

No. 786,305.

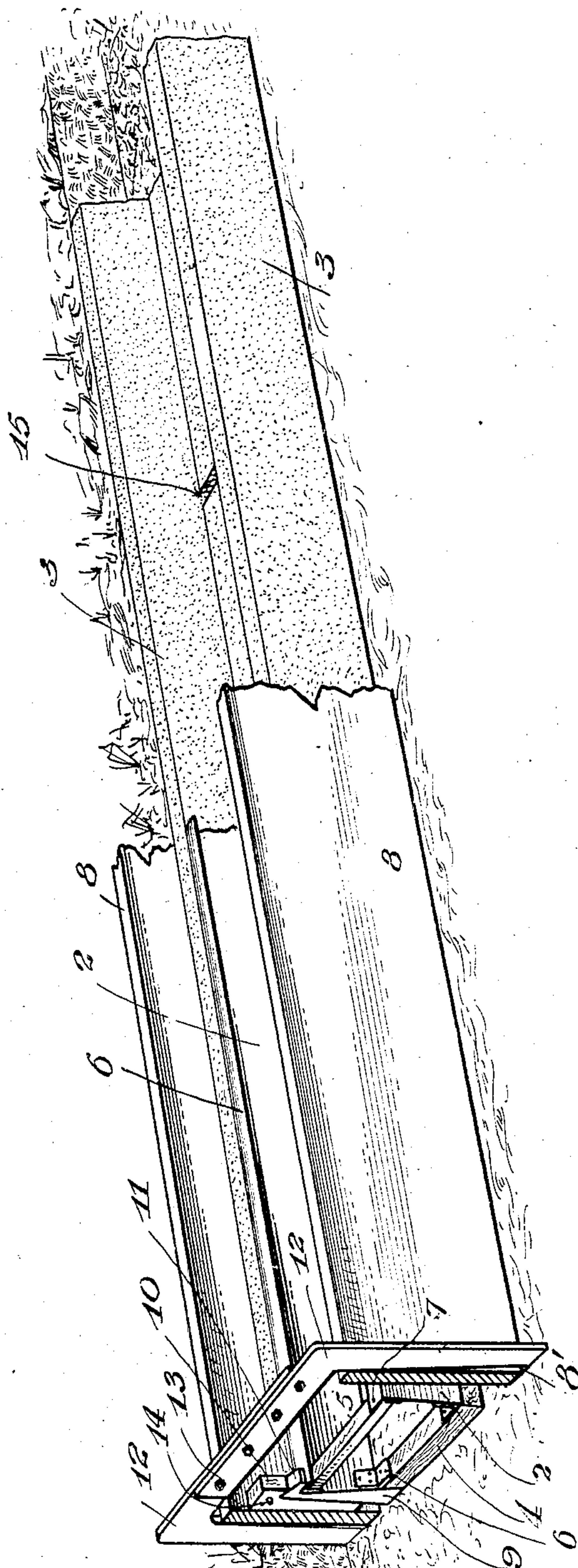
PATENTED APR. 4, 1905.

G. T. MCINTYRE.
APPARATUS FOR CONSTRUCTING IRRIGATING FLUMES.

APPLICATION FILED DEC. 1, 1903.

2 SHEETS—SHEET 1.

Fig. 1



WITNESSES

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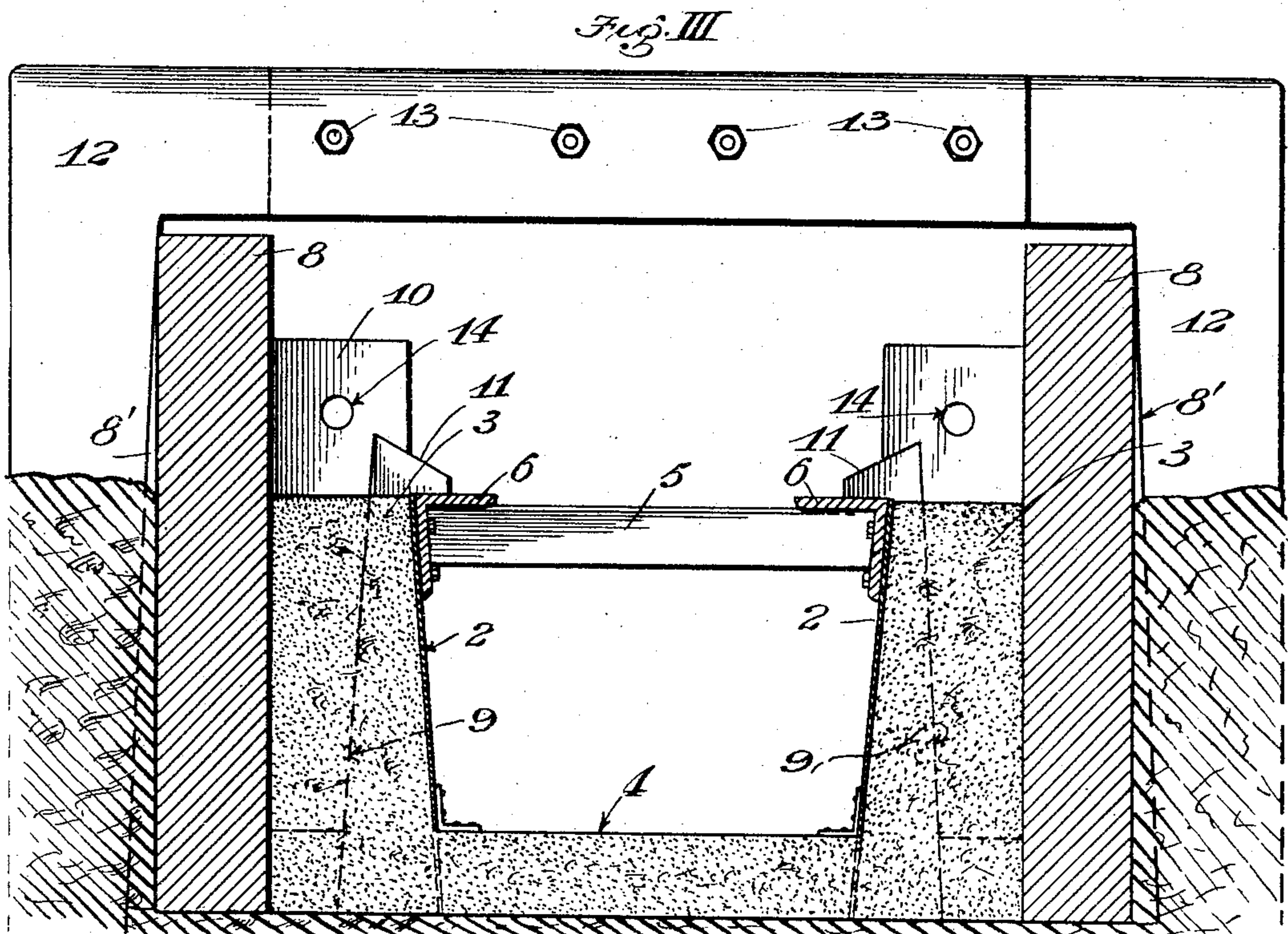
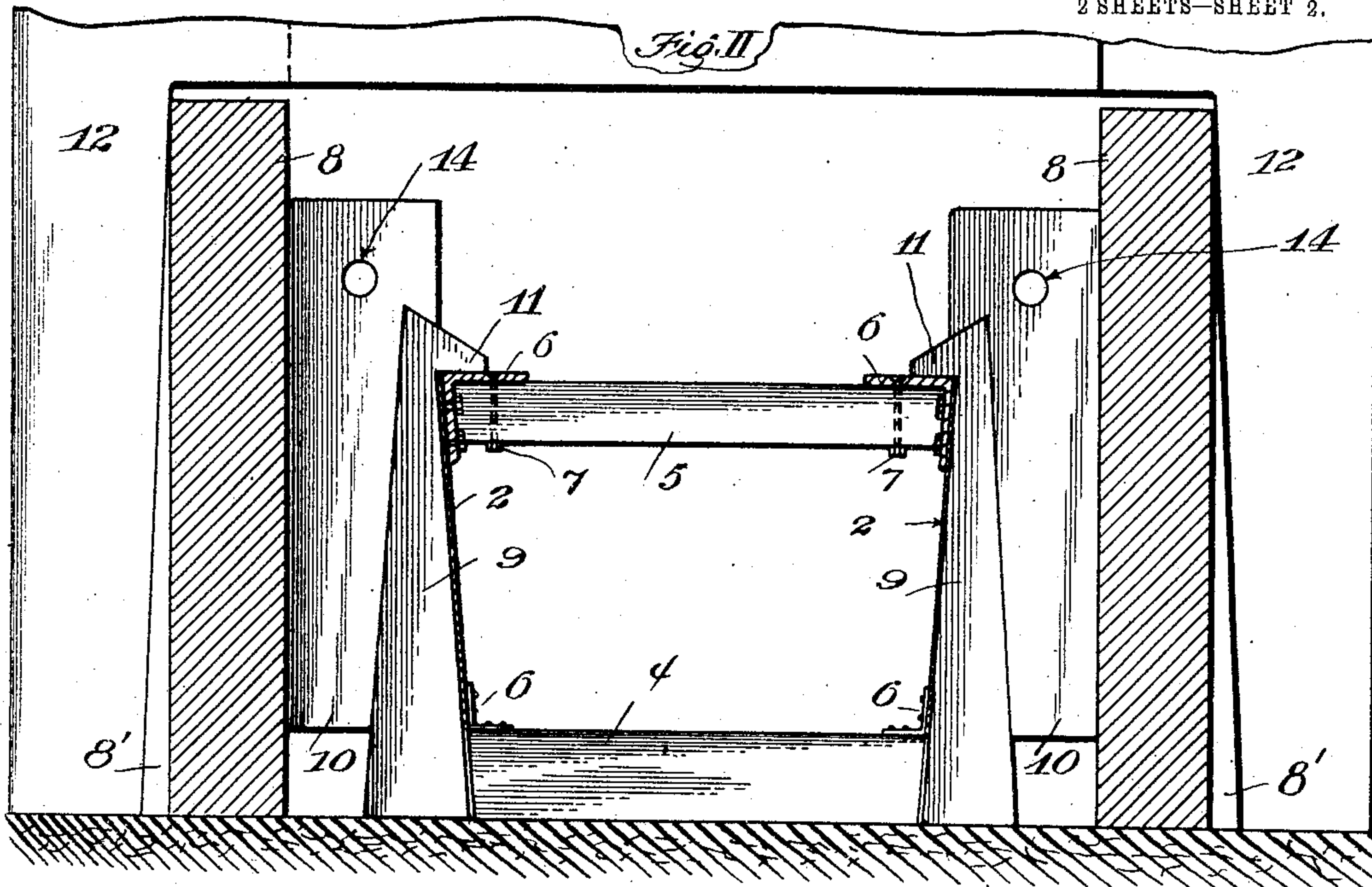
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WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE T. McINTYRE, OF RIVERSIDE, CALIFORNIA.

APPARATUS FOR CONSTRUCTING IRRIGATING-FLUMES.

SPECIFICATION forming part of Letters Patent No. 786,305, dated April 4, 1905.

Application filed December 1, 1903. Serial No. 183,367.

To all whom it may concern:

Be it known that I, GEORGE T. McINTYRE, a citizen of the United States, residing at Riverside, in the county of Riverside and State of California, have invented certain new and useful Improvements in Apparatus for Constructing Irrigating-Flumes, &c., of which the following is a specification.

My invention relates to means for use in constructing concrete irrigating-flumes, &c.; and the objects I have in view are to provide positive and efficient means whereby the irrigating-flume may be formed in one piece and to provide such means in simple, cheap, and readily-assembled form, whereby a concrete flume may be constructed with great rapidity and most perfectly with great economy of time and labor.

In constructing concrete irrigating-flumes it has heretofore been customary to construct the sides and fill in the bottom with concrete after the sides have been formed. Flumes formed in this manner are liable to leak at such junctures and are weak in the juncture and require much time for construction. Another method heretofore used is by means of a machine in which the material is rammed in from the end, leaving very loose material at or in the top walls of the flume, where the greatest strength is required to resist accidental contact with the hoofs of the horse or with the cultivator used in the cultivation of the ranch in which the flume is constructed.

One object of my present invention is to provide an apparatus by which a concrete flume may be formed which will embody a construction preventing all possibility of such leakage and be made in one continuous solid piece, and means by which the same may be tamped from the top, obtaining great strength and solidity throughout.

With these and such other ends in view as hereinafter appear from the detailed description of construction and operation my invention consists in the hereinafter-set-forth constructions, elements, and combinations of parts, and will be more readily understood by reference to the accompanying drawings,

forming part of this specification, and in which—

Figure I is a perspective view of a section of irrigating-flume, illustrating in connection therewith apparatus embodying my invention. Fig. II is an end view of my apparatus as the same appears when assembled preparatory to forming a flume. Fig. III is a vertical sectional view of my apparatus looking from midway of the apparatus toward the end thereof, showing the concrete flume within the apparatus.

As shown in the drawings, my invention comprises means for forming the inner faces of the upright walls of the flume, which means consists of two long members 2 2, which are of sufficient breadth to provide the vertical walls 3 3 of the flume of such height as to provide a flume of the desired capacity. These boards 2 2 may be of any preferred length and of any desired material. I prefer, however, to use sheet metal. 4 5 represent, respectively, the bottom and top end braces connected to the board or members 2 2 at the ends thereof by suitable angle-irons 6, attached thereto by suitable bolts 7, the angle-irons 6 being in turn affixed to the boards or members 2 2 by bolts or rivets, as desired, and extending the full length of the members 2 2, to which they are rigidly secured. It is thus seen that this portion of my apparatus is formed of two side boards or members 2 2 and that the body thus formed is open both at top and bottom. The boards or members 2 2 are given any desired angle of inclination and the bottom end braces 4 project below the lower edges of the boards or members 2 2. By making the bottom braces 4 of any desired width any desired thickness of the bottom or floor of the flume can be secured.

8 8 represent longitudinal boards or members attached to be held in place equidistantly apart at all points from the outer surface of the boards or members 2 2. The spacing devices or means for holding these boards 8 8 in vertical position and equidistant at all points from the boards or members 2 2 consists of blocks 9 9 and 10 10. The blocks 9 9 have their inner edges inclined to correspond

with the inclination of the boards or members 2 2 and are provided with inner projections 11, adapted to be passed over the braces 5 and angle-irons 6. The blocks 9 9 have their opposite edges inclined, so as to form a downwardly-tapering way between the blocks 9 9 and the inner faces of the members 8 8. The wedge-blocks have an inclined surface corresponding to the angle of inclination of the faces of the blocks 9 9, so that the wedge-blocks 10 10 may be easily removed from position between the blocks 9 9 and the members 8 8.

12 12 represent two angle-pieces, preferably of metal, having legs which conform in slope or batter to the shape of inverted wedge-blocks 8' 8' when the angle-pieces are in position and have horizontal extensions adapted to extend over the top edges of the boards 8 8 and to be secured in any suitable manner, as by bolts 13, forming clamps to hold the boards 8 8 in vertical position. The tapering or inverted wedge-blocks 8' 8' may be made either integral with the boards 8 8 or may be affixed thereto or made separate and loose, as desired.

In setting up the apparatus to build a flume the body formed of the members 2 2 and braces 4 5 is first placed in position. The blocks 9 9 are then placed in position and the wedge-blocks 10 10 put into place. The boards 8 8, with the inserted wedges 8' 8' and the clamps 12 12, are then placed in position, so that the apparatus is held firmly in position. The soft concrete is then tamped in between the faces of the boards 8 8 and the outer faces of the members 2 2 and the bottom of the flume formed by tamping therein concrete until the floor so formed rises to the level of the top of the braces 4. This tamping in the concrete to form the bottom and to form the walls 3 3 insures the formation of the flume in one piece, and by the use of this apparatus the formation of a perfect flume is insured. The grade on which the flume is built having been made perfect, any level or pitch or inclination of the flume is thereby maintained uniform, as desired. After the flume has been formed the wedge-blocks 10 10 may be withdrawn by the hand or by the insertion into eyes 14 thereof of suitable means for pulling them from their place, after which the several parts of the device may be readily removed, leaving the flume in perfect condition, so that earth may be filled in around the sides thereof.

In constructing a flume with my apparatus I use several sets of forms, each form consisting of the inner body formed of the boards 2 2, braces 4 5, outer boards 8 8, inverted wedges 8' 8', wedge-blocks 10 10 and 11 11, and clamps 12 12. The several forms are set end to end and abut against each other and the material tamped in the several forms, as

before set forth. At the juncture of respective forms it will be found, as shown in Fig. I, that the side walls have been formed perfectly, but that between the ends of the abutting forms the bottom of the flume will be left open at the ends of the forms, and after removing the forms it will be necessary to tamp in material, as at 15 in Fig. I, to complete the bottom of the flume, owing to the brace 4 at the ends of the respective sections of flumes prohibiting the formation of a continuous bottom for the flume. By thus using several sets of forms as soon as the flume is finished within a given form the form may be readily removed from the flume formed therein and carried forward along the line where the flume is to be formed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, detachable members extending longitudinally along the sides of said body and spaced apart therefrom at all points providing a space or channel between said members and the sides of the body, means for supporting said body above the level of the lower edges of said members, the said channel communicating under the sides of said body with the open central chamber thereof, and means for holding said body and detachable members in fixed relation comprising detachable spacing devices between the body and the members to hold said members away from said body, and detachable clamps engaging said members to hold them toward said body.

2. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, detachable members extending longitudinally along the sides of said body, spacing devices detachable from, and engaging between the said body and members for spacing said detachable members apart from the sides of said body whereby a channel is formed therebetween, means for supporting said body above the level of the lower edges of said detachable means, said channel communicating under the sides of said body with the open central chamber of said body, and clamps detachable from said body and members for holding said members against the detachable spacing devices.

3. An apparatus of the class described comprising a body having imperforate sides and open top and bottom, detachable members extending longitudinally along the sides of said body, detachable wedge-blocks between said members and the sides of said body spacing said members apart from the sides of said body, means for supporting said body above the level of the lower edges of

said members, and means for clamping said members, wedge-blocks and body together.

4. An apparatus of the class described comprising a body having imperforate sides
5 and open top and bottom, separate side boards extending longitudinally along the sides of said body and of greater width than the depth of said body, means supporting said body above the lower edges of said boards, blocks
10 having inclined faces, and wedge-blocks, said blocks interposed between said boards and said body, and detachable means for holding

said boards, blocks and body in fixed relation.

In testimony whereof I have signed my ¹⁵ name to this specification, in the presence of two subscribing witnesses, at Riverside, in the county of Riverside and State of California, this 18th day of November, 1903.

GEORGE T. McINTYRE.

Witnesses:

FREDERICK S. LYON,
LYLA PALMER.