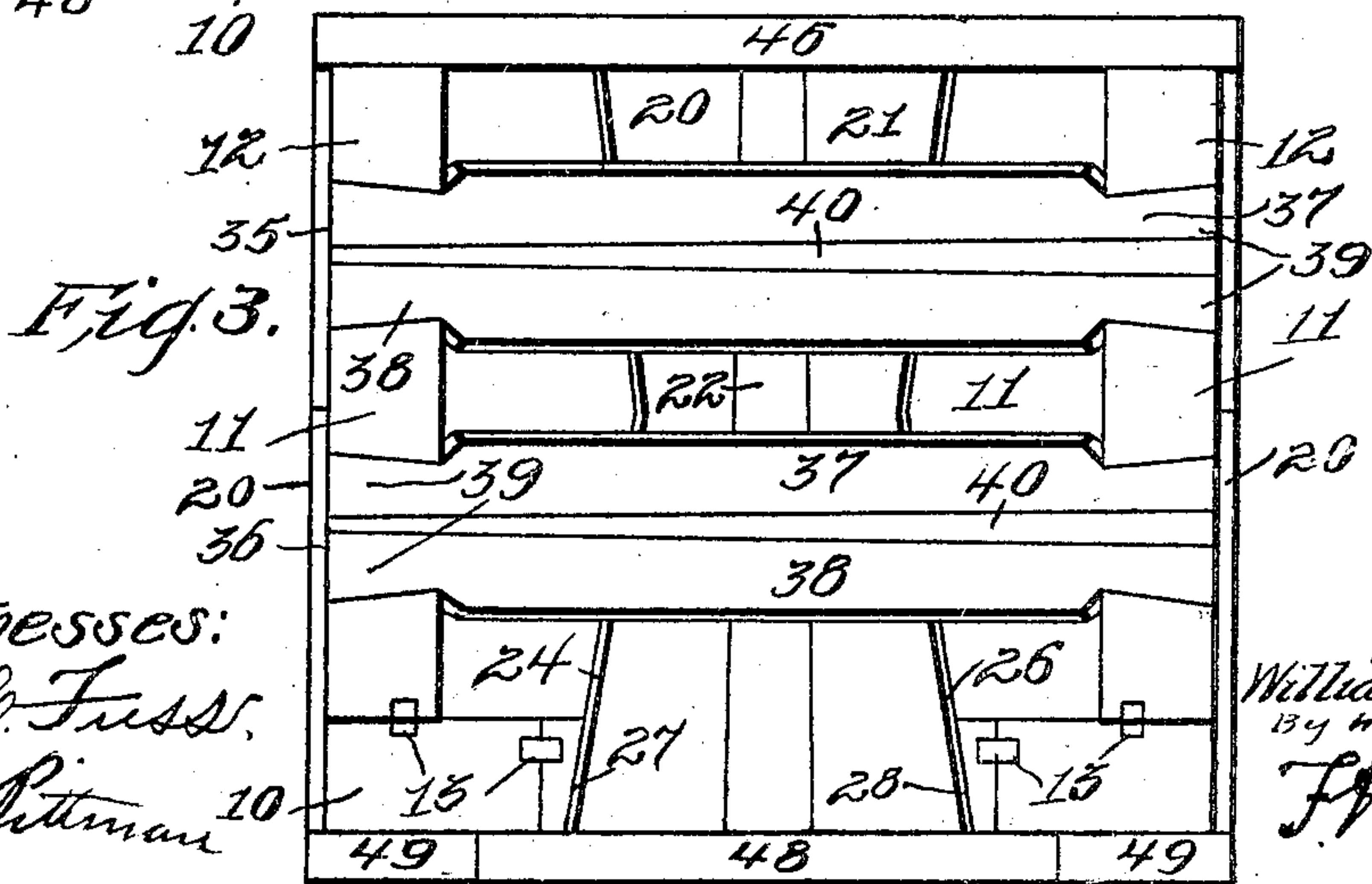
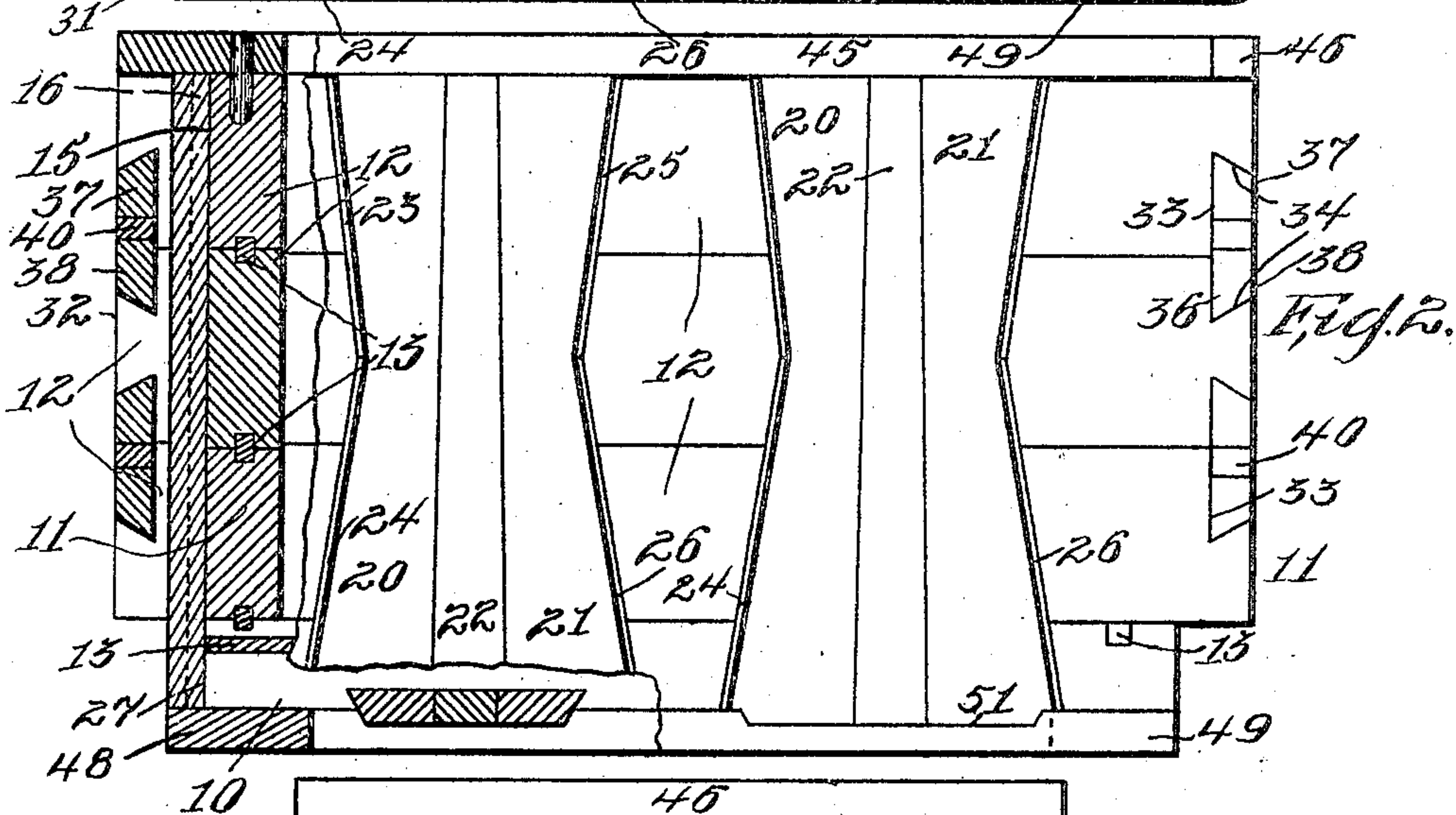
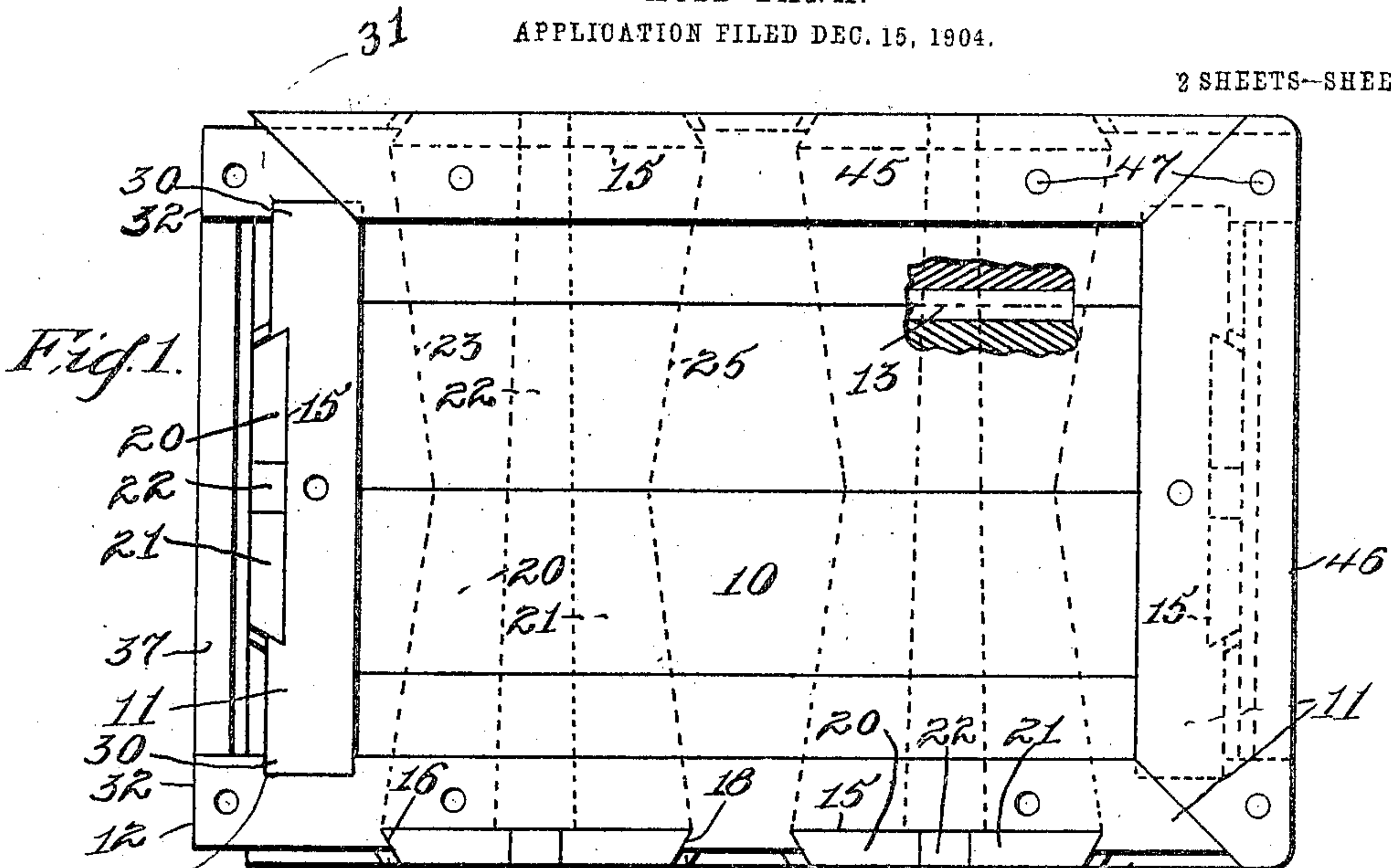


W. O'NEILL.  
ACID TANK.

APPLICATION FILED DEC. 15, 1904.

2 SHEETS--SHEET 1.



Witnesses:  
C. G. Fuss,  
R. M. Pittman

Inventor:  
William O'Neill,  
By his attorney,  
F. W. Richards.

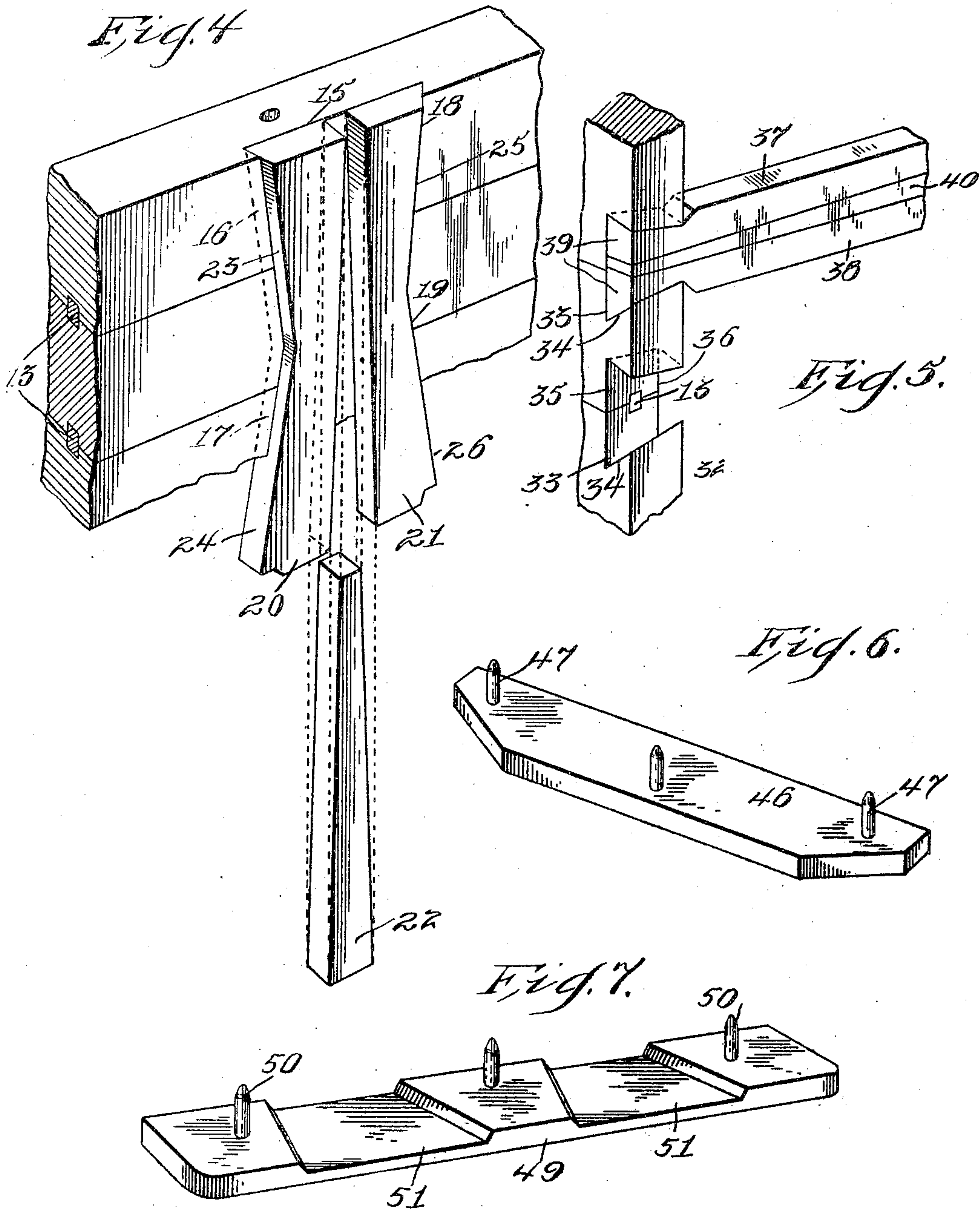
No. 798,444.

PATENTED AUG. 29, 1905.

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# UNITED STATES PATENT OFFICE.

WILLIAM O'NEILL, OF NEW YORK, N. Y.

## ACID-TANK.

No. 798,444.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed December 15, 1904. Serial No. 236,934.

*To all whom it may concern:*

Be it known that I, WILLIAM O'NEILL, a citizen of the United States, residing in the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Acid-Tanks, of which the following is a specification.

This invention relates to and has for its object to provide an improved tank or vat, and particularly one adapted for containing acids—as, for instance, electroplating-baths.

In the drawings accompanying and forming a part of this specification an embodiment of my invention is illustrated, wherein—

Figure 1 is a plan view, portions of the top edging being removed to reveal the parts below and part of the bottom being shown in horizontal section to illustrate the closing of the bottom seams. Fig. 2 is a side elevation of the tank, one end being shown in central section. Fig. 3 is an end elevation. Fig. 4 is a detail in perspective, showing the manner of keying the boards together. Fig. 5 is a detail in perspective, illustrating a form of key or bond in the nature of a band applied to the ends of the side portions. Fig. 6 is a detail in perspective of a portion for forming the edging or finish for the top of the tank; and Fig. 7 is a detail in perspective, showing a means for forming a finish or edging for the bottom of the tank.

The tank in the form herein illustrated embodies a bottom portion 10, upon which in the present instance are mounted four sides 11, the sides resting upon the bottom portion. Two of the sides are longer than the others and would ordinarily be called the "sides" of the tank and the others the "ends" of the tank. Each of such sides is made up of a number of boards 12, having grooves at their abutting edges in which strips 13 are placed to make tight joints. Such strips and grooves may be employed at all of the seams. One or more keyways 15 is placed across each side or across the portions constituting the same, and the keyway tapers from each end toward the center, and the faces 16, 17, 18, and 19 of such keyway are undercut. The key to go in such keyway also tapers from the ends toward its center and are beveled to mate with the undercut. Such key comprises in the present instance two side members 20 and 21 and a key-wedge 22. By referring to Fig. 2 it will be seen that the keyway extends not only through the face of the side,

but through the edge of the bottom, the tapering feature being present in the edge of the bottom as well, so that the faces 24 and 26 of the key will engage the faces 27 and 28 of the keyway in the bottom, and the reaction of the faces 23 and 25 of the key on the faces 16 and 18 of the keyway will draw the bottom tightly against the sides and the boards of the sides into close union. Not only are the sides bound together by means of these keys, but the bottom is bound to the sides in a similar manner. The ends 30 of the shorter sides enter mortises 31 in the longer sides, which mortises may be made plain for convenience of assemblage, and the longer sides may project at their ends, as at 32, past the shorter sides or ends and be bound together by means of keys analogous to those heretofore described. Such extending ends 32 are shown as provided with keyways 33, each of which in the present instance is undercut to provide faces 34, which keyways are wider at their outside portions 35 than at the inside portions 36. The key to fit such keyways and bond the sides together constitutes a pair of members 37 and 38, each of which has a dovetailed end 39, adapted to fit the undercut and tapered keyway 33, and such members are expanded and held in their position by means of a wedge 40. A tank so constructed will upon becoming moist immediately swell and its parts be held in strong and close union, the pressure exerted by any one part reacting upon all parts when the tank is properly keyed together, and all pressures by their constraint and reaction will tend to tighten the joints and seams, and by this means a vat or tank is provided in which there is no metallic fastener. The fastenings being made of the same material of which the tank is made will resist the action of any chemicals which the body of the tank is capable of resisting. To give a finish to the top and also to prevent the accumulation of foreign material at the joints, the top may be given an edging comprising in the present instance side portions 45 and end portions 46, respectively, held in place by means of pegs 47. The bottom of the tank may have an edging comprising end portions 48 and side portions 49, also held by pegs 50. The side members may be grooved out or recessed, as at 51, for the accommodation of a protruding portion of the bottom keys. The form of construction herein illustrated contemplates the sinking of but about half the width of the key in the keyway. The



depth of keyway when thus provided is sufficiently strong, and the apparent surplus of material in the key is to impart sufficient rigidity thereto to withstand the pressure to which it will be subjected.

It will be seen that the various parts of the tank are bound together, making a complete and united system of bonding. In the form illustrated the boards at the bottom are held together by the key members provided therefor, so that any tendency of the outermost edge boards of the bottom to move outwardly will be arrested. The key members for the ends and sides are also constructed for accomplishing similar purposes, and the key members for the sides and ends, running down, as they do, into a continuation of their keyways in the edge of the bottom, securely bind the sides and ends to the bottom, not only to prevent vertical displacement from the bottom, but also to prevent lateral displacement. The dovetail keys enter the dovetail keyways in the edge of the bottom, which keyways are dovetailed in two transverse directions, which will prevent the sides from being pressed away from the bottom laterally and will also prevent them being separated from the bottom by movement in a direction vertical to the bottom, and the side portions or those sides which are transverse to the keyways across the bottom in pulling laterally from the bottom will be restrained from such movements by the keys in the bottom. In the construction illustrated such last-mentioned side keys are contiguous to the keys in the bottom, and so form a continuous band of keys running from the top edge of one side around the bottom and to the top edge of the other side. By this means the bottoms of the sides are most securely bonded to the bottom, and to prevent the sides from lateral expansion away from each other at other portions than the bottom the end bonds are employed, which will hold the side portions against the end portions throughout the body portion of the tank.

Having thus described my invention, I claim—

1. A tank comprising a bottom and four

sides, the ends of two of the sides projecting beyond the other two sides, and having transverse dovetailed keyways tapering from the outer face of the side toward the inner face, and which keyways are also undercut, the bond for such ends having a correspondingly-dovetailed key portion at each end seated in such keyway, the bond being divided into two portions by a longitudinal section, and a tapering wedge expanding said parts of the bond in the keyways.

2. A tank comprising a bottom and four sides, said bottom comprising a series of boards, a keyway having undercut edges and extending across the boards, and tapering from the ends toward the center, a correspondingly-dovetailed key located in said keyway, the key being divided into two parts by a longitudinal section, a wedge interposed between said sections expanding the keys in the keyway; each of the four sides being composed of a number of boards resting on the bottom, and each side provided with a keyway extending transverse of the boards and having undercut edges, and made tapering from the outside to the middle portion, correspondingly-dovetailed keys located in each keyway, each key being divided by a longitudinal section at its middle portion, a wedge inserted between said sections and forcing the keys into said keyways; the ends of two of the sides projecting beyond the other sides and having transverse binding means in addition to said vertical binding means, the latter comprising transverse dovetailed keyways in said ends of the sides tapering from the outer face inward, and which are also undercut, a correspondingly-dovetailed key located in such keyways, the key being divided into two parts by a longitudinal section, and a wedge expanding said sections of the key into such keyways.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 10th day of December, 1904.

WILLIAM O'NEILL.

Witnesses:

FRED. J. DOLE,  
C. D. RUSSELL.