No. 812,006. PATENTED FEB. 6, 1906.

D. W. BOVEE.

APPARATUS FOR THE CONSTRUCTION OF PLASTIC WALLS.

APPLICATION FILED AUG. 12, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

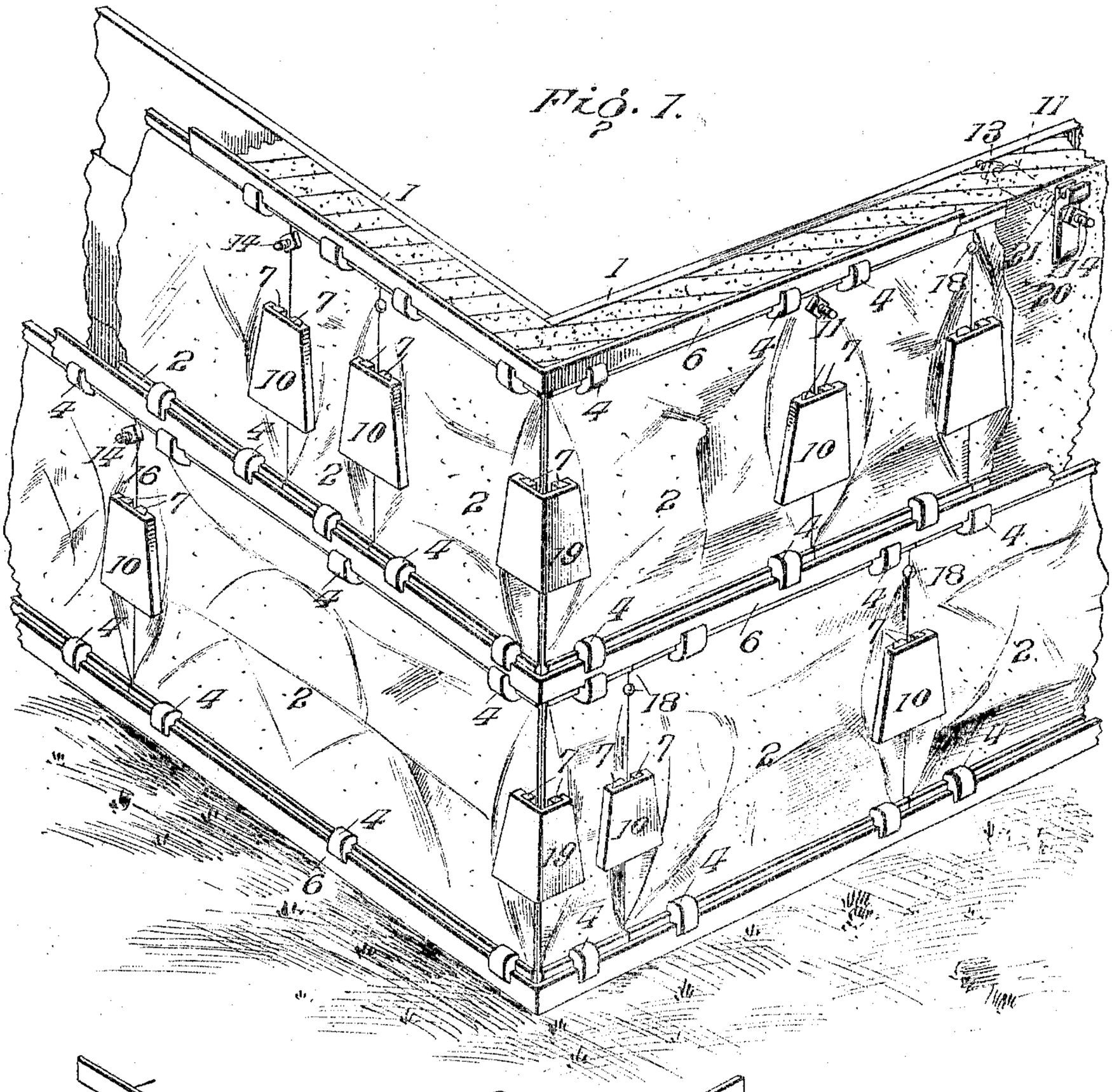


Fig. 6.

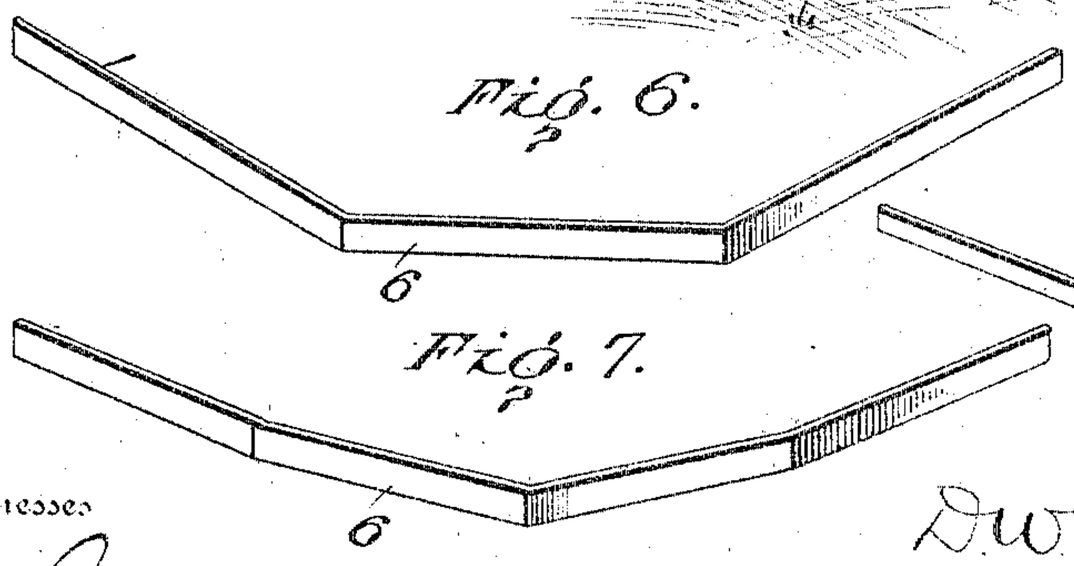
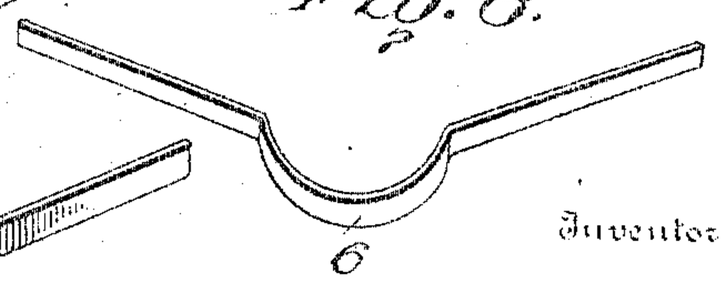


Fig. 7.

Fig. 8.



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3 SHEETS—SHEET 2.

Fig. 2.

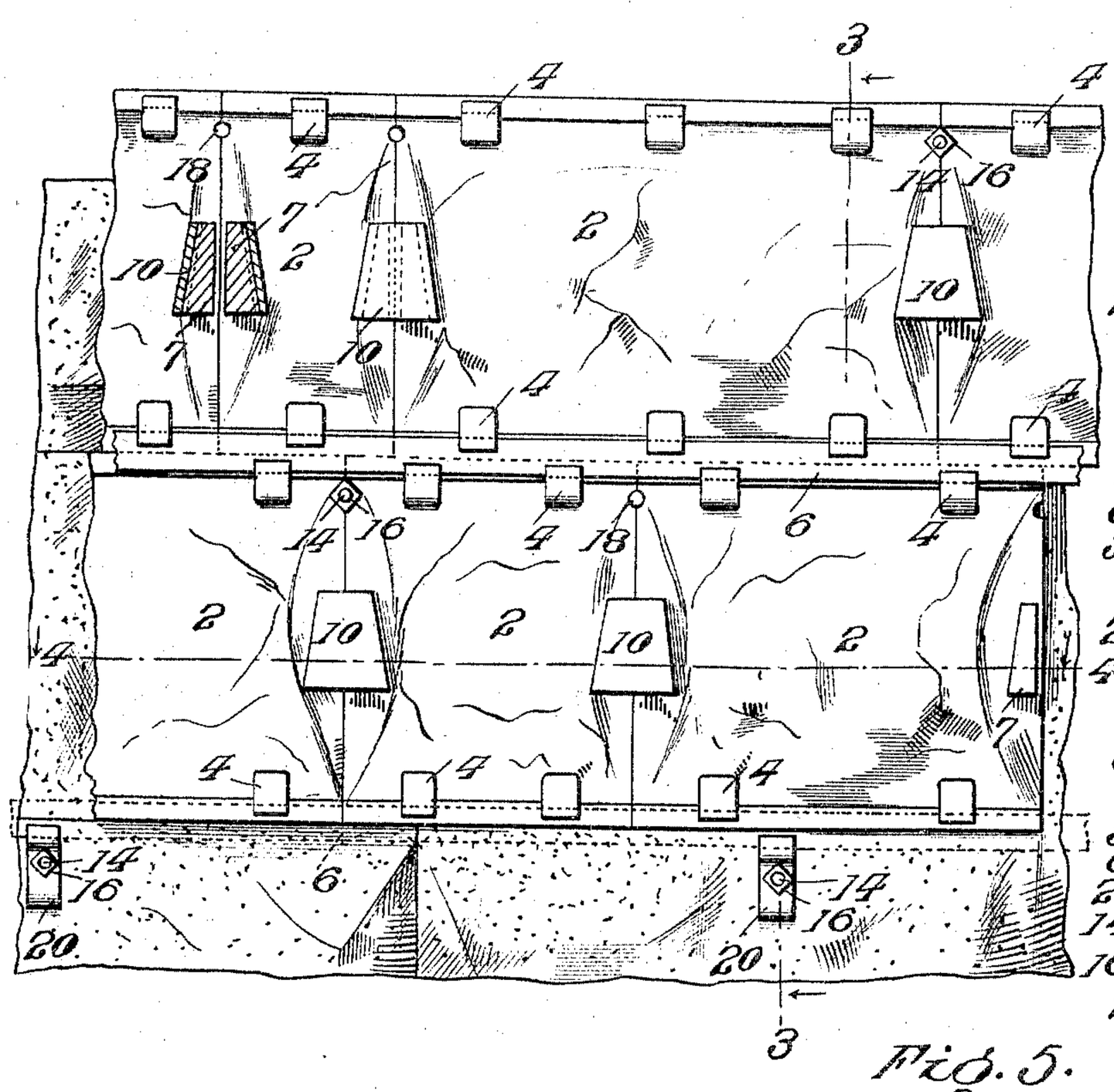


Fig. 3.

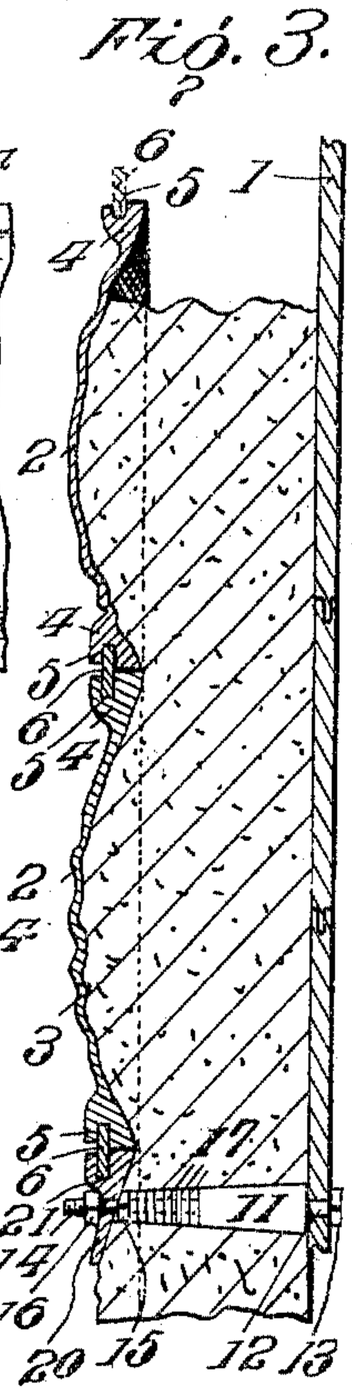


Fig. 4.

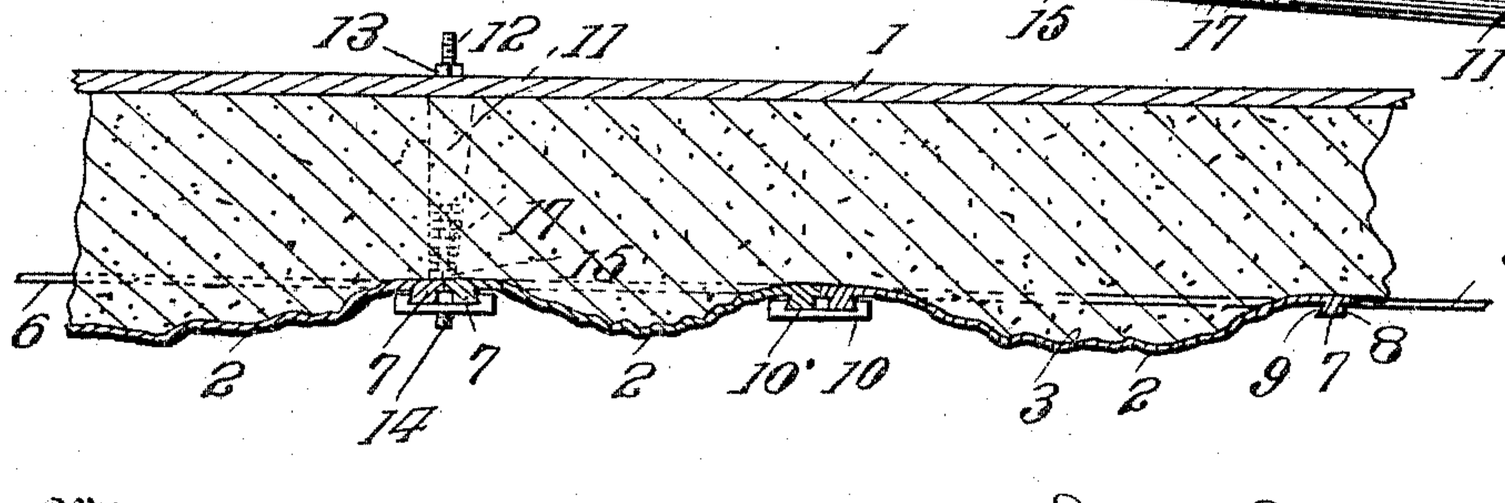
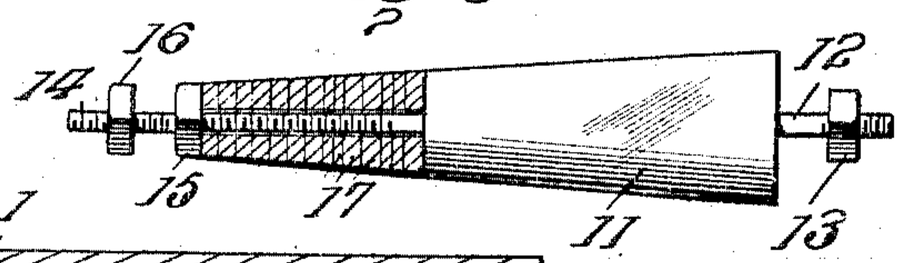


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 9.

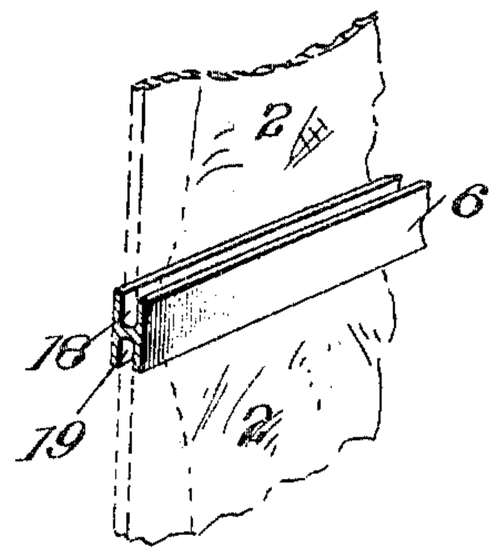
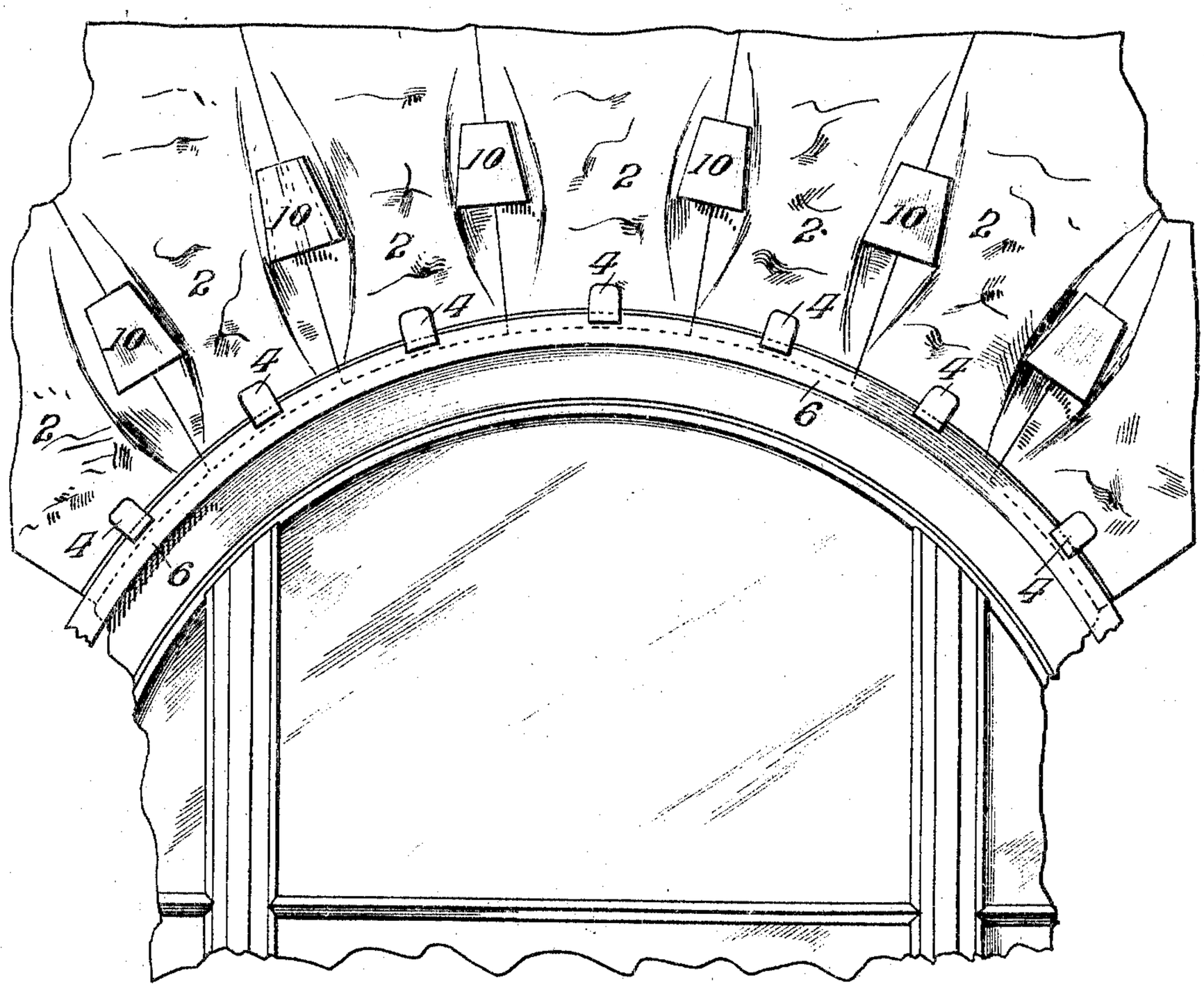


Fig. 10.



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UNITED STATES PATENT OFFICE.

DAVID W. BOVEE, OF WATERLOO, IOWA.

APPARATUS FOR THE CONSTRUCTION OF PLASTIC WALLS.

No. 812,006. Specification of Letters Patent. Patented Feb. 6, 1906.

Application filed August 12, 1905. Serial No. 273,995.

To all whom it may concern:

Be it known that I, DAVID W. BOVEE, a citizen of the United States, residing at Waterloo, in the county of Blackhawk and State of Iowa, have invented certain new and useful Improvements in Apparatus for the Construction of Plastic Walls, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in apparatus for the construction of plastic walls.

The object of my invention is to provide a mold for molding walls of this character which is formed of independent removable sections, each mold-section representing a section or block of which the wall is constructed. Each of said sections preferably has means at all four sides or edges thereof whereby it is removably secured to the adjoining section and so constructed that it can be used at any place along the wall construction.

Another object of my invention is to provide means for holding the removable front sections to the rear wall or backing of the mold at the proper distance therefrom and whereby said means is readily removed from the wall after the same is completed.

A still further object of my invention is to provide a more simple, cheap, and effective mold-section of this character whereby the securing or holding means performs the additional means for preventing the cement from passing from between said mold-sections.

In the accompanying drawings, Figure 1 is a perspective view of the mold-sections arranged to form a corner of a section of a wall during the construction thereof. Fig. 2 is a side elevation of a wall during construction, showing several mold-sections secured in position. Fig. 3 is a transverse vertical sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a longitudinal horizontal sectional view taken on the line 4 4 of Fig. 2. Fig. 5 is an enlarged perspective view of the securing-bolts used for holding the mold-sections to the backing. Figs. 6, 7, and 8 are perspective views of several forms of securing-strips used on different forms when constructing angles of different character. Fig. 9 is a perspective view of a modified form of the securing-strip, showing the mold-sections in position in dotted lines. Fig. 10 is a perspective view of a wall under construction and showing means for constructing arches and the like.

Referring now to the drawings, 1 represents a backing which is usually used in the construction of walls of this character and which is made of planking in any desired manner. The front wall of said mold is formed of mold-sections 2, which, as shown, are preferably made with an ornamented inner face 3 to represent, preferably, blocks of stone or the like. The said mold-sections, as shown, are of an oblong or other form and of different lengths and have at their edges on the outside the projections 4, which are preferably two at each edge of a section and which are provided with recesses 5, and said recesses at both top and bottom are in communication with the edges; but said projections or lugs, as clearly shown, do not extend quite to the edge of the mold-sections, and thus do not interfere at all with the placing of the edges of the mold-sections together for forming a tight joint between the same. Fitting within the recesses formed in the lugs 4, carried by the adjoining faces of the wall-sections, are the strips 6, which hold the mold-sections in alinement and prevent them from having a lateral movement and also effectively close the joint between the upper and lower adjoining edges of the sections and prevent the leakage of the plastic material from between the same. The said strips are of a width to fill the recesses of the lugs carried by the adjoining faces of the mold-sections and may be made in sections of any length. The ends of said sections are provided with outwardly-extending lugs 7, which have their outer faces 8 a short distance from the end of the mold-section and their inner faces 9 beveled inward, said lugs being also slightly tapered from the lower end upward. The said lugs, as shown, are so arranged upon the sections that they come opposite each other when the mold-sections are placed in their respective positions, and thus the two adjoining lugs form a dovetail projection. In order to hold the ends of said section in their respective positions, I provide locking-plates 10, which are slightly tapered and are also provided with a tapering dovetail recess 10′, adapted to receive the dovetail projections formed by the abutting lugs of the two adjoining sections, and when said plate is driven thereon it firmly draws the adjoining ends of the sections together and holds them

together and prevents the leakage of the cement between the same and also absolutely prevents any lateral movement between the two abutting sections.

In order to hold the mold-sections at their proper distances from the backing and prevent the same from being forced outward by the pressure of the cement thereon, I provide the securing-bolts 11, which, as shown, are formed of an enlarged tapering body-like portion 11 and have at their inner ends the outwardly-extending reduced screw-threaded portion 12, which extends through the backing 1 and has secured thereon the nut 13, which securely holds the bolt to the backing. The opposite or smaller end of the bolt is also provided with a screw-threaded elongated projection 14, which extends through the mold-sections and has a nut 15 on the inside of the mold-section and a nut 16 on the outside, which firmly hold the mold-sections to the backing. The bolts, as is well understood, are placed in position before the composition is placed in the mold, and by means of the two nuts 15 and 16 it will be seen that the mold-sections may have an inward or outward adjustment to bring the same in a vertical alinement with each other. The elongated projection 14 is, as clearly shown, of a length considerably greater than that at the opposite end, and in order to prevent the cement from surrounding said threaded projection when a wall of greater width is being constructed and also to allow a greater adjustment of the securing-nut for walls of different thickness I provide a number of tapering sleeves or thimbles 17, which slip loosely over said projection 14 and form a continuation of the tapering body portion, and thus any number of said thimbles or sleeves may be removed.

The adjoining edges of the mold-sections at their upper ends are provided with semicircular openings 18, which are so arranged that they come opposite each other when the sections are placed together, thus forming openings through which the tie-bolts pass. It is understood that it is not necessary to have a tie-bolt for each section, as the sections are firmly secured together, as heretofore described. It will be seen by the conical shape of the bolts that the same may be readily driven from the wall after it has hardened and the backing and mold-section removed and the same bolts used in the further construction of the wall.

As shown in Fig. 1, the same mold-sections can be used in the construction of corners; but in constructing the corners the securing-strip 6 is of an angular form, and instead of using a straight wedge-shaped lock 10 I employ the angular-shaped lock 19, which is adapted to engage the projections 7 at the end of the section and form a positive tie for the corners. In Figs. 6, 7, and 8 the holding-strips are of different angles to form the different angles of the wall, the same mold-sections being used; but corner lock-plates are used to correspond with the angles of the holding-strip.

After the cement has hardened and the mold-sections have been removed in order to continue the upward construction of the wall and have a base to work from the upper bolts 11 are not removed; but on said bolts are placed the cleats 20, having the recesses 21, in which rests the holding-strip 6, and thus the mold-sections are placed in position on the said strip and the wall continued upward, thereby necessitating fewer mold-sections, as all of the same can be removed after the wall has hardened.

In the modification shown in Fig. 9 instead of providing the mold-sections with the lugs 4 I provide the upper and lower edges of the securing-strips 6 with longitudinally-extending grooves 18 and 19, into which the upper and lower edges of the mold-sections pass, thus serving the same function as the projections 4 to prevent any lateral movement of the mold-sections in respect to each other.

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

1. An apparatus of the character described, comprising mold-sections having projections carried by their outer faces adjacent to the upper and lower edges, and having recesses in their outer faces, and strips extending in the recesses and holding said sections in a vertical alinement.

2. An apparatus of the character described, comprising mold-sections, oppositely-arranged projections carried by the abutting ends, locking-plates having recesses to receive said projections, outwardly-extending projections carried by the upper and lower edges of said sections, and recesses in the outer side walls thereof, and a strip resting within the said recesses and holding said sections in vertical alinement.

3. An apparatus of the character described, comprising a backing, mold-sections adjacent thereto, tapering bolts securing said sections to the backing, oppositely-arranged projections carried by the abutting ends of said sections and forming tapering dovetail projections, locking-plates having dovetail recesses to receive said projections, outwardly-extending projections carried by the upper and lower edges of said sections, and having recesses in the outer side walls thereof, and a strip resting in said recesses of said projections and held therein and holding the said sections in a vertical alinement against lateral movement.

4. An apparatus of the character described, comprising a backing, mold-sections adjacent thereto, tapering bolts having a reduced screw-threaded portion passing through the

backing, a nut carried thereby on the outside of the backing and the opposite end of said bolt having a reduced screw-threaded portion passing through the mold-sections, and a nut carried by said screw-threaded portion on the inside and outside of the mold-sections.

5. An apparatus of the character described, comprising a backing, mold-sections adjacent thereto, tapering bolts having a reduced screw-threaded portion passing through the backing, a nut carried thereby on the outside of the backing and the opposite end of said bolt having a reduced screw-threaded portion passing through the mold-sections, removable tapering sleeves carried by said reduced screw-threaded portion, and nuts carried thereby on the outside of the sleeve and on the inside and outside of the mold-sections.

6. An apparatus of the character described, comprising a plurality of separate mold-sections, a strip passing along the abutting edges of adjacent sections, and means for interlocking the sections with the strip.

7. An apparatus of the character described, comprising a plurality of mold-sections arranged out of line with each other, and a locking-strip spanning the junction of the said mold-sections and serving to interlock them in proper position.

8. An apparatus of the character described for forming structures with angular-arranged walls, comprising a plurality of mold-sections arranged at an angle to each other, and a locking-strip spanning the apex of the angle and extending parallel with the said sections and serving to lock them in position.

9. An apparatus of the character described for forming archwork, comprising a plurality of mold-sections placed in arch relation, and a combined arch-shaped supporting and holding strip interlocking with said mold-sections.

10. An apparatus of the character described, comprising mold-sections having projections carried by their outer faces adjacent its upper and lower edges, and having recesses in their outer faces, and a horizontally-arranged thin strip extending in the recesses and holding said sections in a vertical alinement.

11. An apparatus of the character described, comprising mold-sections having projections carried by their outer faces adjacent their upper and lower edges, and having recesses in their outer faces, horizontally-arranged thin strips extending in the recesses and holding said sections in a vertical alinement, projections carried by the vertical edges of the mold-sections and forming tapering dovetail projections, and a locking-plate having a dovetail recess to receive said projections and holding the ends of said sections together.

12. An apparatus of the character described, comprising a backing, mold-sections adjacent thereto, tapering bolts having a reduced screw-threaded portion passing through the backing, a nut carried thereby on the outside of the backing, and the end of said bolt having an elongated reduced screw-threaded portion passing through the mold-sections, a series of removable tapering sleeves loosely mounted on said reduced screw-threaded portion, and nuts carried thereby on the outside of the sleeve, one on each side of the mold-sections.

13. An apparatus of the character described, comprising a backing, mold-sections removably supported by the backing, outwardly-extending projections carried by the outer faces, mold-sections adjacent their upper and lower edges, and having recesses in their sides adjacent the edge of the section, and strips extending horizontally across the line of juncture of the sections and resting in the recesses in the lugs of the adjoining sections.

14. An apparatus of the character described, comprising a backing, mold-sections removably supported thereby, and locking-plates having longitudinal recesses in their upper and lower edges to receive the adjoining edges of the mold-sections, and locking the same together.

15. An apparatus of the character described, comprising a backing, mold-sections removably supported by the backing, outwardly-extending projections carried by the outer faces of the mold-sections adjacent their upper and lower edges and alternately carried by the upper and lower sections, and having recesses in their faces adjacent the edge of the section, and elongated thin flat strips resting in the recess in the lugs of the adjoining sections and bearing against the outer faces of the sections.

16. An apparatus of the character described, comprising a backing, mold-sections removably supported thereby, and locking-plates having longitudinally-extending recesses in their upper and lower edges of a size to snugly receive the straight smooth adjoining edges of the mold-sections and locking the same together.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID W. BOVEE.

Witnesses:

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CHAS. R. WRIGHT, Jr.