P. EMERSON & J. DOYLE.

JETTIES FOR DEEPENING RIVER CHANNELS.

No. 175,682. Patented April 4, 1876.

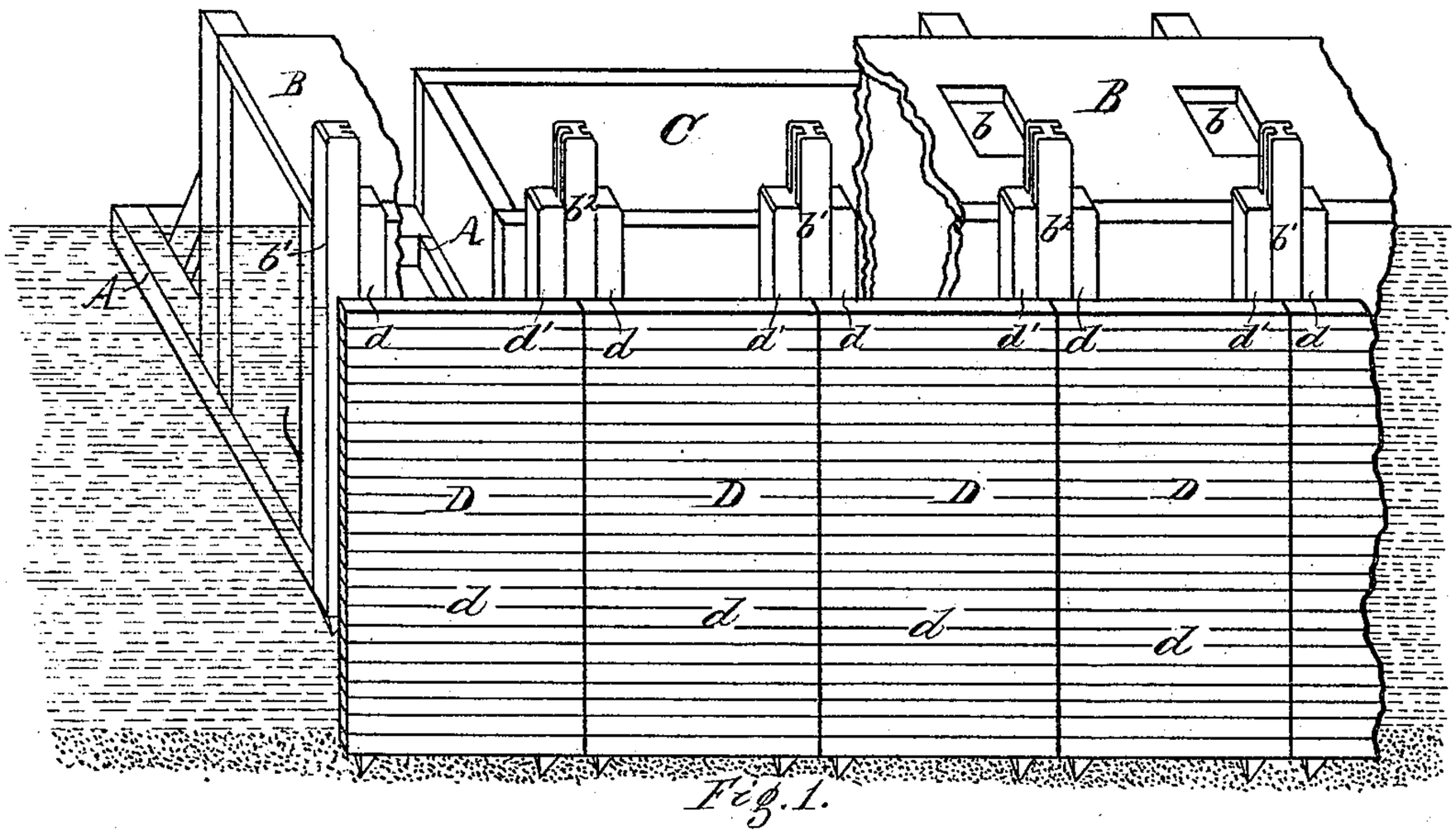

Fig. 1.

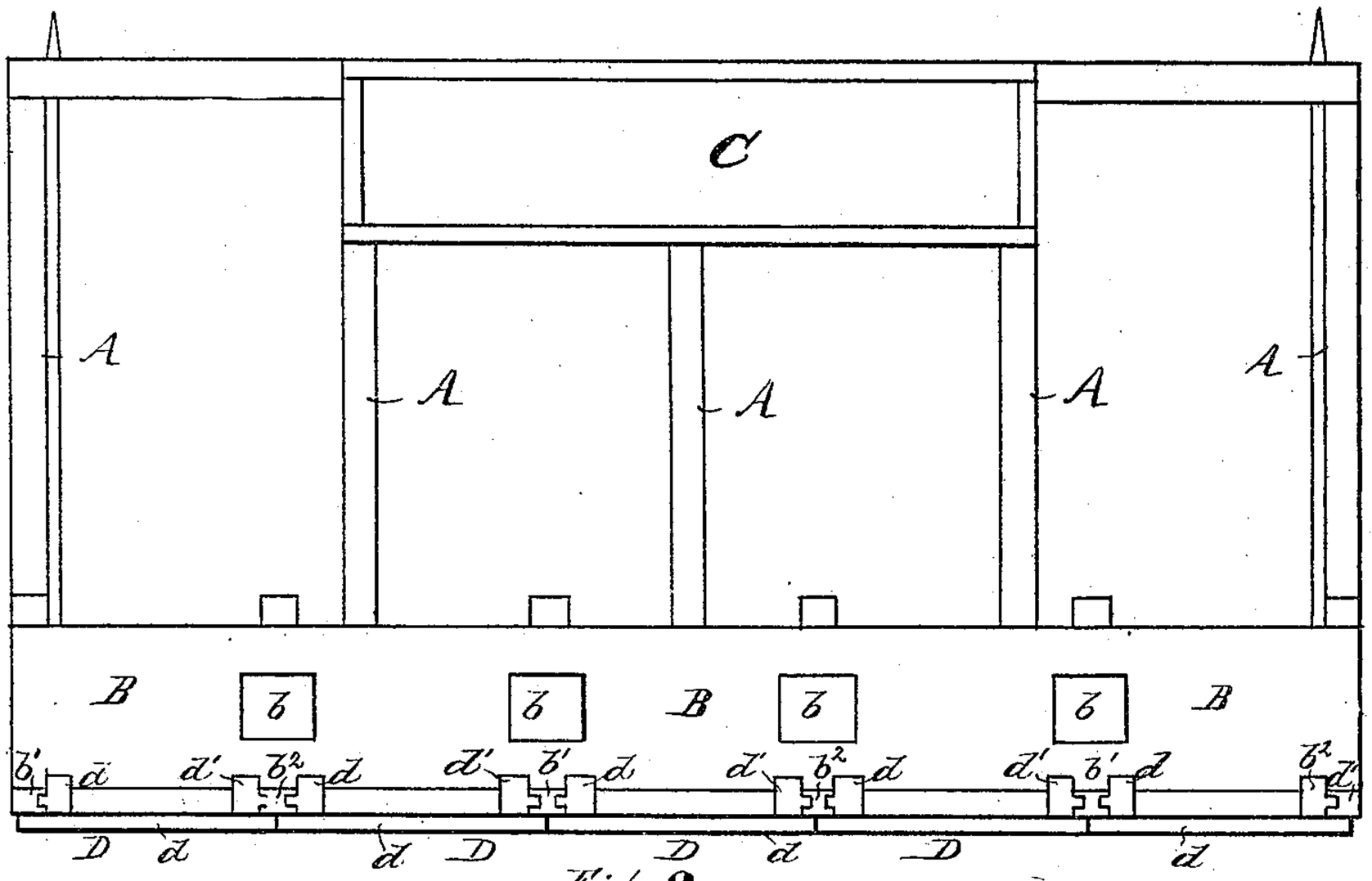

Fig. 2.

Witnesses:

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Inventors:

Primus Emerson

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UNITED STATES PATENT OFFICE.

PRIMUS EMERSON AND JAMES DOYLE, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN JETTIES FOR DEEPENING RIVER-CHANNELS.

Specification forming part of Letters Patent No. **175,682**, dated April 4, 1876; application filed February 28, 1876.

To all whom it may concern:

Be it known that we, PRIMUS EMERSON and JAMES DOYLE, both of St. Louis, Missouri, have invented an Improved Construction of Jetties for Improving River-Channels, of which the following is a specification:

This invention relates to an improved manner of forming jetties, dams, dikes, &c., for deepening the channels of rivers, freeing same from bars, and the like.

In order to adapt our invention to the bottom of a river or running water, the nature of our invention consists in the construction of box-dams, either with or without sliding gates, and both said dams and gates, when weighted, are sunk and permanently kept in place, and as will now more fully appear.

Of the drawing, Figure 1 is a perspective view of our invention. Fig. 2 is a top plan.

Our box-dams consist of a most simple, cheap, and ready-made timber structure. Hence, as here shown, we construct a skeleton frame, A, as a bottom, and forming part of this we construct a box or inclosed chamber, B. (See figures.) Through openings *b* in the top of the box B the inside thereof can be reached. Otherwise the box-dam is properly braced and united. Old hulls, flat-boats, &c., can readily be made serviceable as a box dam, such as here shown and described.

Through the openings *b* rubble, sand, earth, rock, &c., are filled into each box-dam, for the purpose of sinking and retaining same in permanent position as a dam at the bottom of the river.

The opposite side of the dam can similarly be loaded by filling a box or receptacle, C, so as to more equally distribute the weight in sinking the dam.

When thus loaded and sunk to the bottom the outside of the closed box B virtually forms the jetty to direct and concentrate the waters in the direction necessary to remove the obstruction. Further to accomplish this end any number of sections or duplicate box-dams can be used, weighted, and sunk, the object being to form a jetty to concentrate the current in the direction most forcibly to reach the bar or obstruction; hence the positioning of the box-dams will be such as the peculiar nature of the bar, or channel, or case requires.

The box-dams thus constructed, weighted, and sunk are, therefore, sufficient to form a permanent dam, jetty, or the like, especially in cases where the bottom of the river-channel, or waters thus to be improved presents a rocky or solid foundation. In cases where the bottom is of clay, sand, and the like, it is apparent that the under-current would undermine our submerged box-dams; therefore this, to avoid our improvement, consists in providing the outside of each box-dam with sliding gates or dams D. The gates D consist of boarded frames *d*, secured to uprights *d d'*. (See figures.) The sides of the box-dams have also uprights b^1 b^2, in which the uprights *d d'* of the gates are fitted to slide. (See figures.) The entire side of each box-dam will thus be provided with the sectional gates D. These gates, by their own weight, or by any ordinary manner of weighting same, can be let down to penetrate in the bottom. Each section of the gates forms part of the jetty or dam, and the combination of the whole completes a permanent jetty. As soon as by the force of the current the gates or box-dams are undermined, similar sections of gates are provided to slide and be sunk top of those below, and by this means, following up the underwashing which takes place, we are enabled to complete a permanent dam or jetty. The said gates D, therefore, not only hold fast and retain in position the box-dams, but specially complete the formation of the jetties that concentrate the current in the required direction to remove a bar and effect the deepening of the channel. By means of the gates aforesaid, and sliding others top of those that are sunk and keep sinking, we are also enabled to build a jetty or dam, no matter what surface of bottom presents itself as regards a sloping or horizontal plane; it being only necessary to follow up the action of the current until the jetty is formed permanent by having removed the obstruction and achieved the required deepening of the channel.

What we claim is—

1. The apparatus consisting of the bottom A, box or chamber B, having openings *b*, forming box-dams, constructed as specified, weighted and submerged in manner herein shown and described, by means whereof the

closed outer side of the said submerged box-dams concentrates the current or waters in the required direction to remove bars and deepen channels of rivers.

2. In combination with the box-dams, constructed as specified, weighted and sunk in the manner herein shown and described, the dams or gates D, made in sections, by means whereof the undermining action of the current or waters can be followed up, and the said box-dams kept submerged and sustained in position to form permanent bars or jetties, all as herein described.

In testimony of said invention we have hereunto set our hands.

PRIMUS EMERSON.
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Witnesses:
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