

J. A. L. WADDELL & J. L. HARRINGTON

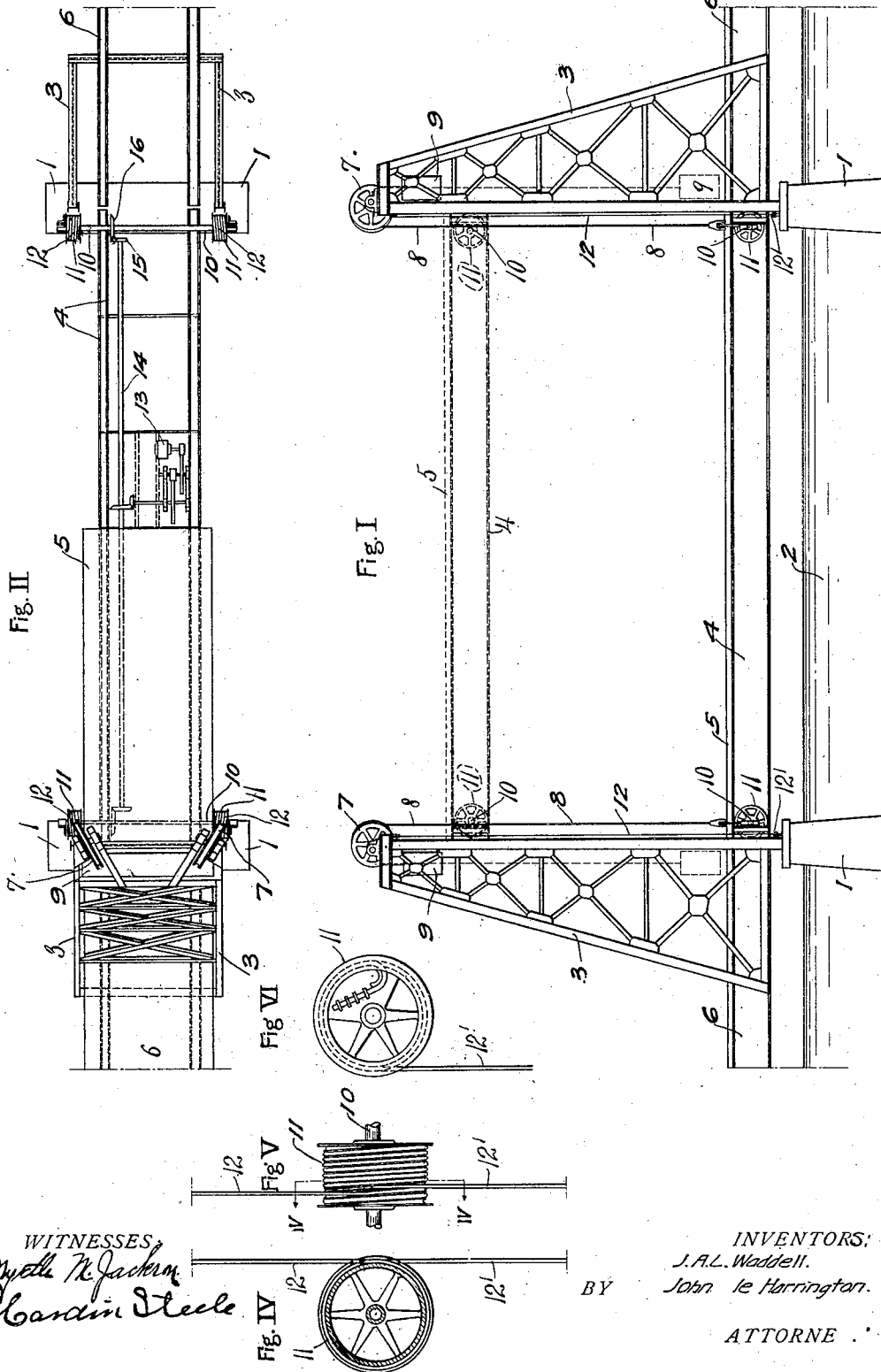
LIFT BRIDGE.

APPLICATION FILED AUG. 31, 1908.

932,359.

Patented Aug. 24, 1909.

2 SHEETS—SHEET 1.



WITNESSES:
Myrtle Mc Jackson
Harold Steele

INVENTORS:
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BY
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J. A. L. WADDELL & J. L. HARRINGTON.

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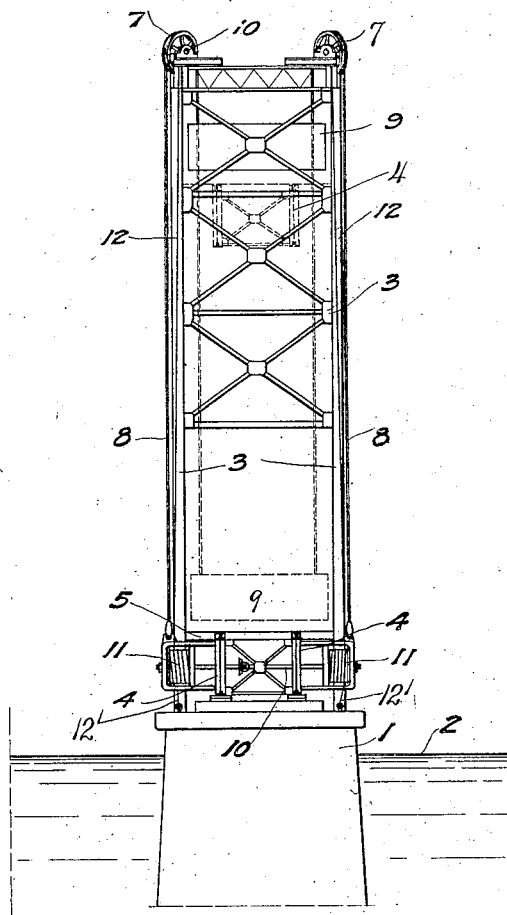
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Fig. III



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UNITED STATES PATENT OFFICE.

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LIFT-BRIDGE.

932,359.

Specification of Letters Patent. Patented Aug. 24, 1909.

Application filed August 31, 1906. Serial No. 450,944.

To all whom it may concern:

Be it known that we, JOHN A. L. WADDELL and JOHN LYLE HARRINGTON, both citizens of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Lift-Bridges; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention relates to lift bridges, and has for its object to provide a bridge of that class wherein the motive power for raising and lowering a movable span may be supported by and travel with the span structure. In accomplishing this object we provide the improved details of structure presently described and pointed out in the claims forming part of this specification, reference being had to the accompanying drawings, in which:—

Figure I is an elevation of a lift bridge constructed according to our invention. Fig. II is a plan view of same. Fig. III is an end view of same. Fig. IV is a sectional view of one of the elevator cable drums, on the line IV—IV, Fig. V. Fig. V is a side view of one of the drums. Fig. VI is an elevation of same.

Referring more in detail to the parts:—1 designates piers which may be arranged at opposite sides of or in the channel of a stream 2 and support, or assist in supporting, the bridge towers 3.

4 designates a bridge span which is adapted for vertical travel between the towers 3 and for support on the piers 1, the span being provided with a suitable flooring 5 which is adapted for cooperation with the flooring of the approaches 6 to form a continuous roadway across the stream when the span is in its lowered position.

On the towers 1, preferably at each inner corner thereof, are revolubly mounted the sheaves 7, over each of which a rope 8 is adapted to travel, the ends of each rope

being respectively attached to the span 4 and to a counterpoise weight 9. Revolubly mounted in suitable bearings on the span 4 are the shafts 10, upon which are rigidly mounted the drums 11, which are preferably provided with rope grooves as shown. Fixed to the upper end of each of the towers 1 are the ropes 12 the lower ends of which are wound on and attached to adjacent drums 11, and fixed to the lower ends of the towers 1 are the ropes 12' the upper ends of which are also wound on and attached to drums 11.

13 designates a motor that is supported beneath the flooring of the span 4 and is operatively connected with the drum shafts 10, preferably by means of a transmission shaft 14 and beveled gearing 15 and 16.

When the structure is in use as an ordinary traffic bridge, the span 4 rests on the piers 1 and cooperates with the approaches, as previously described and illustrated, in the drawings. Should it be desired to clear the channel for the passage of a vessel, the motor is operated to produce a revolution of the shafts 10 and drums 11. As the drums revolve the ropes 12 are wound thereon to produce an upward travel of the span, the ropes 12' unwinding from the same drums as the span travels upwardly. As soon as the span has reached the desired height its travel is stopped by shutting off the motor and it remains stationary during the passage of the vessel therebeneath. To lower the span, the motor is operated in the opposite direction so that the ropes 12' are wound on the drums 11 and the ropes 12 unwound therefrom, producing movement of the span downwardly to its original position.

It is readily apparent that auxiliary parts such as buffers and locking members may be used in connection with our improved bridge, but as such parts form no part of our present invention they have been neither described nor illustrated.

Having thus described our invention, what we claim as new therein and desire to secure by Letters-Patent is:—

In a lift bridge, the combination with stationary towers, of a counterpoised span adapted for vertical travel between said towers, paired drums revolubly mounted at

each end of said span, independent pairs of ropes positively fixed to each of said drums, one of the ropes of each pair being attached to the upper portion of one of the towers, and
5 the other rope to a lower portion of the same tower, and means carried by the span for actuating said drum.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN A. L. WADDELL.

JOHN LYLE HARRINGTON.

Witnesses:

A. C. BROWN,

MYRTLE M. JACKSON.