J. B. WARD.

Combined Railway and Conduit.

No. 198,060. Patented Dec. 11, 1877

Fig. 1.

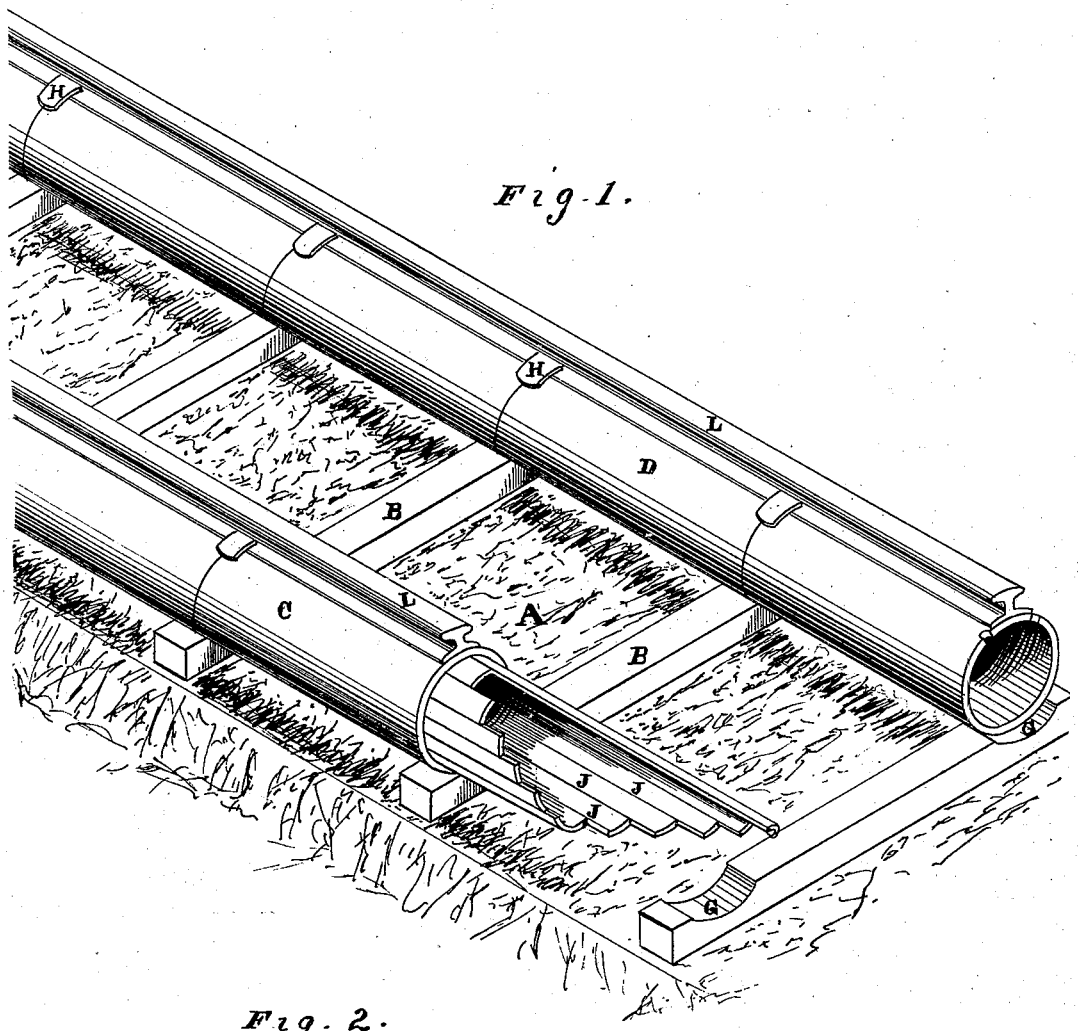
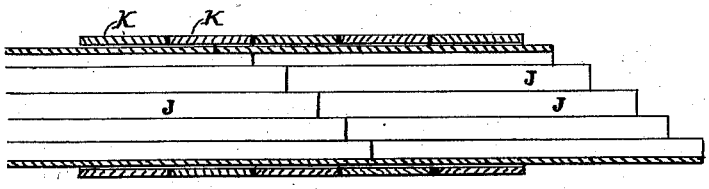
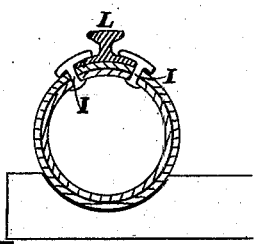


Fig. 2.





Witnesses

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UNITED STATES PATENT OFFICE.

JOHN B. WARD, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN COMBINED RAILWAY AND CONDUIT.

Specification forming part of Letters Patent No. **198,060**, dated December 11, 1877; application filed September 17, 1877.

To all whom it may concern:

Be it known that I, JOHN B. WARD, of the city and county of San Francisco, and State of California, have invented a Combined Railway and Conduit; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention consists of a novel arrangement of water-pipes, conveying water for irrigation and other uses, in combination with a permanent way for transportation purposes.

My invention will be more fully described by referring to the accompanying drawings, in which—

Figure 1 is a perspective view. Fig. 2 is a longitudinal section through pipe.

Let A represent a road-bed which is graded, and the ties or sleepers laid in the ordinary manner for receiving the rails. Upon the ties B pipes C D are laid, and on these pipes rails are secured, as shown, These rails are curved to fit the top of the tube, and are secured in place by chairs fitted for the purpose. These chairs have a stem, I, extending into the pipe, with countersunk heads, so that one of the chairs or fastenings may be turned to release or secure the rail.

The ties B are prepared for receiving the pipes by a concave groove, G, cut in their face at either end, in which the pipes are laid and secured by any suitable mechanical device. The distance between the rows of pipe from center to center will conform with the gage of the road. The rails L are secured to the pipes in chairs H, which bind them firmly and securely together.

The pipes C D consist of an inner tube and an outer tube or binding-rings. The inner tube is formed of beveled staves or lengths J, of any suitable material, so placed that they continually break joints at the meeting ends, the meeting ends of the different lengths forming a spiral on the periphery of the tube, as shown in section, Fig. 2.

The inner pipe, formed of beveled staves J, is inclosed by an outer tube or rings, K, of iron or other suitable material. This arrangement of pipe is easily made, the inner tube, composed of beveled staves, being formed inside the outer tube or rings, which can be added as fast as the inner tube is formed, and it forms a strong and in every way desirable pipe for conveying water, being of equal strength at every point, and having no large joints to open, causing a waste of water and destruction of earth-work. It also forms a continuous and elastic support for the rails, and there are no joints to be opened or to act as a point where an abrupt curvature can be made.

This arrangement of pipe is also peculiarly adapted for the construction of pontons, the material forming it being of suitable and compact shape for easy transportation in country of any topography.

Double lengths of pipe can be formed and secured to ties on upper side, as shown, beside a river's bank, and then one end of the train or continuous pipe allowed to float across, thus forming easily and quickly a superior ponton-bridge of great capacity when it is made water-tight.

The combination of pipe and track on the same road-bed is of great advantage in many ways. The pipes, as a support for the rail, are continuous and elastic, greatly reducing the danger of accident from broken rails, and forming a smooth and easy-running road, enabling me to make straight lines between points which could not be afforded without the combination.

The water-pipe, by being laid on a graded road-bed, loses less of head and of force than by the usual method of laying pipes, is not subjected to the severe pressure exerted upon pipes which follow the vertical contour of the land, and any break that may occur is easily found and quickly reached for repairs.

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

1. The pipes C D, composed of the beveled staves or longitudinal strips J, so placed that their meeting ends form a continuous spiral, in combination with the outer binding tube or rings K, substantially as and for the purpose described.

2. The pipes C D, composed of the beveled staves and binding-rings, and fitted to the supporting-ties B, so as to receive and support the rails L, substantially as herein described.

3. The pipes or tubes C D, fitted to receive the rails L, and provided with the stems I, with their heads constructed to secure the rails, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN B. WARD.

Witnesses:
FRANK A. BROOKS,
W. L. TAYLOR.