

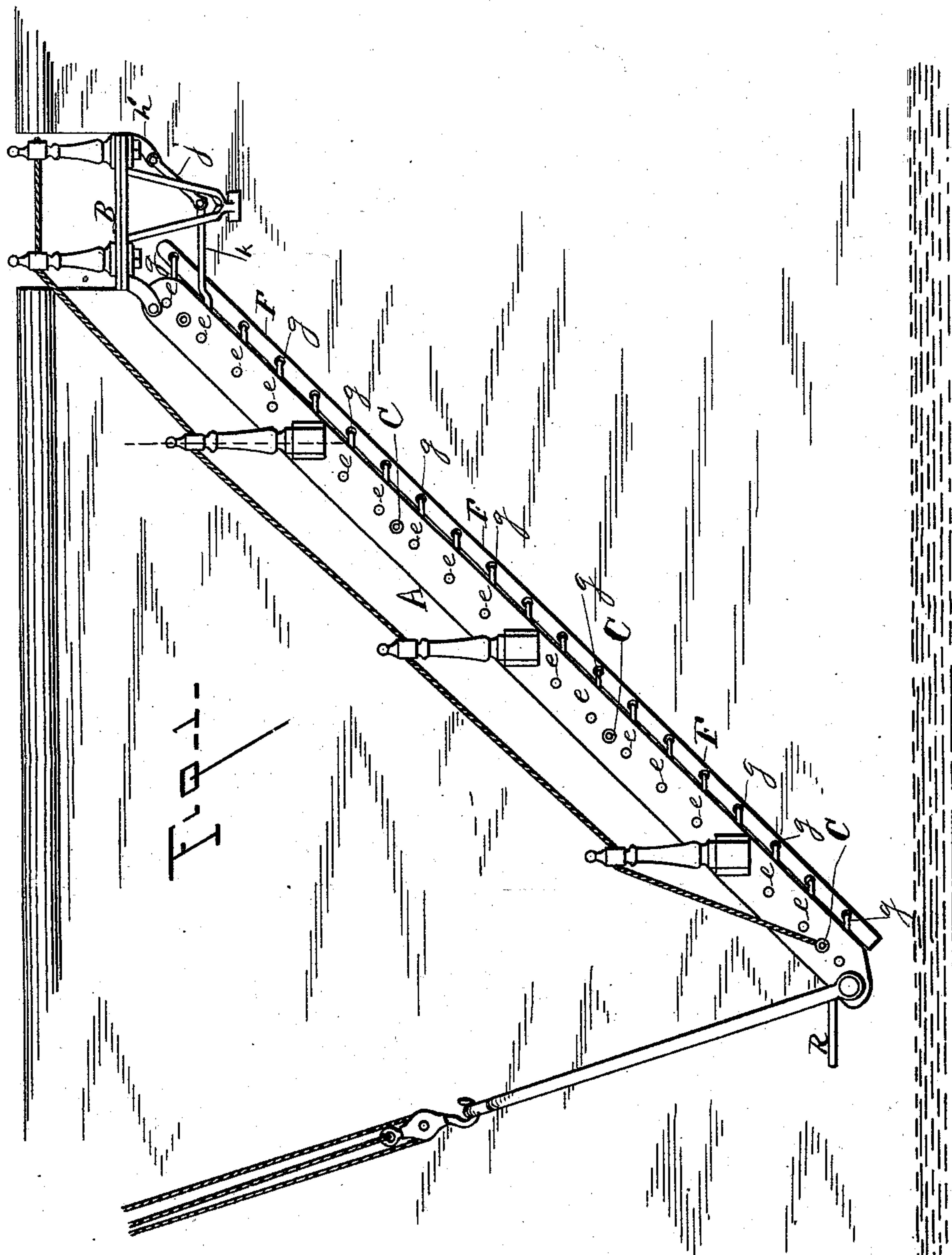
(No Model.)

2 Sheets—Sheet 1.

M. DEANE.
SHIP'S LADDER.

No. 547,337.

Patented Oct. 1, 1895.



Witnesses
W. B. Fare
Chas. J. Ambuster

Inventor
Maurice Deane
by *Wm. L. Boone*
Attorney

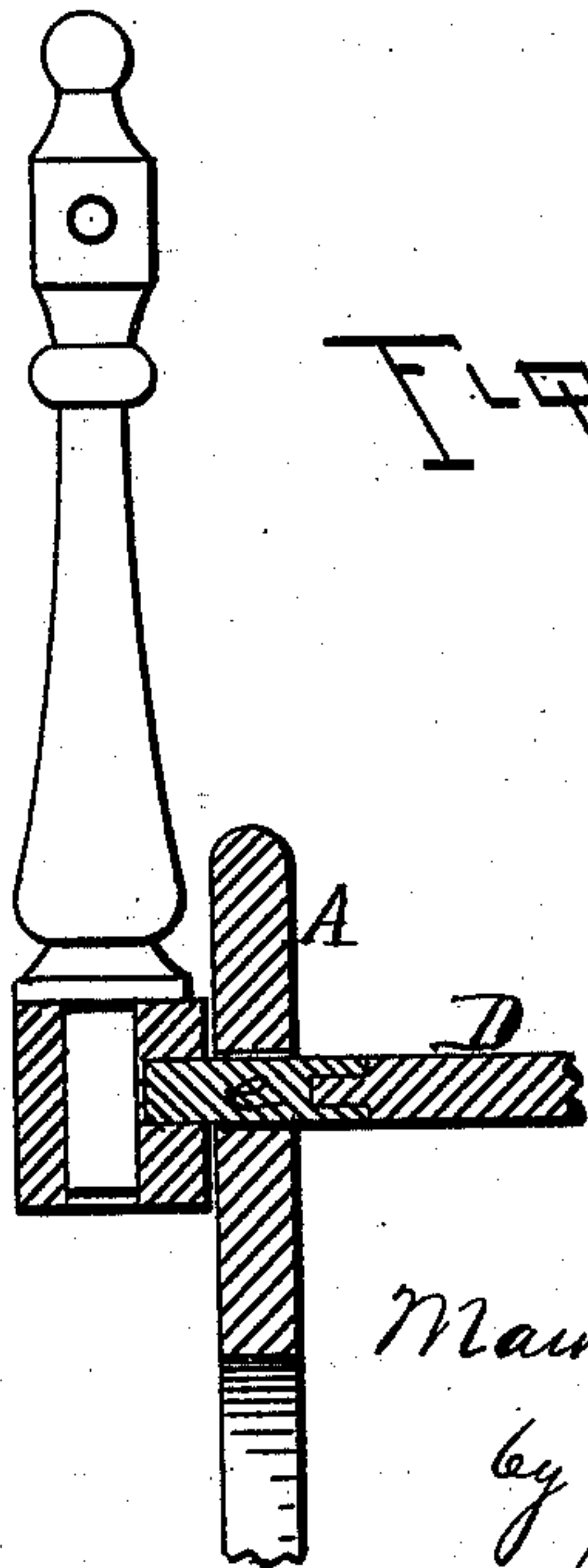
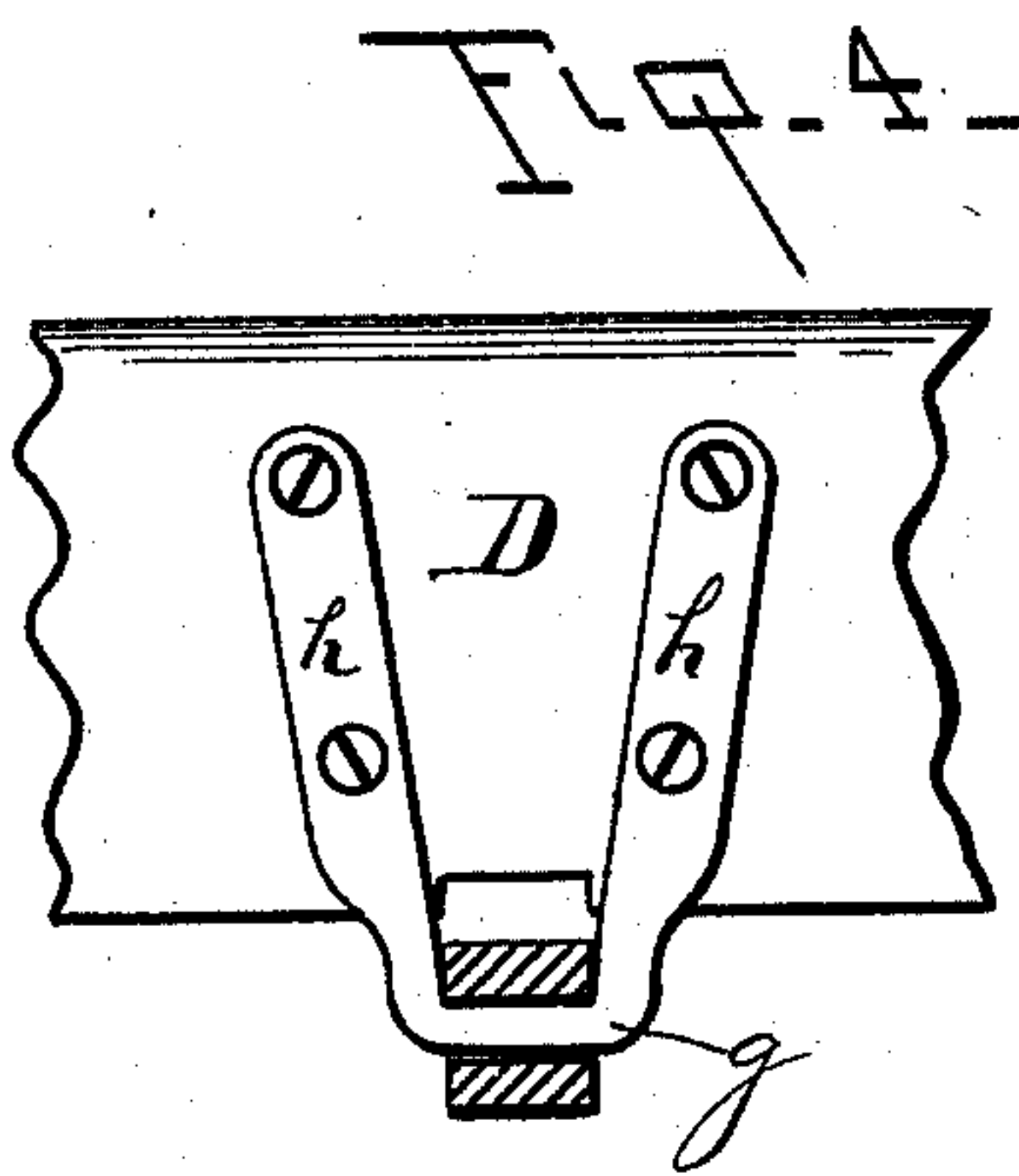
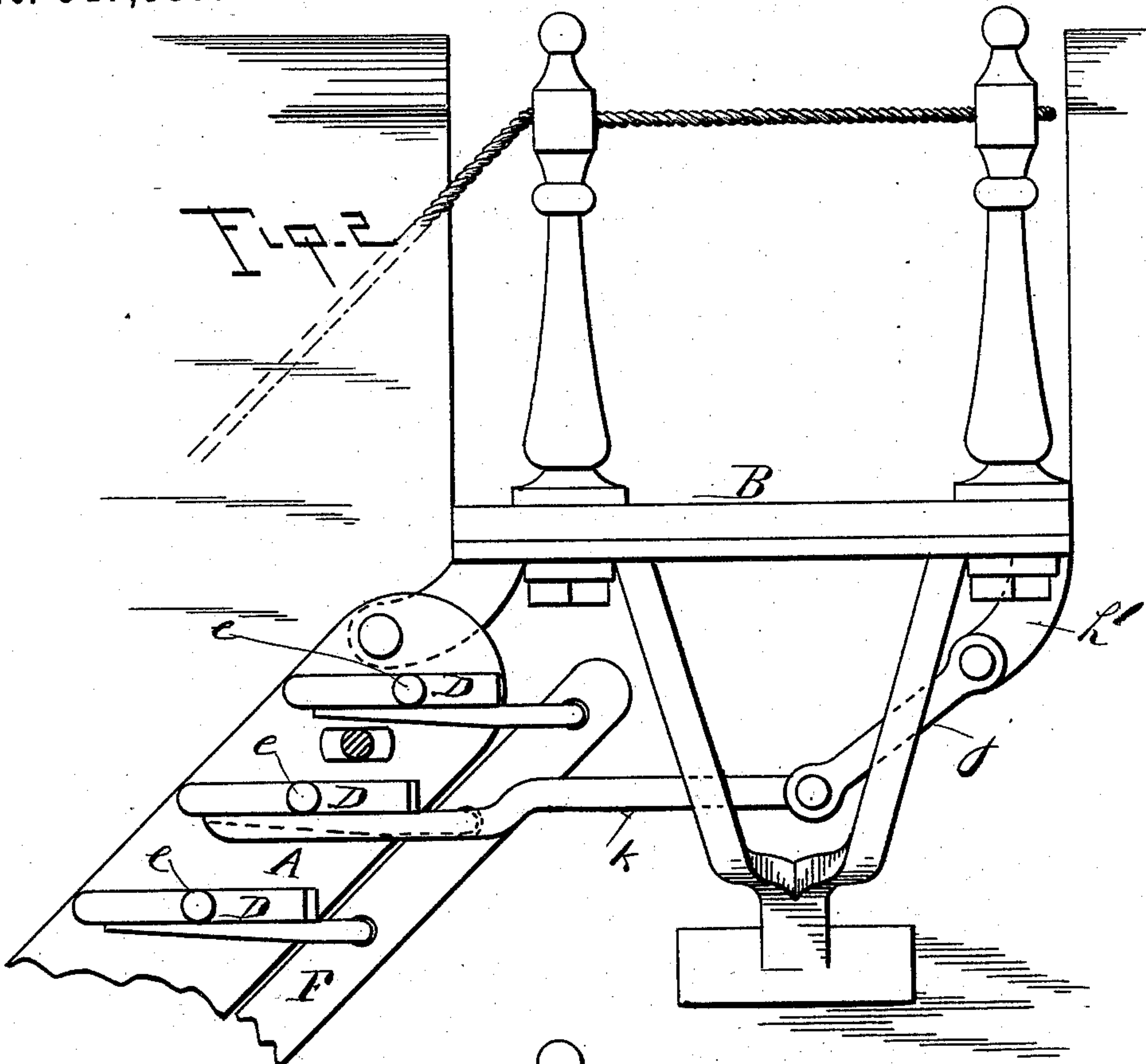
(No Model.)

2 Sheets—Sheet 2.

M. DEANE.
SHIP'S LADDER.

No. 547,337.

Patented Oct. 1, 1895.



Witnesses

W. S. Paré
Chas. J. Ambuster

Inventor
Maurice Deane
by *Jno. L. Boone*
Attorney

UNITED STATES PATENT OFFICE.

MAURICE DEANE, OF SAN FRANCISCO, CALIFORNIA.

SHIP'S LADDER.

SPECIFICATION forming part of Letters Patent No. 547,337, dated October 1, 1895.

Application filed April 4, 1895. Serial No. 544,482. (No model.)

To all whom it may concern:

Be it known that I, MAURICE DEANE, a citizen of the United States, residing at the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Ships' Ladders; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

The object of my invention is to improve ships' ladders by providing them with steps, which may be adjusted to a horizontal plane in the ladder-frame regardless of the angle of inclination at which the ladder is placed. This can be done in various ways, but I have devised a simple mechanism by which the steps are automatically compelled to assume this horizontal position by the simple adjustment of the ladder to the desired angle, the simple act of raising or lowering the free end of the ladder serving to bring into action the mechanism necessary to retain the steps in a horizontal plane as the frame of the ladder varies its inclination.

My invention also includes the necessary mechanism for automatically keeping the stanchions, which support the guard-rope at the side of the ladder, in a permanent vertical position, regardless of the angle of inclination at which the ladder-frame stands, all as hereinafter more fully described.

Referring to the accompanying drawings, Figure 1 is a side elevation of the ladder in position. Fig. 2 is an enlarged view of the platform and its connections with the steps, showing outer rail removed. Fig. 3 is a cross-section taken through one of the stanchions; and Fig. 4 is an under side view of the steps, showing the bar and connections.

Let A A represent the side rails of a ship's ladder, the upper ends of which are hinged to the platform or landing B in the usual way. Transverse rods C C at intervals connect them together at different points of their length, thus preserving a positive parallelism of the two rails.

The steps D D are each of them provided with a journal *e* at each end, and the side rails A have holes made in or through them directly opposite each other, in which the

journals of the steps are received and serve as bearings and supports for the steps. Underneath the steps of the ladder and extending the entire distance from the lower step to the uppermost one is a strong bar or rod F, to which is attached a hinged strap or link *g* opposite the rear edge of each step. This hinge or strap has strong arms *h*, which project out and are firmly secured to the under side of each step in front of the bar, so that the entire series of steps are connected by a hinge-joint with rod or bar F. It is now apparent that the plane of each and every step in the series is controllable by and through the bar or rod F.

Extending downward from the under side of the upper platform or landing B and directly in rear of the ladder are lugs *h' h'*. The distance between these lugs is somewhat less than the width of the steps D, and they are so located that a direct connection can be made from each to one of the steps of the series. One end of a link *j* is hinged to the lower end of each lug *h'*, while another link or rod *k* has one end firmly secured to the under side of one of the steps D, and its opposite end is hinged or jointed to the lower end of the link *j*, thus forming jointed or flexible rod or lever connections between the lugs *h'* and one of the steps of the series. The length of these links or rods will be regulated according to which of the steps in the series the connection is made with. By this jointed-lever connection with one of the steps of the ladder, the true horizontal position of that step is insured in whatever position or angle of inclination the ladder may be placed, and as this step is connected with all the other steps by means of the bar or rod F and the hinge connections, all the steps will move in unison and be firmly fixed and held in the position assumed when the ladder is at rest. The small platform R at the foot of the ladder is secured upon the lowermost step, thus subjecting it to the same parallel movement and conditions that govern all the other steps of the ladder.

In order to secure symmetrical appearance and also to insure convenience and confidence to persons who are ascending or descending the ladder, I apply the same movement to the sockets for the stanchions which sustain the

guard-rope on the outside of the ladder. These sockets are secured to an extended journal of one of the steps, so that they move with the step; but I secure the stanchions in the sockets at a right angle to the plane of the steps, so that they will always maintain a vertical position as the angle of inclination of the ladder is changed. By this means I provide a ship's ladder that will be easy to ascend or descend, and I avoid the awkward and unpleasant conditions which make the present ladder objectionable. The steps and lower platform will always stand in a horizontal plane, no difference what the angle of inclination of the ladder may be, thus increasing its safety and convenience.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a ship's ladder, the combination of the ladder pivotally hung in position and having the pivoted steps, the rod or bar arranged under and extending the length of the ladder, the hinge-straps fixed to the steps and bearing in said bar or rod, and the jointed or flexible rod or lever connection, one end of which is connected to one step and the other end connected to a fixture, substantially as set forth.

2. In a ship's ladder, the combination of the pivotally hung ladder having the pivoted steps, the sliding rod or bar arranged below and extending the length of the ladder, the hinge straps or loops secured to said steps and having their arm-uniting portions passing through apertures in said bar or rod, and the jointed or flexible connection consisting of a rod and link pivoted together, the rod being secured to a step and the link being hung in lugs depending from a landing or platform, substantially as specified.

3. In a ship's ladder, the combination of the guard-rope stanchions and their sockets, the pivotally hung ladder with its pivoted steps having their pivots or journals passing through the side-rails of the ladder and carrying said sockets, the jointed rod or lever connection between one step of the ladder and a landing or platform, and the sliding bar or rod arranged below said steps and hinged to said steps, substantially as set forth.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

MAURICE DEANE.

Witnesses:

CHAS. J. ARMBRUSTER,
FRED C. HART.