

No. 788,391.

PATENTED APR. 25, 1905.

D. W. BOVEE.

APPARATUS FOR THE CONSTRUCTION OF PLASTIC WALLS.

APPLICATION FILED SEPT. 28, 1904.

3 SHEETS—SHEET 1.

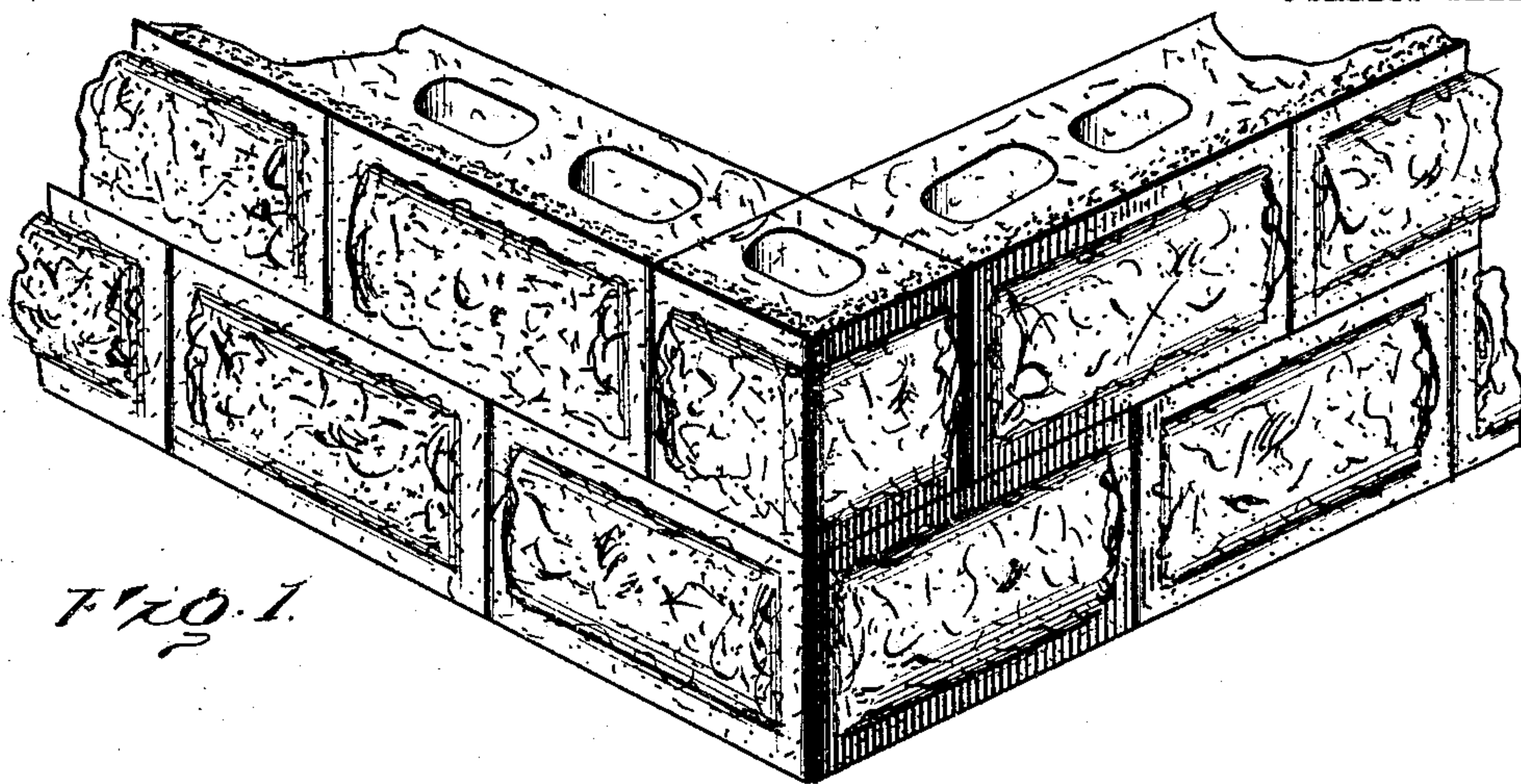


Fig. 1.

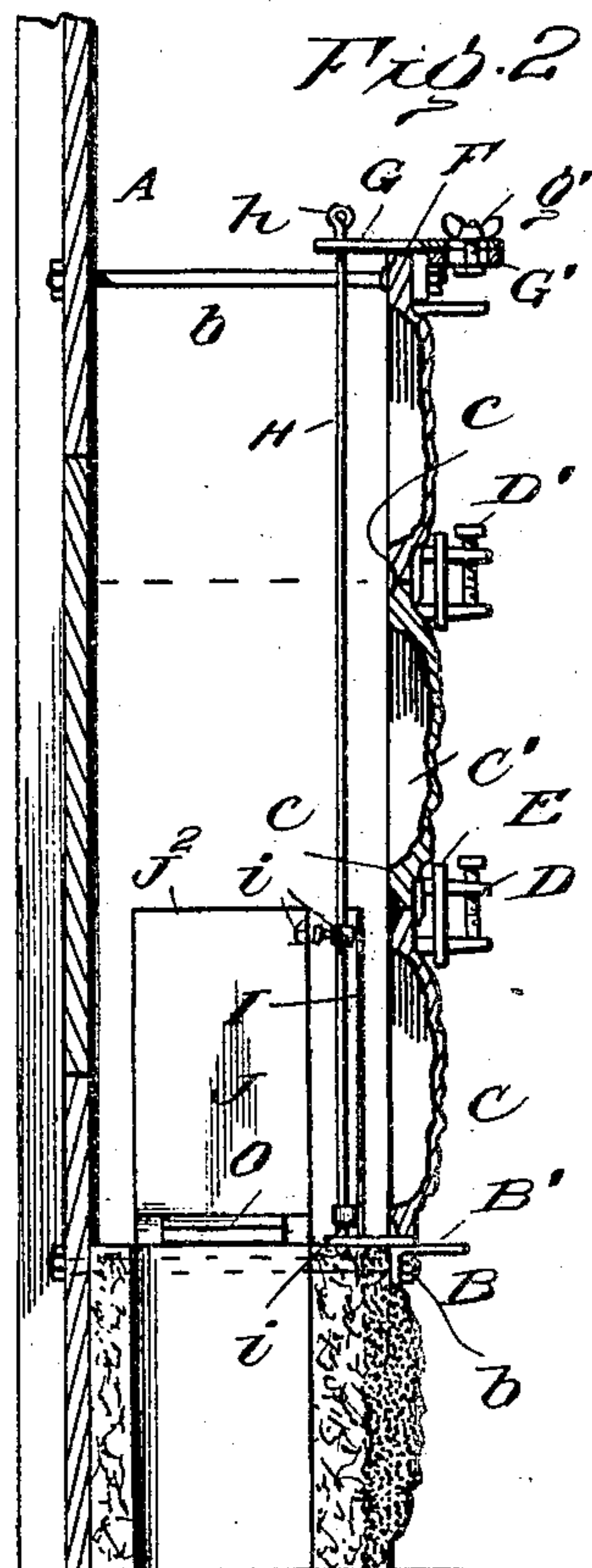


Fig. 2.

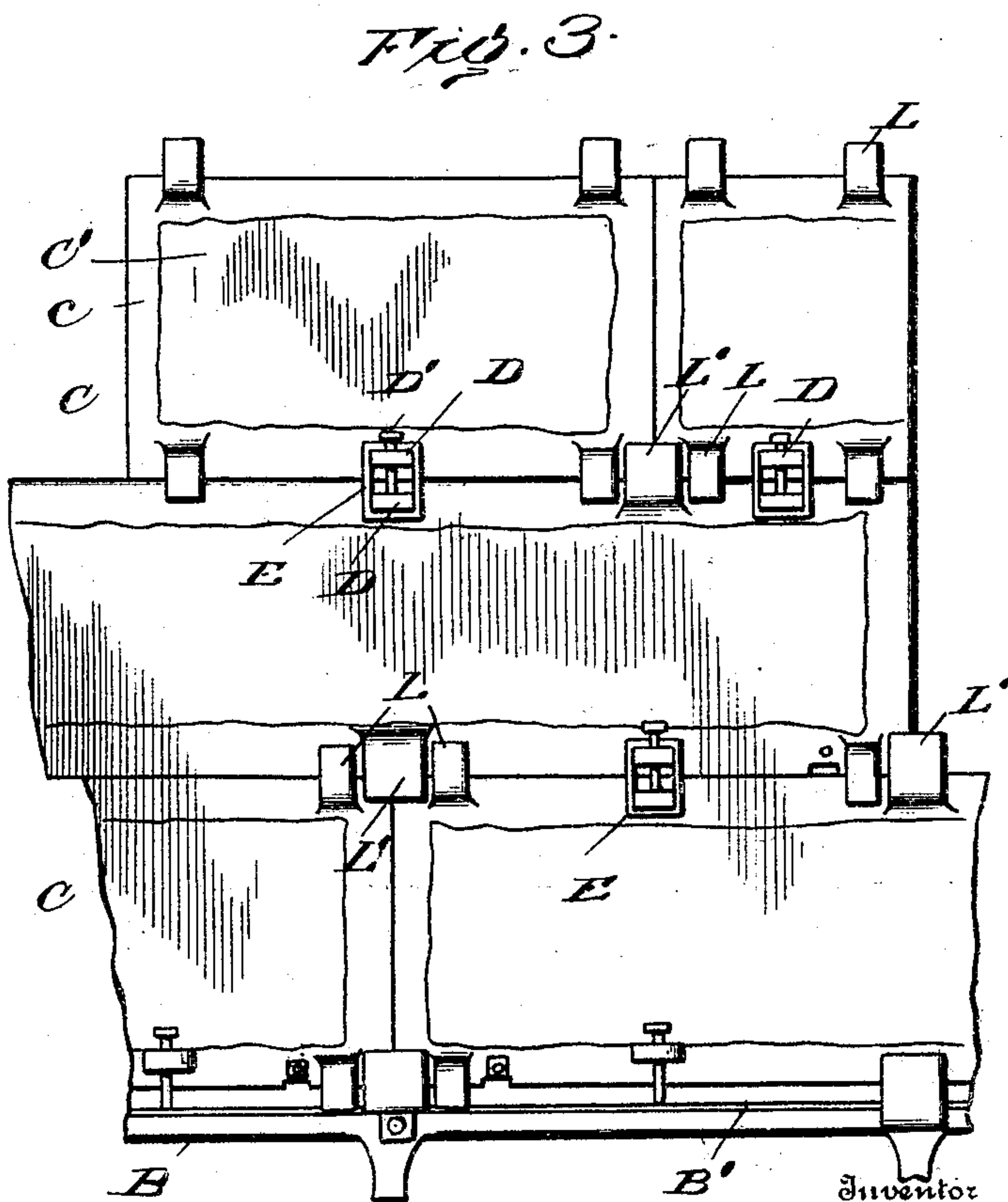


Fig. 3.

Witnesses

For Invention
E. P. Wright Jr.

By

D. W. Bovee
A. S. Pattison

Attorney

No. 788,391.

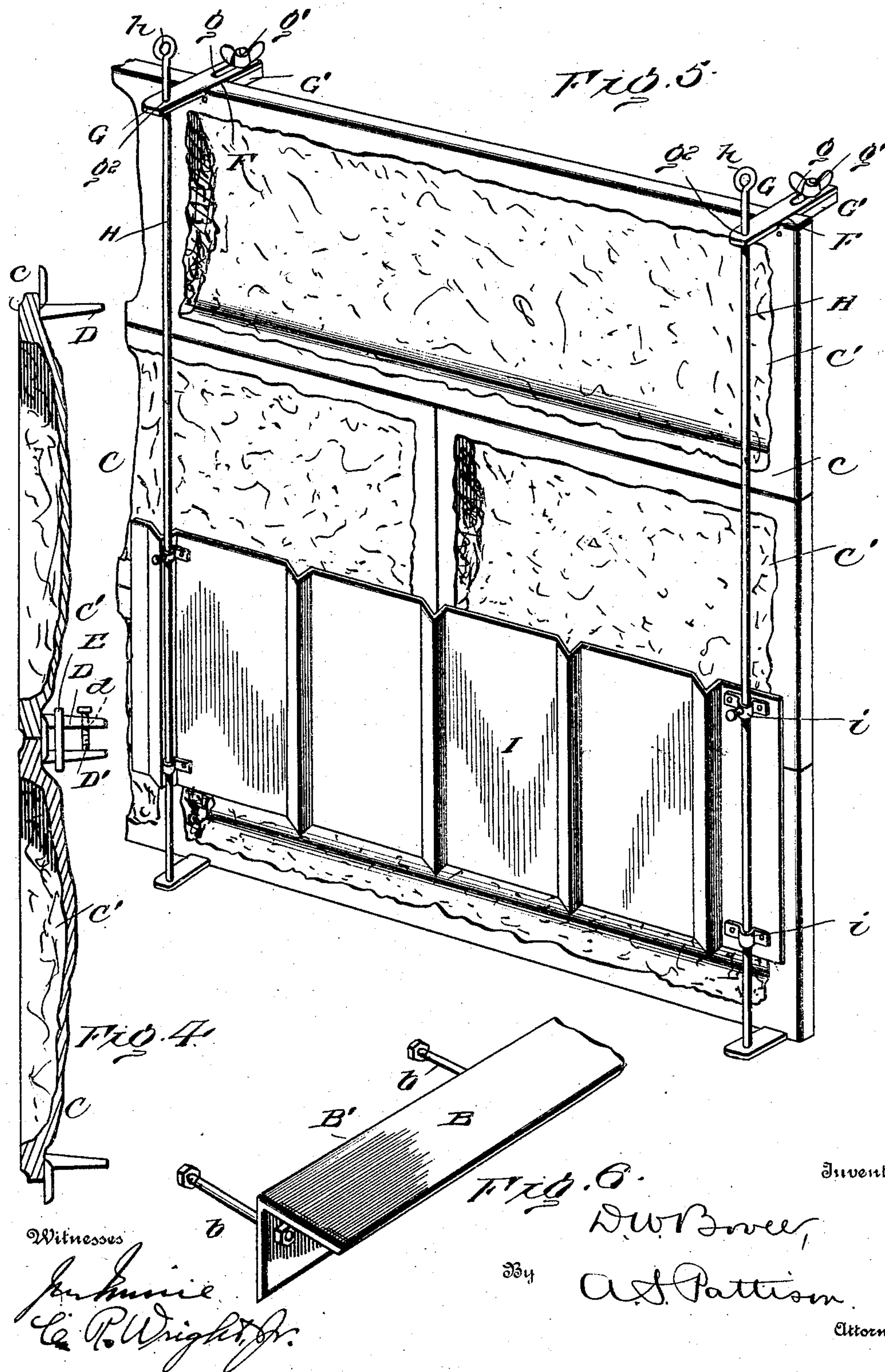
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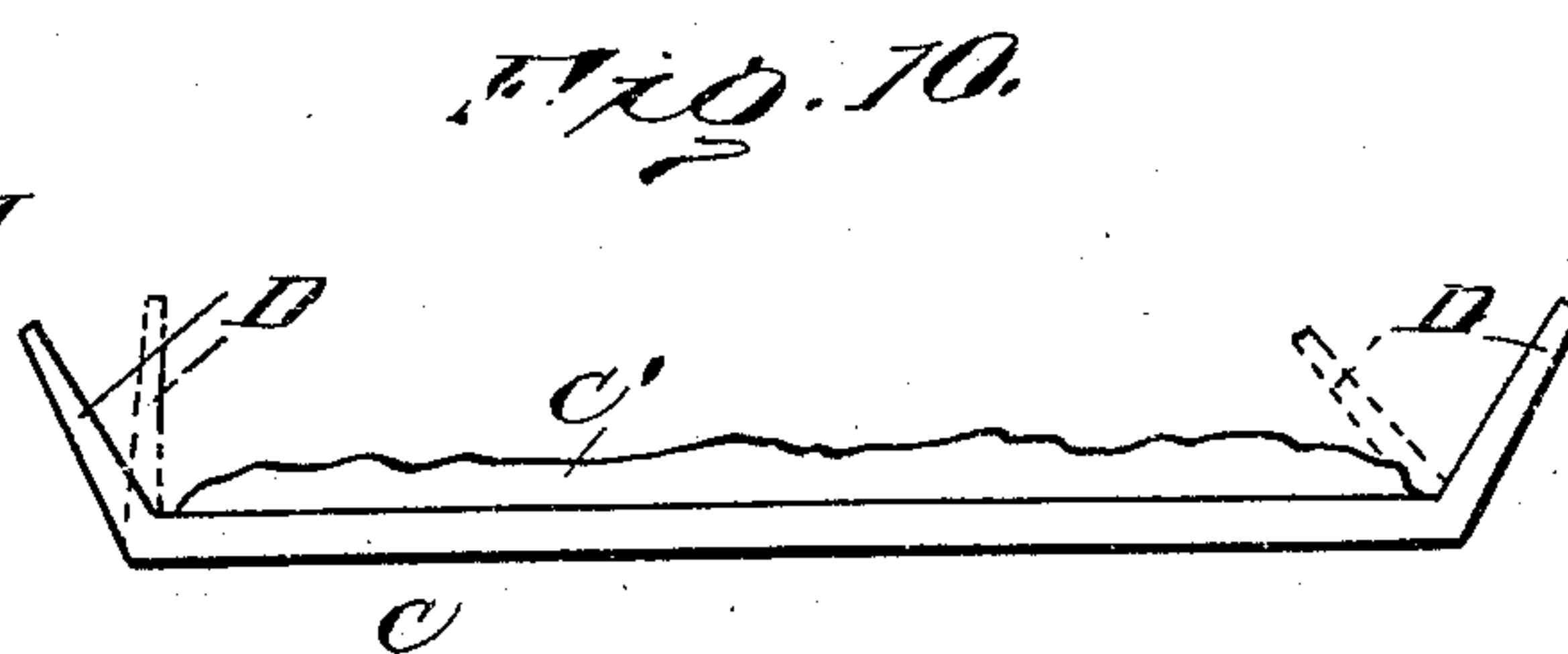
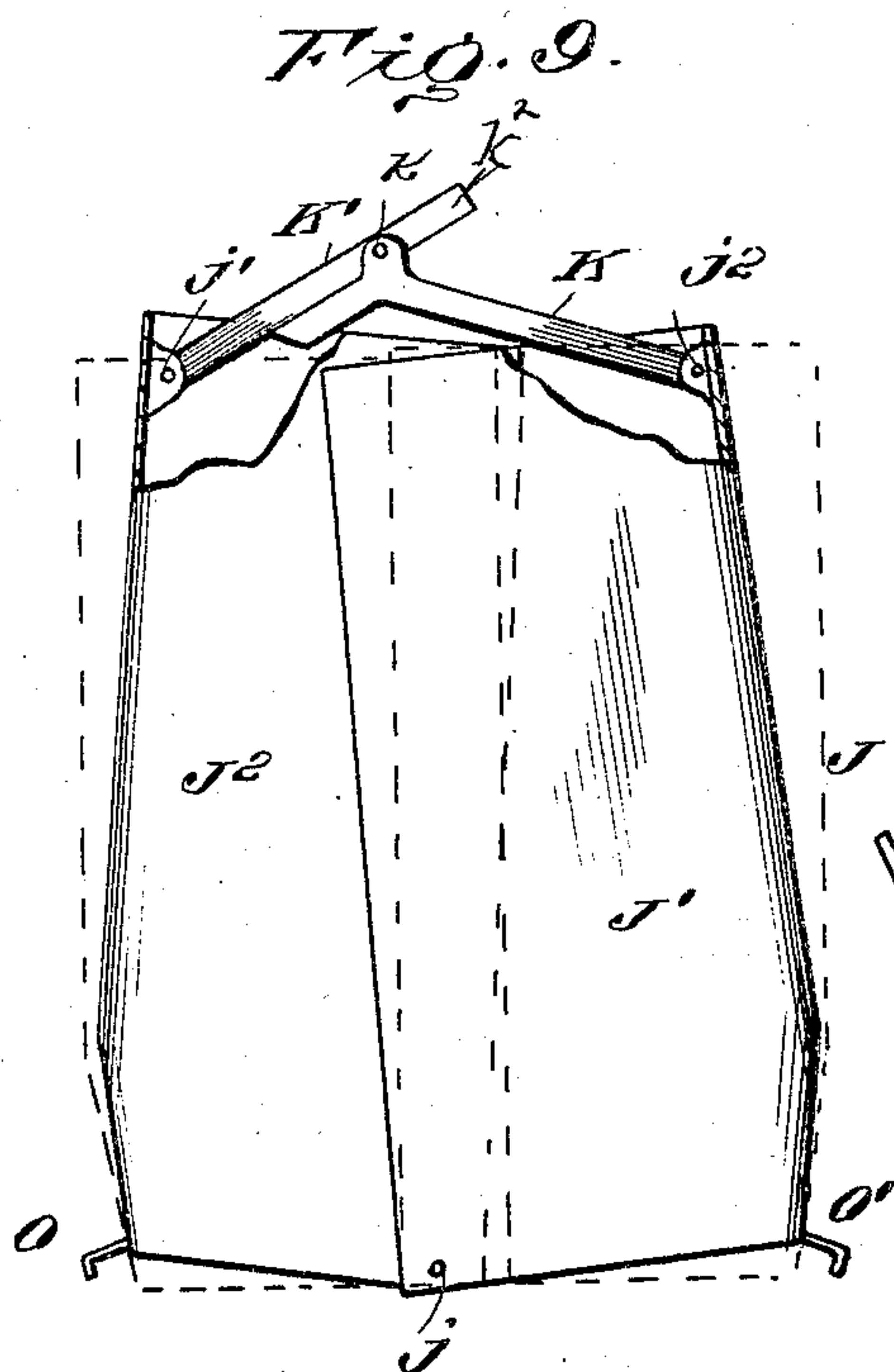
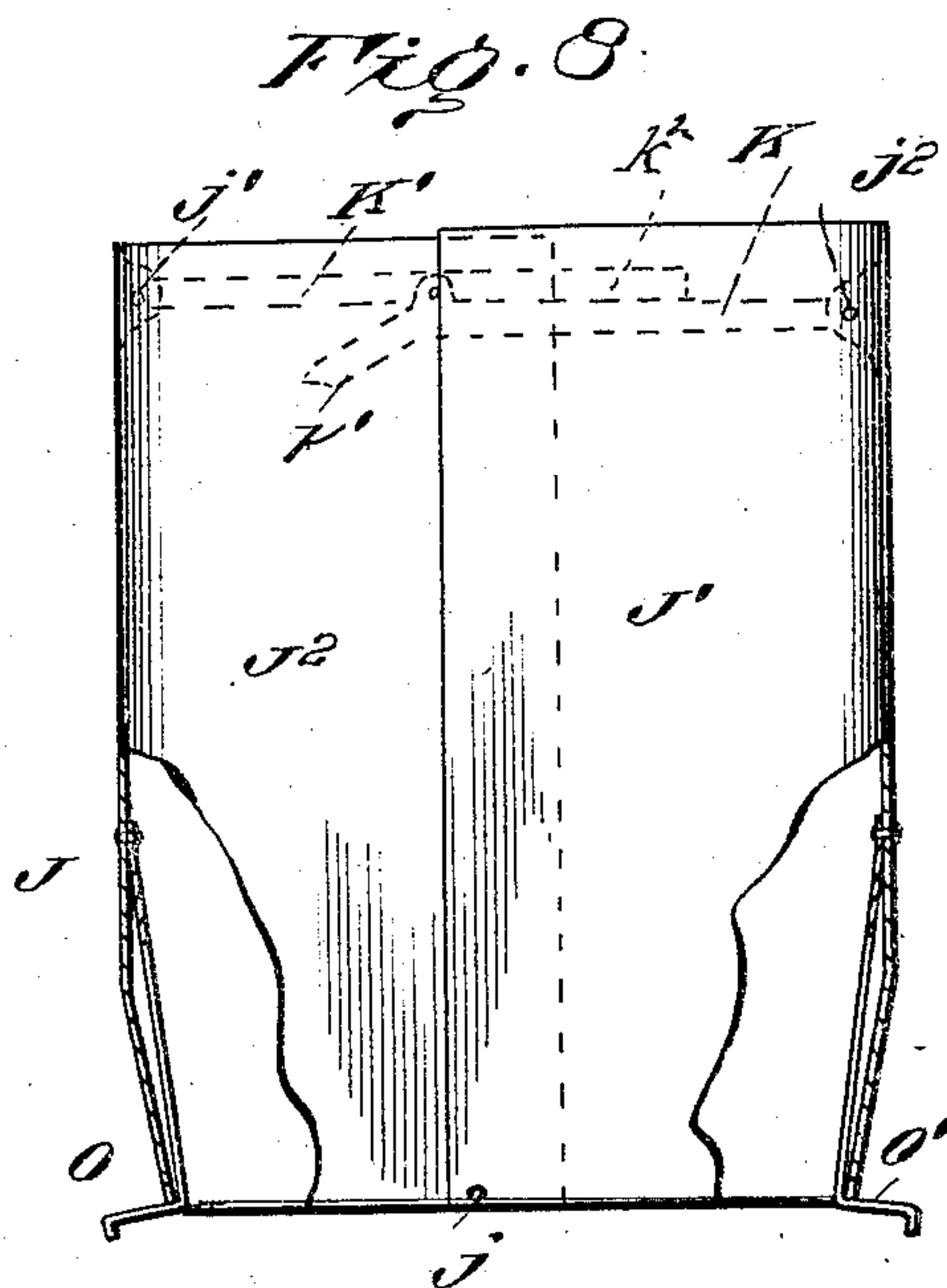
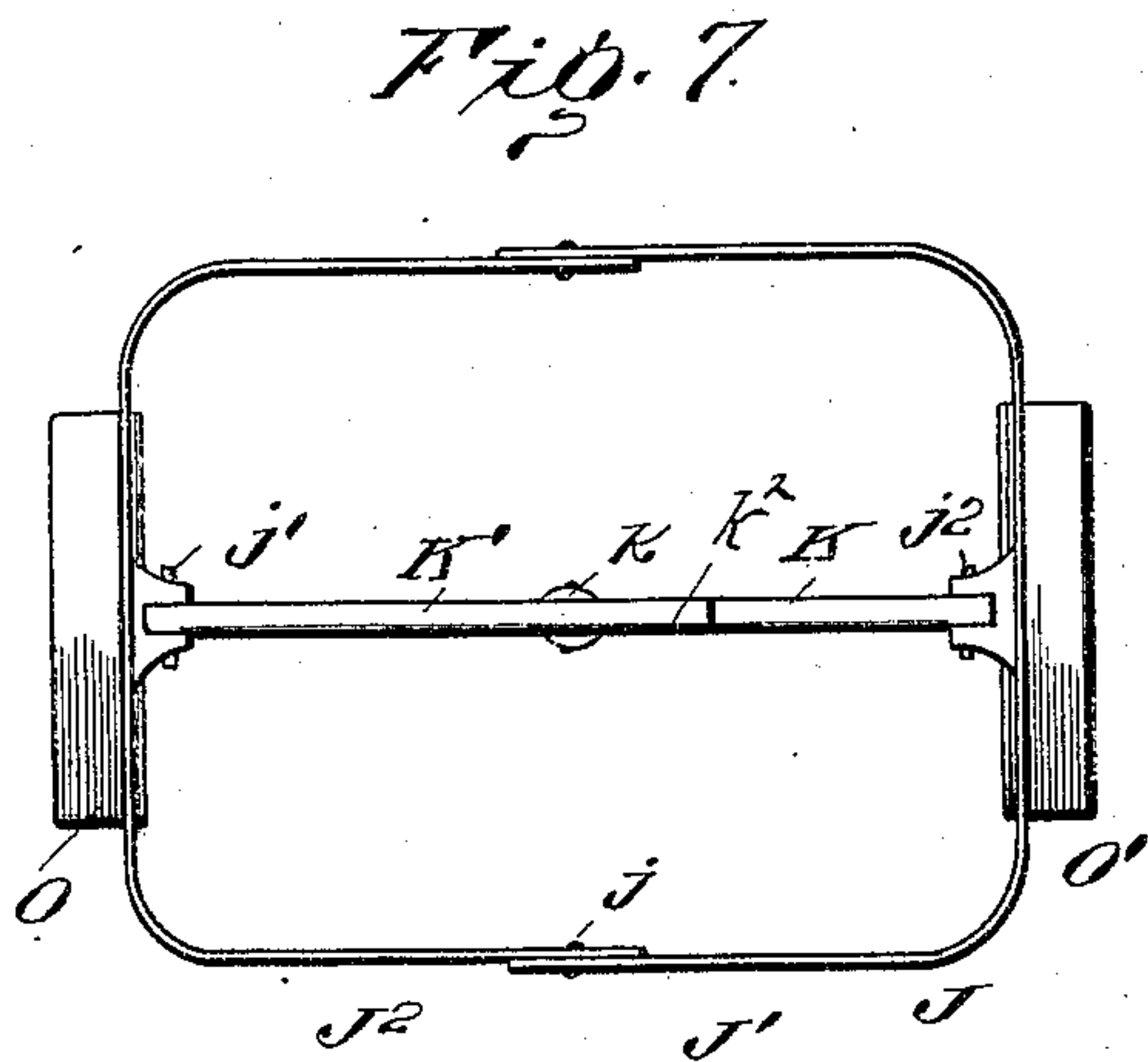
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3 SHEETS—SHEET 3.



Witnesses

for minor
C. R. Wright

Inventor

By

D. W. Bovee,

A. J. Patton,

Attorney

UNITED STATES PATENT OFFICE.

DAVID W. BOVEE, OF WATERLOO, IOWA.

APPARATUS FOR THE CONSTRUCTION OF PLASTIC WALLS.

SPECIFICATION forming part of Letters Patent No. 788,391, dated April 25, 1905.

Application filed September 28, 1904. Serial No. 226,369.

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 an apparatus for the construction of plastic or cement walls.

The object of my invention is to provide an apparatus of this character in which the outer face of the wall is formed to appear as stone and said outer face being made of a finer grade of material, while the backing is made of coarser material, thus lessening the cost and at the same time forming a fine-appearing wall, which is more durable and adapted to stand the weather to which it is exposed, the outer and inner faces of coarser and finer material being so interlocked that there is no possibility of the same separating and falling from the main backing of coarser material.

Another object of my invention is to provide detachable sections forming the different blocks of imitation of stone and providing the same with securing means whereby they may be secured together and insure of a vertical or oblique alinement, as desired.

A still further object of my invention is to provide means for forming said walls with vertically-arranged flues or hollow spaces therein, thus reducing the cost of the same and at the same time providing means for circulation of air therethrough.

In the accompanying drawings, Figure 1 is a perspective view of a section of a wall, showing the general appearance of the same when completed. Fig. 2 is a transverse vertical sectional view of the wall during the construction thereof, showing a number of mold-sections in place. Fig. 3 is an enlarged front elevation of the mold-sections. Fig. 4 is an enlarged transverse vertical sectional view of two of the removable mold-sections, showing the means for locking the same together. Fig. 5 is an enlarged perspective view looking toward the front, showing the

vertically-movable divisional plate and means for supporting the same. Fig. 6 is a perspective view of the supporting-shelf from which the mold-sections are built upwardly during the construction of the same. Fig. 7 is a top plan view of the collapsible member for forming the vertical hollow portions in the wall. Fig. 8 is a side elevation of Fig. 7. Fig. 9 is a side elevation of Fig. 7, showing the same in its collapsible position so that the same may be moved upwardly. Fig. 10 is a side view of a mold-section, showing the outwardly-extending members at an angle for the purpose of building walls with angles therein.

Referring now to the drawings, A represents a backing or wall formed, as shown, of planking, and, as shown, it preferably started from the ground and is built upward as the wall progresses in its construction, this backing forming the rear face of the wall and also forming a point or support from which to work during the structure of the wall. In starting a wall of this character, as before stated, the backing A is first run up a sufficient height, and a cement or other plastic material is formed in front thereon, and the L-shaped plate B is secured thereto by means of a bolt *b*, which passes through the wall and through the backing, thus forming a starting or supporting point for the front mold-sections C to start. It will be seen that the portion B' of the L-shaped plate B forms a ledge upon which the sections C of the mold rest and are supported. These plates are placed a distance apart to form a support across the entire front of the wall or that portion being constructed. The mold-sections C, as shown, are of an oblong form, and the inner faces are provided with concaved roughened faces C', which form an imitation of stone, and surrounding said concaved faces are smooth ledges *c*, which form a finished smooth edge around the concaved roughened portion, and thus the wall when completed has the appearance of cut blocks of stone or blocks of cement stone laid in the usual manner. Said front mold-sections are provided on their outer faces with outwardly-extending arms D, which, as shown, are provided with vertically-arranged screw-openings *d*, which are

adapted to receive the screws D' , which pass therethrough and are adapted to engage the outwardly-extending arm D , carried by the upper end of the section below. The said arms are so arranged upon the sections that when the sections are together, as shown in Fig. 1, the arms of one section are in an alignment with arms carried by the section below, and the screws rest upon said arm. By this arrangement it will be seen that the sections may be adjusted by the turning of the screws, so that they are in perfect alinement and are arranged in a vertical position. Surrounding the wedge-shaped arms is a link or ring E , which is adapted to be driven thereon after the proper adjustment, and thus the two sections are held in said positions. The said front sections, as shown in Figs. 1 and 3, are provided at their edges with recesses or cut-away portions F , through which passes the rod-supporting members G , which, as shown, are provided with an elongated slot g and a movable stop G' , which is provided with a set-screw g' , which passes through the slot g and by means of which said stop is moved upon the member G , and the same is allowed to pass farther inward, and thus the thickness of the veneer or coating of finer outer material may be regulated and at all times be kept the same thickness, as hereinafter more fully described. The inner ends of the said members are provided with vertically-arranged openings g^2 , and passing through said openings are rods H , which have their upper ends provided with eyes or rings h , which prevent the same from passing down through said openings. Secured to said rods H is a divisional plate I , which, as shown, is provided with ears i , through which the rods H pass, and the upper set of ears are provided with set-screws i , by means of which the divisional plate is locked upon the rods and by means of which the plate is vertically raised on the rods as the cement or composition is filled in on each side thereof. The said plate, as shown, is corrugated or fluted, which forms a greater holding or interlocking surface, as hereinafter described.

In order to make the completed wall hollow or provided with vertically-disposed hollow flues or passages, I provide a collapsible cylindrical member J , which is placed between the divisional plate I and the backing of wood A , and the coarse cement or plastic material is placed around the same, while the finer or better material is filled in between the divisional plate and the front sections. When the material is nearly up to the top of the divisional plate, the same is released by turning the thumb-screws i , and the divisional plate is raised so that the lower end is just within the plastic material, thus bringing the coarser and finer material in contact with each other. The material is then firmly compressed together by any means, but prefer-

ably in a manner which causes the fluted or corrugated surfaces of the two materials to firmly adhere together and to be formed as a single wall, with the outer finer veneered face forming an outer stone-appearing face. After the same has been firmly compressed the collapsible cylindrical member is collapsed and elevated until the upper end is near the top of the plastic material and the operation of filling in and compressing is repeated. After the vertical divisional plate has reached the upper end of the rod the set-screws carried thereby are released and the rods H are withdrawn from the members G and said members are withdrawn from the plates I and inserted at a different point above through the openings, and thus the wall is gradually built step by step, yet an unbroken wall is formed.

The collapsible cylindrical members J are formed of two semicircular plates or members J' and J^2 , which are pivoted at j , and pivotally connected to the upper end of said sections J' and J^2 at j' and j'^2 are links K and K' , which are pivoted together at k , and thus by pulling up upon the links at the center the upper ends of the two sections are drawn together, thus reducing the size of the said member, so that it may be readily moved upward. The link K is provided with an extended end k' , which serves as a stop to prevent the links from being pushed too far up. The link is provided with an extended end k^2 , which serves as a stop to prevent the link from being pushed too far down, but allowing the same to be forced down far enough to pass the center of said pivotal connection, and thus serving as a lock after it has passed the center to prevent the sections from being pushed together by pressure on the outside thereof. The lower ends of said sections J' and J^2 of the cylindrical member is provided with spring members O and O' , which are pivoted thereto and have their outer ends extending outwardly beyond the said sections, and thus the spring members are normally outwardly spring-pressed, and thus when the said cylindrical member is drawn upward the spring members are forced inwardly; but when the same reach the upper edge of the cement the spring members are forced outward and rest upon the upper edge of the cement, and thus the cylindrical member is prevented from sliding back within the opening formed therein.

As the wall is continued upward the backing is built up, and as the cement or plastic material of which it is built hardens the front blocks from below are removed and placed above, and thus the wall is continued upward indefinitely, and a great number of mold-sections are not necessary, as the material will harden in a short while sufficient to remove the molds.

In Fig. 3 I show the mold-sections C with the overlapping lugs L and L' , which are adapt-

ed to overlap each other and interlock, which insures an exact alinement of the inside edges of the mold-sections. The mold-sections, as shown in Fig. 10, have the outwardly-extending arms D extending at an angle, which allows of the mold-sections being placed at an angle for building around corners and the like.

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

1. An apparatus of the character described, comprising a backing, mold-sections carried thereby, rods carried by said mold-sections between the same, and a divisional plate vertically movable upon said rods.

2. An apparatus of the character described, comprising a backing, mold-sections carried thereby, rods carried by said mold-sections between the same, and a corrugated divisional plate vertically adjustable upon said rods.

3. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, rods carried by said mold-sections between the same, and a corrugated divisional plate vertically adjustable upon said rods.

4. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby, and a corrugated divisional plate vertically adjustable on said rods.

5. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby, corrugated divisional plates movable upon said rods, and means for holding said plates in their adjusted position on the rods.

6. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting said sections in an oblique or vertical alinement and separate means for holding said sections in their adjusted position.

7. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried by the mold-sections, means for adjusting said arms to or from each other and means for locking said arms in their adjusted position.

8. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried by the mold-sections, means for adjusting said arms to or from each other, and a link surrounding said arms and locking said sections in the adjusted position.

9. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, rods carried by said mold-sections between the same, and a divisional plate vertically movable upon said rods.

10. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, rods detachably carried by the mold-sections between them and the

backing, and a divisional plate vertically adjustable upon said rods.

11. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, inwardly-projecting arms detachably carried by said mold-sections, rods detachably carried by said arms and a divisional plate vertically adjustable on said rods.

12. An apparatus of the character described, comprising mold-sections, detachable rods within said sections, and a divisional plate vertically adjustable on said rod.

13. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby and a divisional plate vertically adjustable on said rods.

14. An apparatus of the character described, comprising mold-sections, detachable rods carried thereby, a divisional plate vertically movable upon said rods, and means for holding said plate in its adjusted position.

15. An apparatus of the character described, comprising mold-sections, detachable arms carried by said sections, detachable rods carried by said arm, and a divisional plate vertically movable upon said rods, and means for holding said plate in its adjusted position.

16. An apparatus of the character described, comprising a mold-section, a cylindrical member composed of two sections hinged together at their lower ends, a link connection at their upper ends, means whereby the upper ends of said sections telescope each other, and outwardly-spring-pressed members carried by the lower ends of said sections.

17. An apparatus of the character described, comprising a backing, mold-sections carried thereby, and outwardly-extending members carried by said sections, and means for securing the said members together.

18. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried thereby and set-screws carried by the arms of one section and engaging the arms of the adjoining section.

19. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending arms carried thereby, set-screws carried by the arms of one section, and engaging the arms of the adjoining section, and links passing around said oppositely-arranged arms.

20. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending oppositely-arranged arms carried by said mold-sections, set-screws carried by the arms of one section and engaging the arms of the adjoining sections, and a link passing around said oppositely-arranged pairs of arms on the inside of said set-screws.

21. An apparatus of the character described,

comprising a backing, mold-sections carried thereby, outwardly-extending wedge-shaped oppositely - arranged arms carried by said mold-sections, set-screws carried by the arms of one section and engaging the arms of the adjoining sections, and a link passing around said oppositely-arranged pairs of arms on the inside of said set-screws, and adapted to wedge the two arms of each pair together.

22. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending wedge-shaped oppositely - arranged arms carried by said mold-sections, set-screws carried by the arms of one section and engaging the arms of the adjoining sections, a link passing around each pair of said arms on the inside of the set-screws, a divisional plate between said mold-sections and the backing and vertically-movable and cylindrical collapsible members between the divisional plates, and the backing, and adapted to be raised as the wall is constructed.

23. An apparatus of the character described, comprising a backing, mold-sections carried thereby, an irregular divisional plate carried by the mold-sections, and a cylindrical member situated between the divisional plate and the backing and composed of two sections hinged together at their lower ends, links connecting the upper ends of said sections and means whereby the upper ends of said sections telescope each other.

24. An apparatus of the character described, comprising a backing, mold-sections carried thereby, vertically-disposed rods carried by the mold-sections, a corrugated plate carried by the rods, and vertically movable thereon, and a collapsible cylindrical member between said corrugated plate and the backing.

25. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, and means for adjusting and holding said sections in either a vertical or oblique alinement.

26. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, and a vertically-adjustable corrugated plate carried by said mold-sections.

27. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, vertically-disposed rods carried by the inner faces of the mold-sections, and a corrugated plate vertically adjustable on said rods.

28. An apparatus of the character described, comprising a backing, detachable mold-sections

carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, vertically-disposed rods adjustably carried by the mold-sections and a divisional plate vertically adjustable on said rod.

29. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, means for adjusting and holding said sections in either a vertical or oblique alinement, vertically-disposed rods adjustably carried by the inner faces of the mold-sections, a vertically-disposed corrugated plate adjacent said rods and having eyes through which the rods pass, and set-screws passing through the eyes and engaging the rods for holding the plates at the adjusted position.

30. An apparatus of the character described, comprising a backing, mold-sections carried thereby, outwardly-extending members carried by said sections, set-screws passing through the members of one section and abutting the members of the adjoining section and links passing around said oppositely-arranged members on the inside of said set-screws.

31. An apparatus of the character described, comprising a mold-section, a cylindrical member composed of two sections hinged together at their lower ends, and telescoping at their upper ends, links pivoted to the said sections and pivoted together intermediate their ends, the end of one link serving as a stop to limit the downward movement of the links and the end of the opposite link serving as a stop to limit the upward movement of the links, and outwardly-spring-pressed members carried by the lower ends of the sections.

32. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, detachable members carried by the outside of the mold-sections and having inwardly-projecting arms extending through said mold-sections, rods detachably carried by said arms, and a divisional plate vertically adjustable on said rods.

33. An apparatus of the character described, comprising a backing, detachable mold-sections carried thereby, detachable members bolted to the outer face of said mold-sections and having inwardly-projecting arms extending through openings in the mold-sections, rods detachably carried by said arms, and a divisional plate vertically adjustable on said rod.

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

DAVID W. BOVEE.

Witnesses:

B. L. MORROW,
L. F. POTTER.