

No. 745,455.

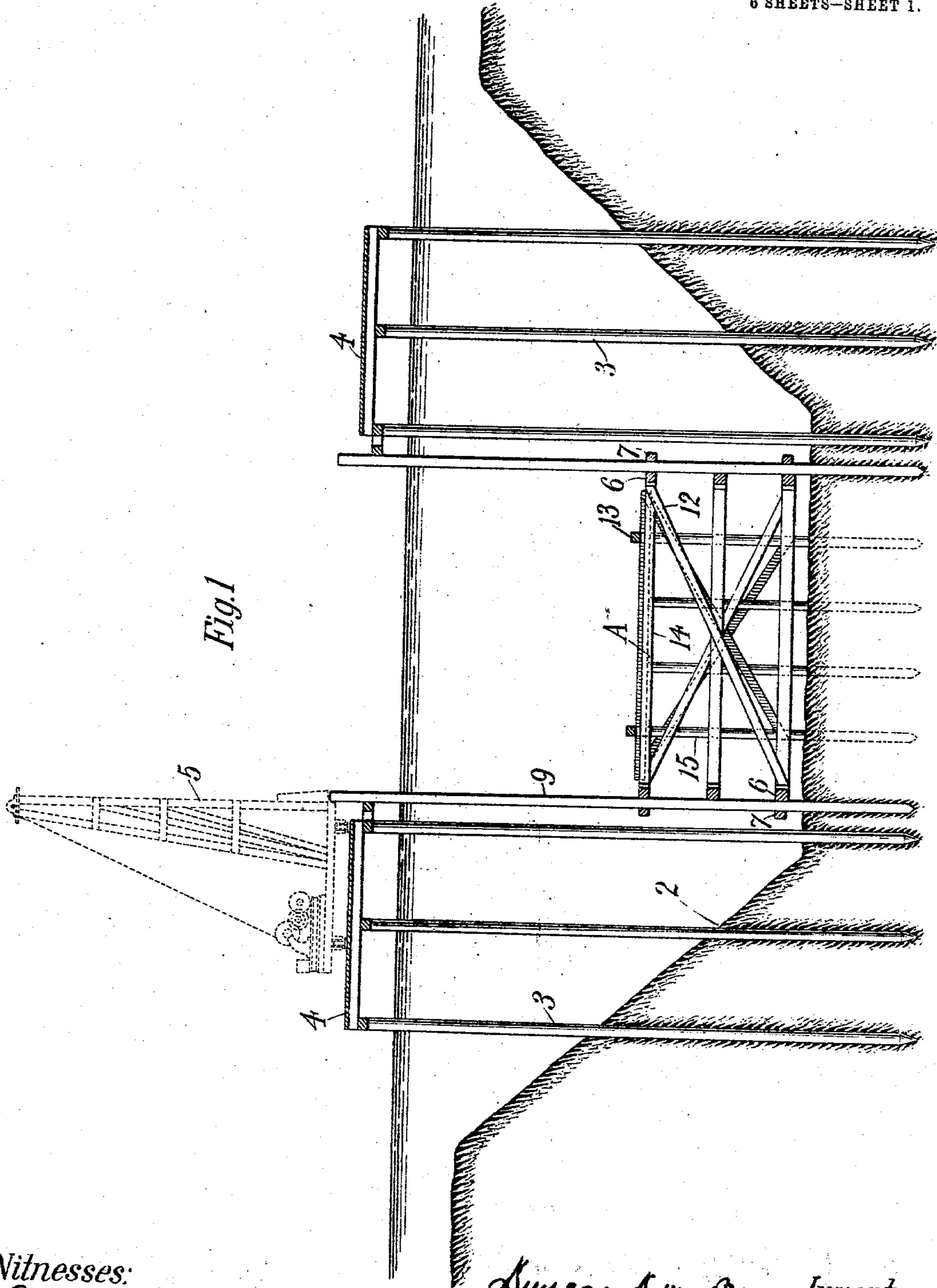
PATENTED DEC. 1, 1903.

D. D. McBEAN.
COFFER DAM AND FOUNDATION.

APPLICATION FILED MAY 9, 1903.

NO MODEL.

6 SHEETS—SHEET 1.



Witnesses:
Raphaël Tetter
Pierce Powers

Duncan D. McBean Inventor
by *L. D. Merwin* Atty

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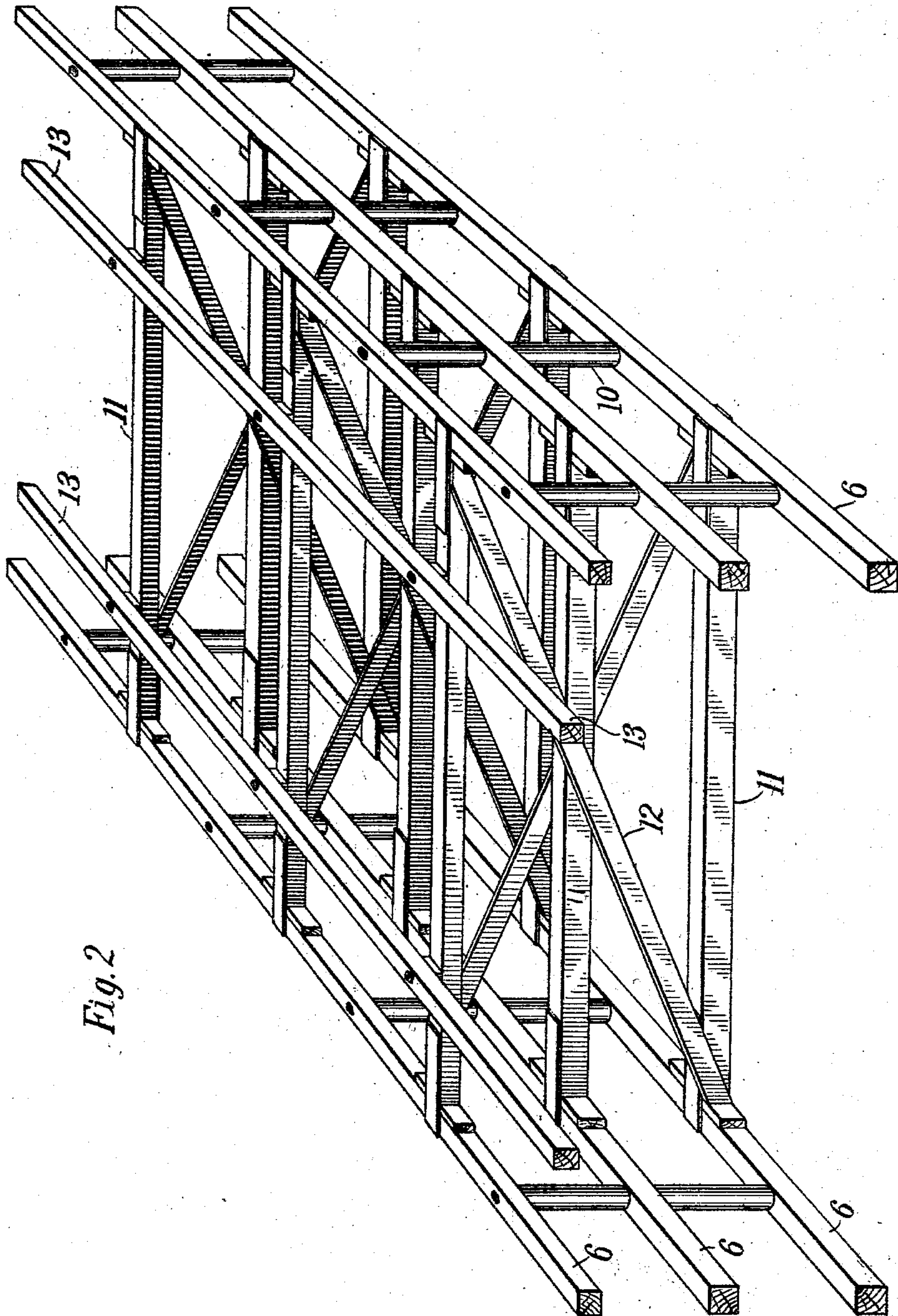
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6 SHEETS—SHEET 2.



Witnesses:

Raphaël Ketter
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Atty

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6 SHEETS—SHEET 3.

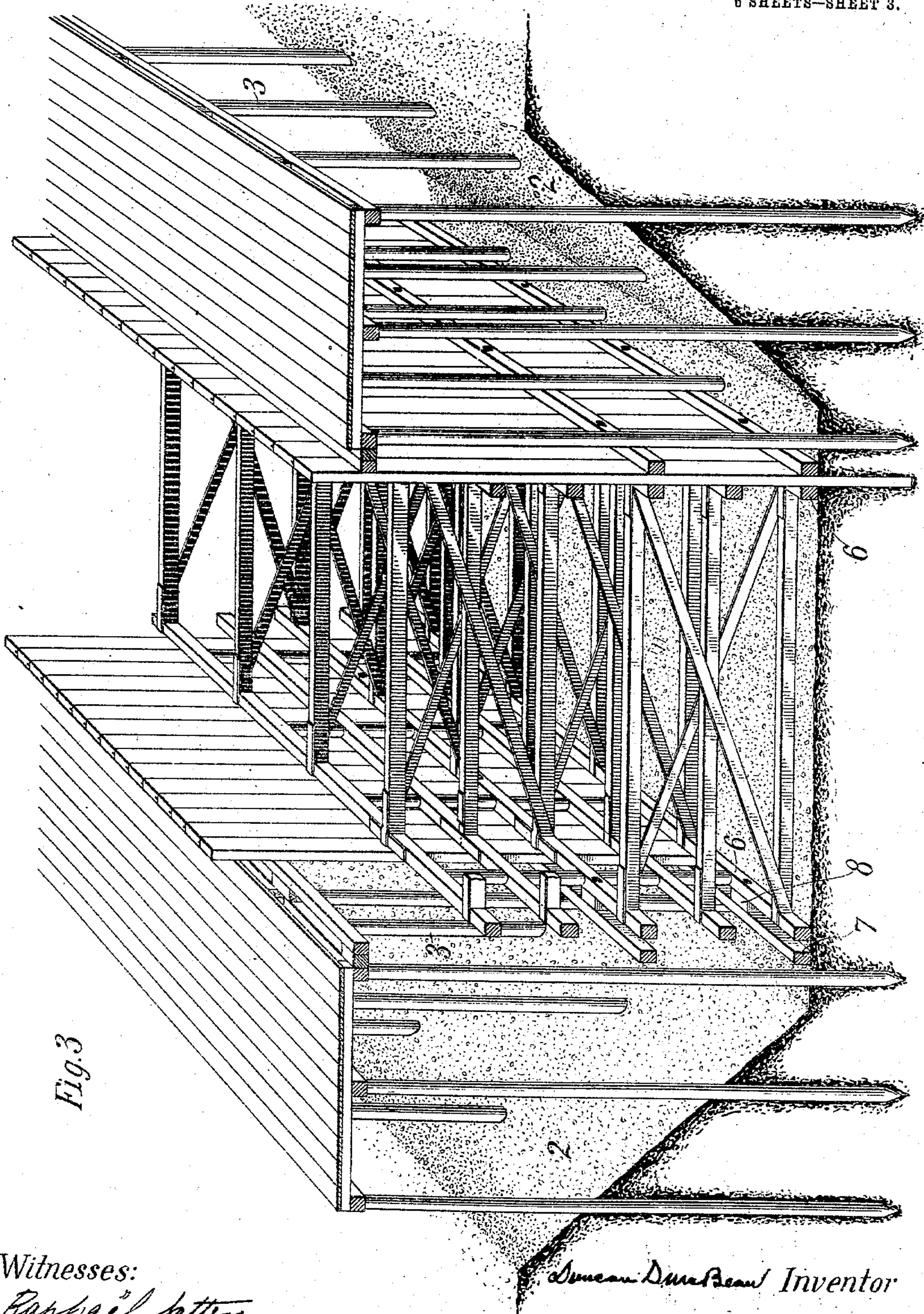


Fig. 3

Witnesses:
Raphael letter
Pierce Powers

Duncan D. McBean Inventor
by *L. H. Brown* Atty

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6 SHEETS—SHEET 4.

Fig. 4

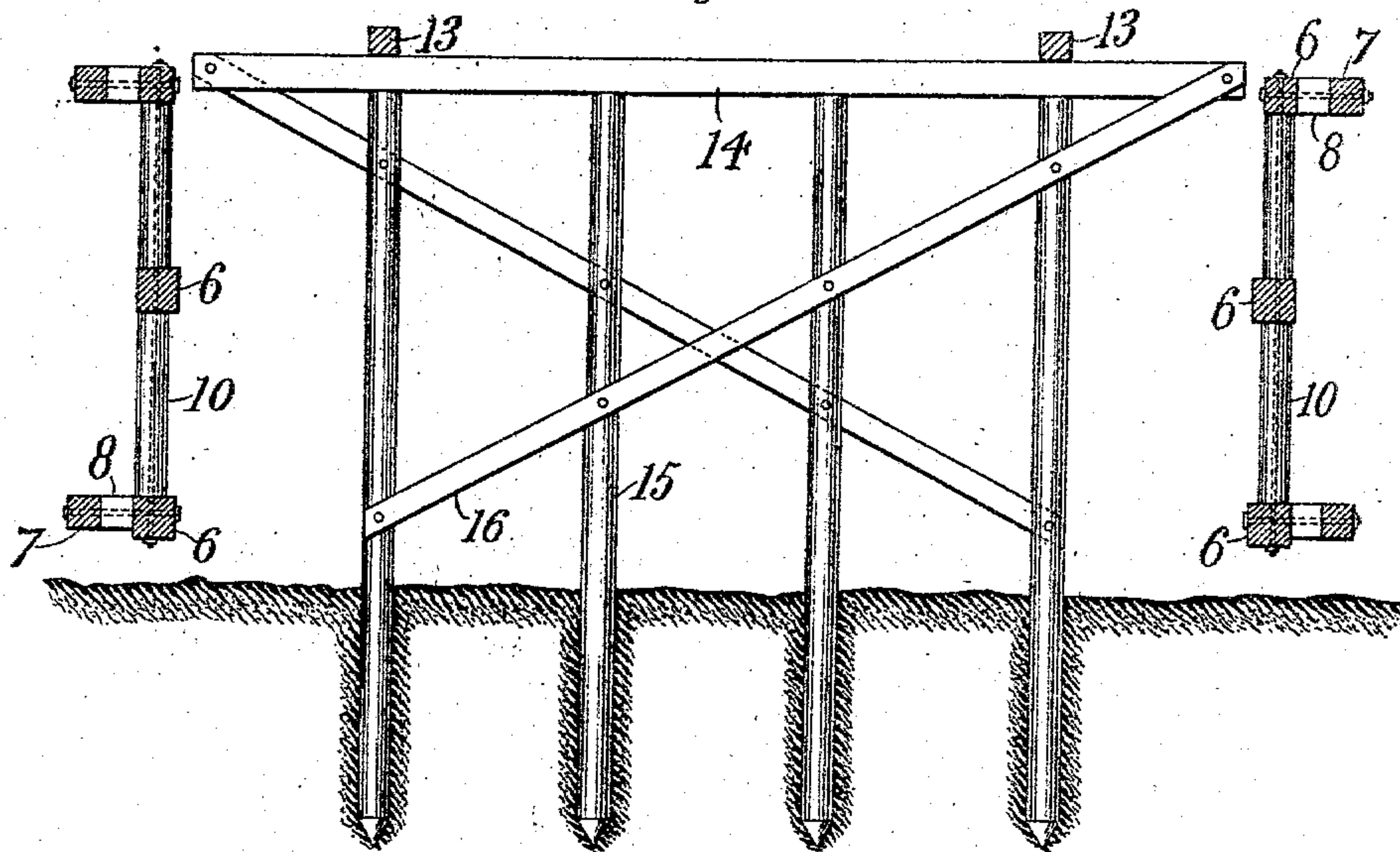
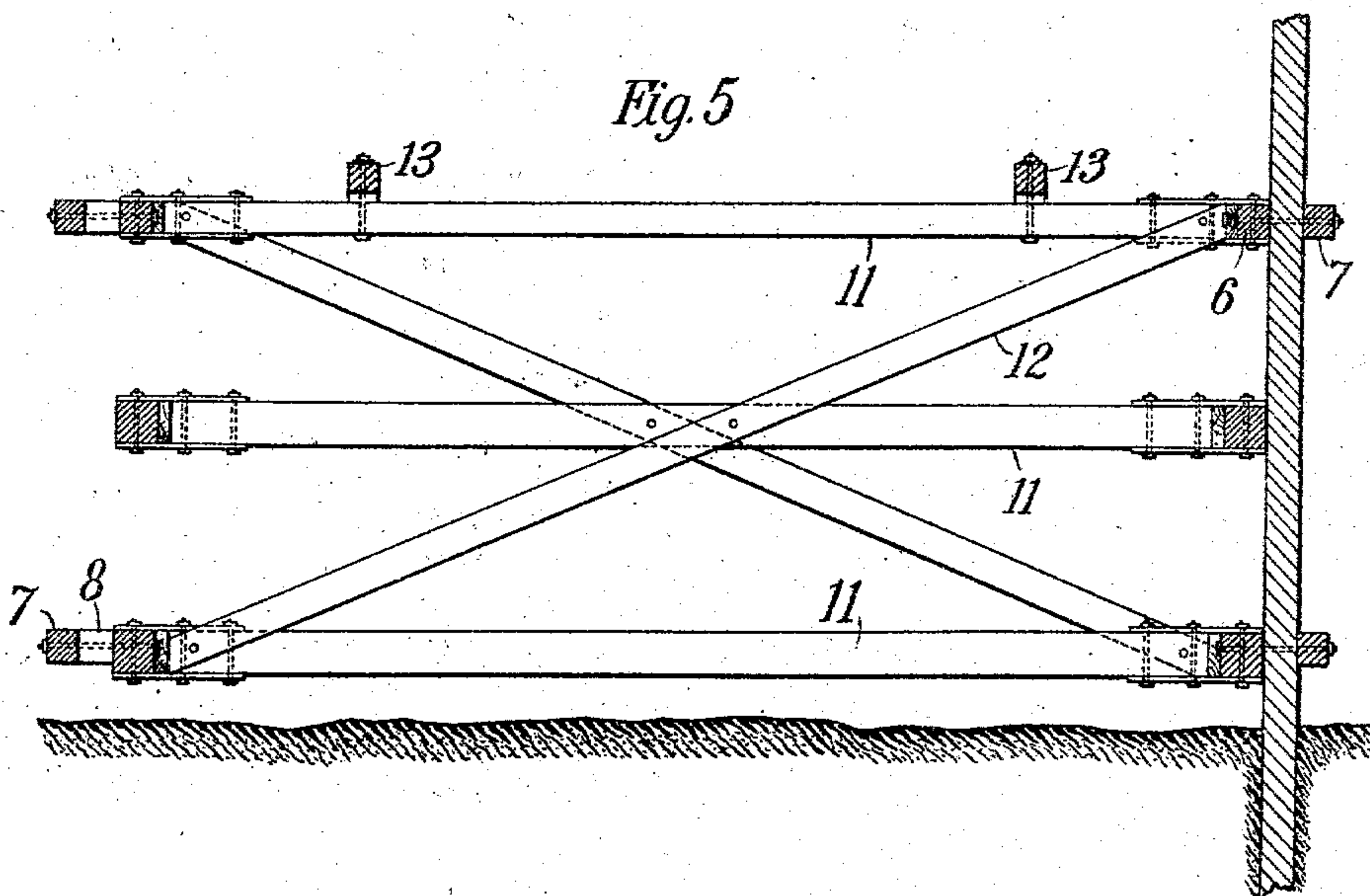


Fig. 5



Witnesses:

Raphael Keller

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by *G. S. Mowin*

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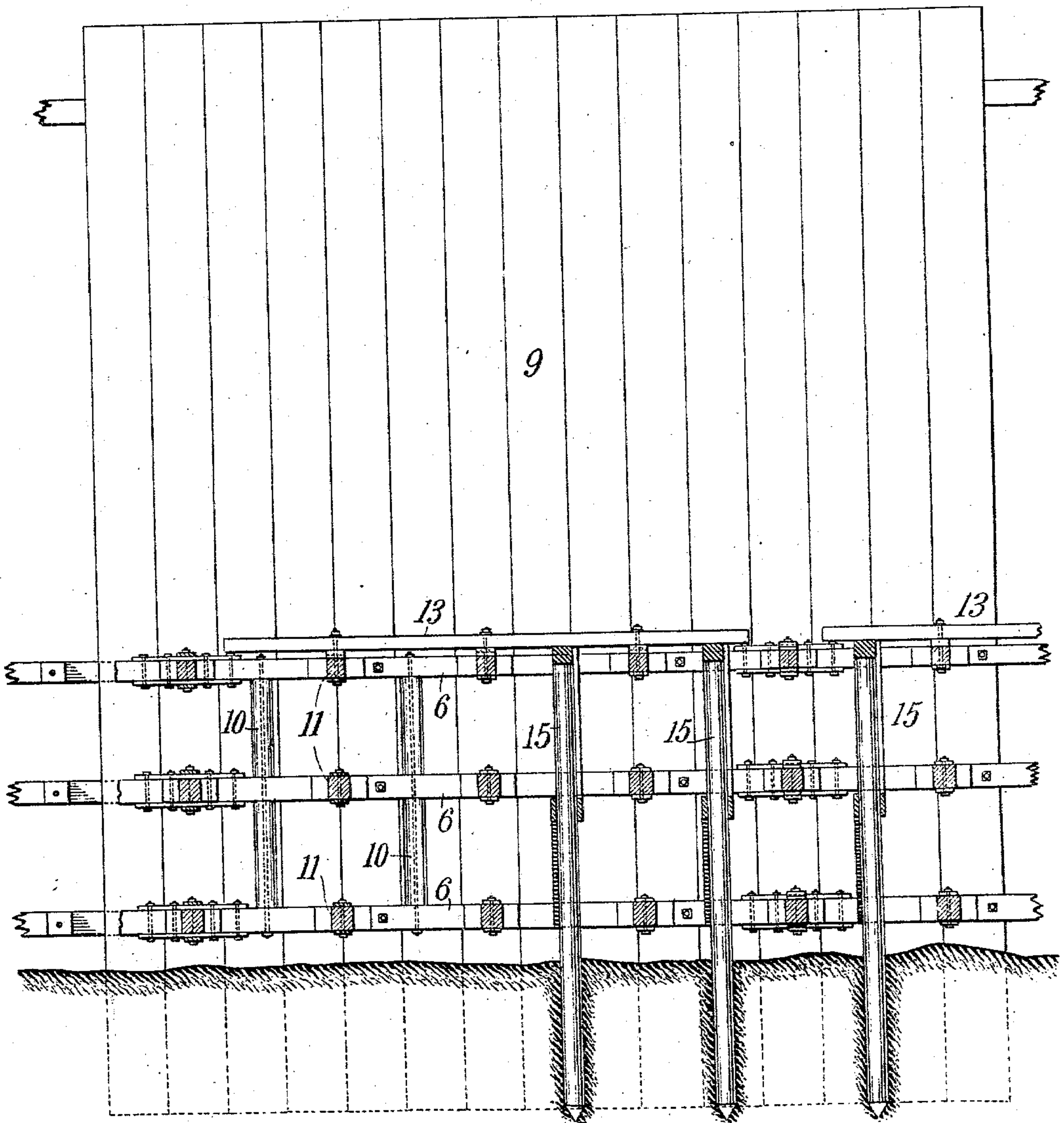
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NO MODEL.

6 SHEETS—SHEET 5.

Fig. 6



Witnesses:
Raphaël Heller
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Duncan D. McBean Inventor

by *L. D. Murawski* Atty

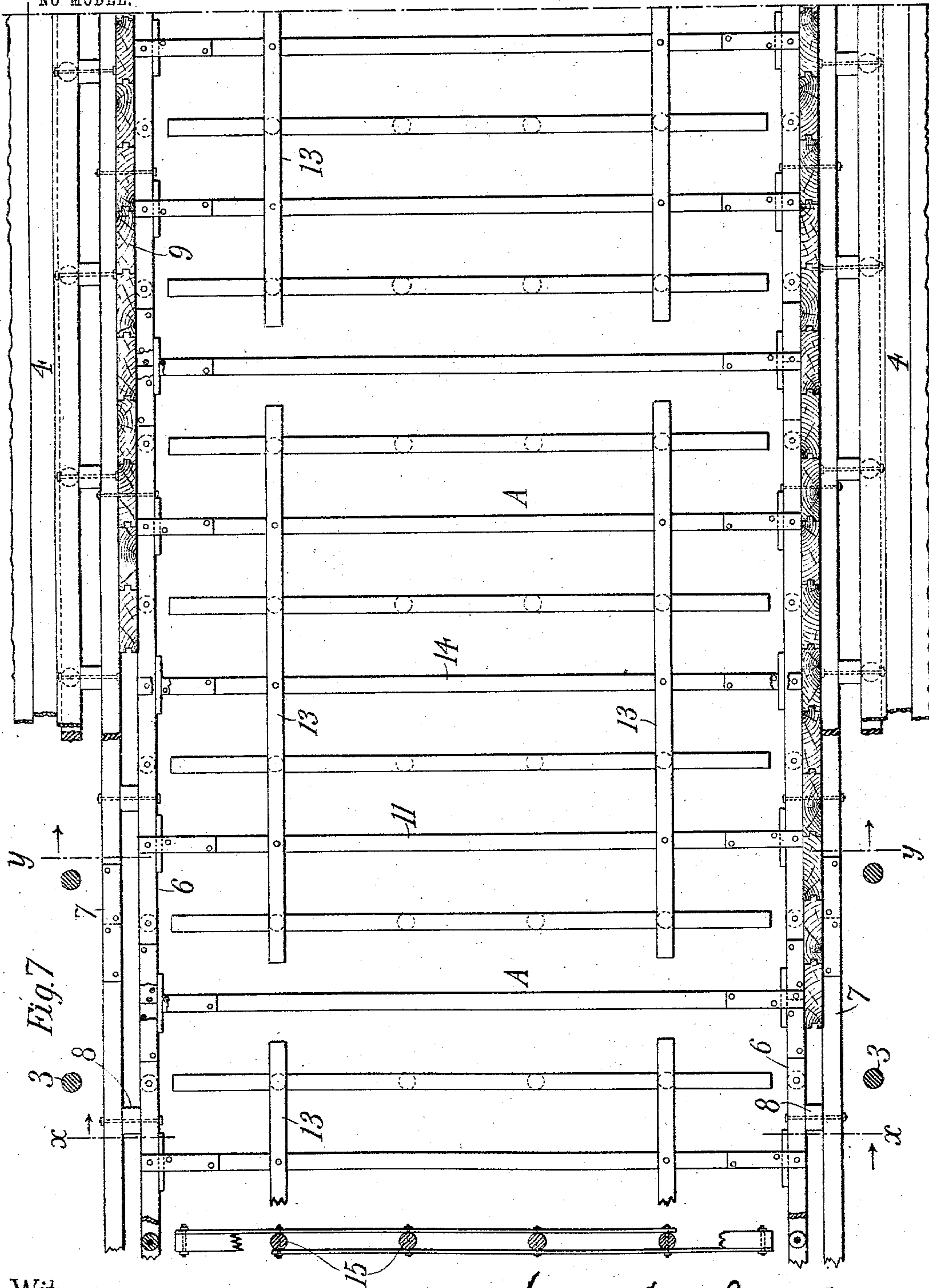
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APPLICATION FILED MAY 9, 1903.

NO MODEL.

6 SHEETS—SHEET 6.



Witnesses:

Rapfael Ketter
Pierce Powers

Duncan D. McBean Inventor

by *L. D. McBean*

Atty

UNITED STATES PATENT OFFICE.

DUNCAN D. McBEAN, OF NEW YORK, N. Y.

COFFER-DAM AND FOUNDATION.

SPECIFICATION forming part of Letters Patent No. 745,455, dated December 1, 1903.

Application filed May 9, 1903. Serial No. 156,410. (No model.)

To all whom it may concern:

Be it known that I, DUNCAN D. McBEAN, of the city, county, and State of New York, have invented a new and useful Improvement in
5 Coffers-Dams and Foundations, of which the following is a specification.

My invention relates to improvements employed in the making of coffer-dams, open-cut excavations, and foundations within or
10 upon which material is to be retained or placed or structural devices placed or built.

Frequently where coffer-dams, open-cut excavations, or foundations are required the character of the water-bearing material to be
15 removed or kept in place is such that the sheeting which forms the sides of the coffer-dam or sustains the side bank of the open-cut excavation or which confines the material on which the foundation is required must
20 be driven in place some distance below the subgrade of the required opening in advance of making the opening or preparing the foundation. The depth of the required opening or of material to be confined may be so great
25 that the timber of which the sheeting is made will not withstand the pounding of the hammer required to drive it to subgrade or the depth of all the material in which the excavation is to be made. The advantage in using
30 in such work sheetings long enough to reach from the surface to the greatest depth required instead of using short sheetings with offsets is that the wall is thereby made smooth, and without offsets the sheetings can be
35 driven from the surface by the use of machinery, and they are always in position to be driven farther, if necessary, and the structure as a whole is much stronger. Before driving the sheetings I dredge out the site
40 either to the full necessary depth or to such depth that the sheeting can readily be driven as far as necessary through the balance of the material. In order to provide sheetings of sufficient length and so formed as to make a
45 substantially water-tight wall when united, I construct them in sections as composite sheetings, which are covered by another application for Letters Patent of even date herewith. The path for such sheetings is secured
50 and obstructions removed therefrom by means of pilot-sheetings, which are also the

subject-matter of another concurrent application.

For the guiding of the sheeting while being driven and for supporting the sheeting
55 walls when in place I employ a framework and supporting devices therefor which constitute the subject-matter of this application, as hereinafter particularly set forth, and shown in the accompanying drawings, forming part of this specification.

In the drawings, Figure 1 is a cross-sectional elevation through a preliminary excavation, showing the sheeting walls in place, the intermediate guiding and supporting
65 framework, the sheeting-driver platforms, and in dotted lines a sheeting-driver in place. Fig. 2 is a perspective view of the framework-section, the outside walings on the top and bottom of the framework, which constitute
70 the guides for the sheeting, being omitted to afford a clearer view of the other parts. Fig. 3 is a perspective view showing the entire structure ready for filling behind the sheeting walls and illustrating the use of my in-
75 vention where supporting-piles for the framework are not necessary. Fig. 4 is a detail of a set of the piles with their cross and bracing timbers. Fig. 5 is a detail of the framework for supporting the sheeting walls. Fig. 6 is
80 a longitudinal section through the framework, certain parts being removed; and Fig. 7 is a plan view of the framework and the sheeting walls which it supports.

In the drawings, 2 represents the slope of
85 the dredged channel; 3, the piles outside the channel; 4, the platform supported thereon for carrying the sheeting-driver 5.

9 is the sheeting wall, and A is the framework which guides and supports the sheet-
90 ings while being driven and the walls when in place.

6 represents the inner walings, and 7 the outer walings, of the framework laterally spaced by blocks 8, the intermediate space
95 being adapted to serve as guides for the sheetings 9 while being driven.

10 represents studs for interspacing and supporting the several walings 6.

11 represents horizontal timbers or cross-
100 braces, and 12 diagonal braces.

13 represents longitudinally-arranged hang-

ing stringers, which are bolted to the cross-timbers 11 and serve by resting upon the pile cross-caps 14 to support the framework A thereon.

5 16 represents diagonal braces bolted to the piles 15 and to their caps 14 to brace and strengthen the same.

The manner in which the structure is built and used is as follows:

10 The preliminary excavation having been made as illustrated in Fig. 1, the piles 3 are driven in the slopes thereof and the platforms 4 erected thereon. The series of piles 15 are driven into the bed of the excavation

15 and connected by their caps 14 and braces 16. The framework A then being constructed is floated over the excavation and sunk down to and upon the piles and suitably secured thereto. By means of sheeting-drivers

20 located on the working platforms 4 sheetings 9 are then driven along the sides of the excavation, being guided by the walings of the framework, the blocks 8 being successively removed to give place to the sheetings, which

25 are then bolted to the walings, the framework thereby supporting the sheetings from movement in either direction laterally.

When the structure is built for the purpose of preparing a foundation without removing 30 the water, all of the framework except the lower tier of braces is preferably removed. The sheetings are then cut off to the required grade and the foundation laid between the same and the intermediate piles.

35 Where the structure is built for the purpose of unwatering the included space and the excavation deepened, I prefer to add additional bracings above the framework A nearly to the top of the sheeting walls, as 40 shown in Fig. 3, and to fill in the space outside the sheeting walls. The water is then pumped out, the excavation deepened, and the required structure built in place.

I claim—

45 1. The combination of the sheeting of a coffer-dam and an interposed, removable, supporting and guiding framework.

2. The combination with sheeting walls on opposite sides of an excavation, of an interposed guiding and bracing framework there- 50 for.

3. The combination with sheeting walls on opposite sides of an excavation, of intermediate piles and a guiding and bracing framework for said sheeting walls supported on 55 said piles.

4. The combination with the sheeting walls, of an intermediate framework having series of walings and serving as inner and outer guides for the sheeting and as bracing-sup- 60 port for the same.

5. In an excavation, the combination of piles in the bed thereof interconnected by cap-pieces, and a framework supported upon said cap-pieces and provided with series of 65 walings serving as guides for sheeting to be driven along the sides of said excavation.

6. In an excavation, the combination of piles in the bed thereof, interconnected by cap-pieces and braces, and a framework of 70 braces and waling-guides for sheeting supported thereon.

7. In foundation-work, series of interconnected piles in the bed of the excavation, a framework supported thereon, sheeting walls 75 outside said piles guided and laterally braced by said framework, said sheeting walls serving as a mold and the embedded parts of said piles as foundation for concrete and other 80 structure.

8. In excavation-work, the combination of piles driven into the bed of the excavation, a frame supported upon the same and having walings serving as sheeting-guides, series of 85 piles in and along the banks of the excavation outside the sheeting walls, and sheeting-driver platforms mounted thereon, substantially as and for the purposes set forth.

Signed at New York city this 4th day of May, 1903.

DUNCAN D. McBEAN.

Witnesses:

ANNA W. McBEAN,
J. T. CRANE.