight of the car and its load. The vibrating rails may be so adjusted that it will still tilt towards either of the inclined planes, will adapt its rails to, and form a junction with them, at their own inclination. I do not think it necessary to describe any particular mode of drawing the car with its load up the inclined planes, as this will be done by manual, animal, water or other power, according to circumstances, and as any such machinery will be able to derive this part of the operation. It is also sometimes necessary to cause the loading to lie horizontally upon the car as it ascends and descends the inclined planes, and to adapt the bearing surfaces of it to the inclination and curvature of the road. I place round beams across the car, which beams are the bearing timbers of the load, these axle and turn upon gudgeons at their ends, the gudgeons being receptive to the beams, which the balls are turned by means of a handspike or otherwise, the load will be sustained by them in any required position. I intend also to use cars for conveying coals, the bodies of which shall be water tight boxes, into and out of which the coals may be steadily lowered, after having thus fully described my said invention and the manner in which the same is to be used, I do hereby declare that it consists exclusively in that part of the apparatus employed, which I have denominated the vibrating

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ting railway which is intended to raise the loads at the summit of the inclined planes, and to be adapted by the vibratory motion to the planes of either, for the purpose and in the manner by me set forth; And I do further declare that I do not intend to confine myself to any particular mode of constructing the said vibrating railway and its appendages but to vary the same as I may think proper, whilst I attain the desired end by adapting such a railway to the ascending and descending planes.

Witness

B. K. Morrell } Stephen Underwood

James Bowen }

936 words] Patented 19th March 1836 C.P.H.G.

Rd. & Rolled anew April 25 1837

P. Clewes