

W. Van Dusen.
Marine Railway.

N^o 22,317.

Patented Dec. 14, 1858.

Fig. 1

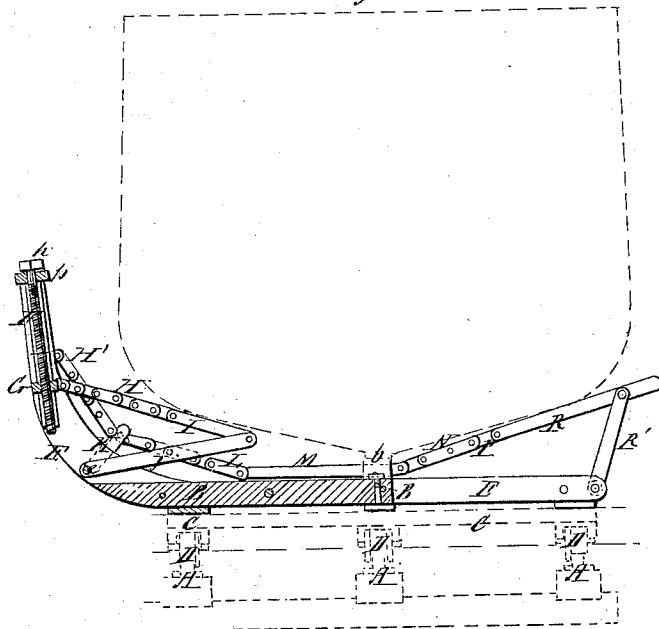
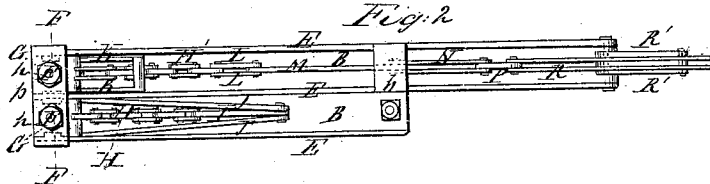


Fig. 2



UNITED STATES PATENT OFFICE.

WASHINGTON VAN DUSEN, OF PHILADELPHIA, PENNSYLVANIA.

ADJUSTABLE CRADLE FOR DRY-DOCKS AND MARINE RAILWAYS.

Specification of Letters Patent No. 22,317, dated December 14, 1858.

To all whom it may concern:

Be it known that I, WASHINGTON VAN DUSEN, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Marine Railways for Hauling of Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

Figure 1, is a transverse section of the carriage and track rails of a marine railway, and cradle frame above the same, to which the improvement is attached. Fig. 2, is a top or birds-eye view of a section of the same.

Similar letters in the figures refer to corresponding parts.

This invention relates to the cradles of marine railways, and consists in so constructing the cradle bars, and arranging the same in relation to each other, and attaching them by bars and chains to sliding blocks attached to the lower ends of vertical screw shafts, arranged together on one side of the cradle, by which said sliding blocks and cradle bars can be raised and lowered, so as to properly adjust the latter to the bottom of the vessel they are intended to sustain, by the turning of the said screws on one side of the vessel.

To enable others skilled in the art to make and use my invention I, will proceed to describe its construction and operation.

The foundation, together with the frame work of cross and fore and aft ways to bear the iron track rails A, are made in the usual manner, and the iron track rails A, three in number, are arranged respectively, immediately below the parts of the cradle where the keel and larboard and starboard bilge of the vessel to be sustained, are intended to rest.

The cradle frames B, are secured on iron frame work C, provided with flanged rollers D, for moving over the iron track rails A, and are moved in the same manner as the cradles described in my patent for improvements in marine railways, issued on the 14th day of April, 1835. Instead of erecting up-rights on either side of the cradle frames B, as described in my former patent, three metallic ribs E, extend upward from one end of the cross pieces of the same only, the horizontal portion of two of which ribs E,

extend the full length of said cross pieces and are firmly secured thereto, by bolts or other suitable means. The upper portions of the ribs E, incline at an angle of about 80 degrees with the horizontal portions, and the curved portions, which join the two, are curved somewhat after the form of the bilge of a vessel, and are enlarged in width to withstand the additional cross strain to which they are subjected when a vessel is sustained on the cradle bars. The upper ends of the cradle frame ribs E, are secured together by a cap piece *p*, through openings in which pass two lifting screws F, having hubs *h*, at their upper ends provided with spokes and a rim, or the usual hand bars for giving motion to the same, the lower ends of said lifting screws F, passing through female screws formed in sliding blocks G, having grooves on their ends which move up and down between tongues secured to, or projecting from the sides of the upper portions of the ribs E. To the inner edges of these sliding blocks G, are attached the ends of plate link chains H, H', the opposite end of one of which chains (H) is attached to the end of the cradle bar I, on which the side of the vessel to be hauled next the upper portions of the ribs E, is sustained, which cradle bar I, is jointed at its opposite lower end to bars J, arranged on either side of, and partially below the cradle bar I, and extending therefrom at an acute angle to the curved portions of the ribs E, to a horizontal bolt *e*, passing through which, their ends are attached or jointed. The other chain H', passes under a bolt connecting the ends of parallel arms or bars K, jointed at their opposite ends to the bolt *e*, and its lower end is jointed by a pin to parallel link bars L, which are in like manner jointed to the end of a horizontal transversely sliding bar M, passing through a guide opening in the keel block *b*, of the cradle frame B, and attached by a pin to the ends of parallel link bars N, which also pass through the opening in the keel block, when the sliding block is raised between its tongues on the upper portions of the rib bars E. The opposite ends of the parallel link bars N, are attached by a small link plate P, to the ends of the parallel cradle bars R, for sustaining the side of the vessel farthest from the inclined portions of the ribs of the cradle frame B, which cradle bars R, are jointed by bolts near their opposite ends, to three

parallel bars R', secured at their lower ends by a bolt upon which they turn to the end of the cross piece or sill of the cradle frame B.

5 A series of cradle frames B, and cradle bars I, R, chains H, H', and other necessary attachments, precisely similar to those before described and represented in the drawings, are secured to the cross sills C, of the
10 carriage, which are arranged at the required distance apart the whole length of the same, and when it is designed to haul up a vessel on the railway, the cradle carriage C, is moved over its ways, into the water in
15 which they extend at a uniform and slightly descending inclined plane, and the vessel to be hauled up is brought in the proper relation to the cradles, so as to enable its keel to rest successively upon the keel blocks b, on the cross piece B, of the cradle frames,
20 (as the carriage C, and said cradle frames and their attachments are hauled up on the track rails in the usual manner.) During this upward movement of the cradle frames B, carriage C, &c., over the said track rails A, and as the several portions of the keel of the vessel from stem to stern, are successively brought upon the keel blocks b, of the cradle frames B, over which they are situated, the
25 cradle bars I, R, of each successive cradle frame are adjusted to the bilge of the vessel on either side, by simply turning the lifting screws F, and thus raising the sliding blocks G, and through this movement raising the
30 cradle bars I, R, in direct contact with the

bilge of the vessel, in such a manner as to cause the strain arising from the weight of the vessel to be brought at such points as are best able to withstand the great pressure thus exerted, no matter what may be the
40 form of said bilge. In this manner the series of cradle frames B, are made to form one connected cradle, capable of being adjusted to, and sustaining any sized or shaped vessel by the simple action of lifting screws
45 F, on one side of the same.

This improvement is equally applicable to all sorts of sectional, dry, balance and hydraulic docks and I therefore do not confine myself to the use of the same for marine
50 railways only.

What I claim as new and desire to secure by Letters Patent, is,

The combination and arrangement of the cradle bars I, R, jointed connecting and sliding bars M, N, R', chains H, H', and sliding
55 lifting screw blocks F, respectively connected together and to the cradle frames B, or ribs E, in such manner and in such relation to each other as to enable the cradle bars I, R, to be adjusted to the bilge of the vessel desired to be hauled up, and to sustain the same, by operating the lifting screws F, on one side of the cradle frames B, substantially as before described.

W. VAN DUSEN.

Witnesses:

JOHN CLOUDS,
JOHN VAN DUSEN.