

(No Model.)

LA VERNE W. NOYES.
SHEET METAL TANK.

No. 575,369.

Patented Jan. 19, 1897.

Fig. 1.

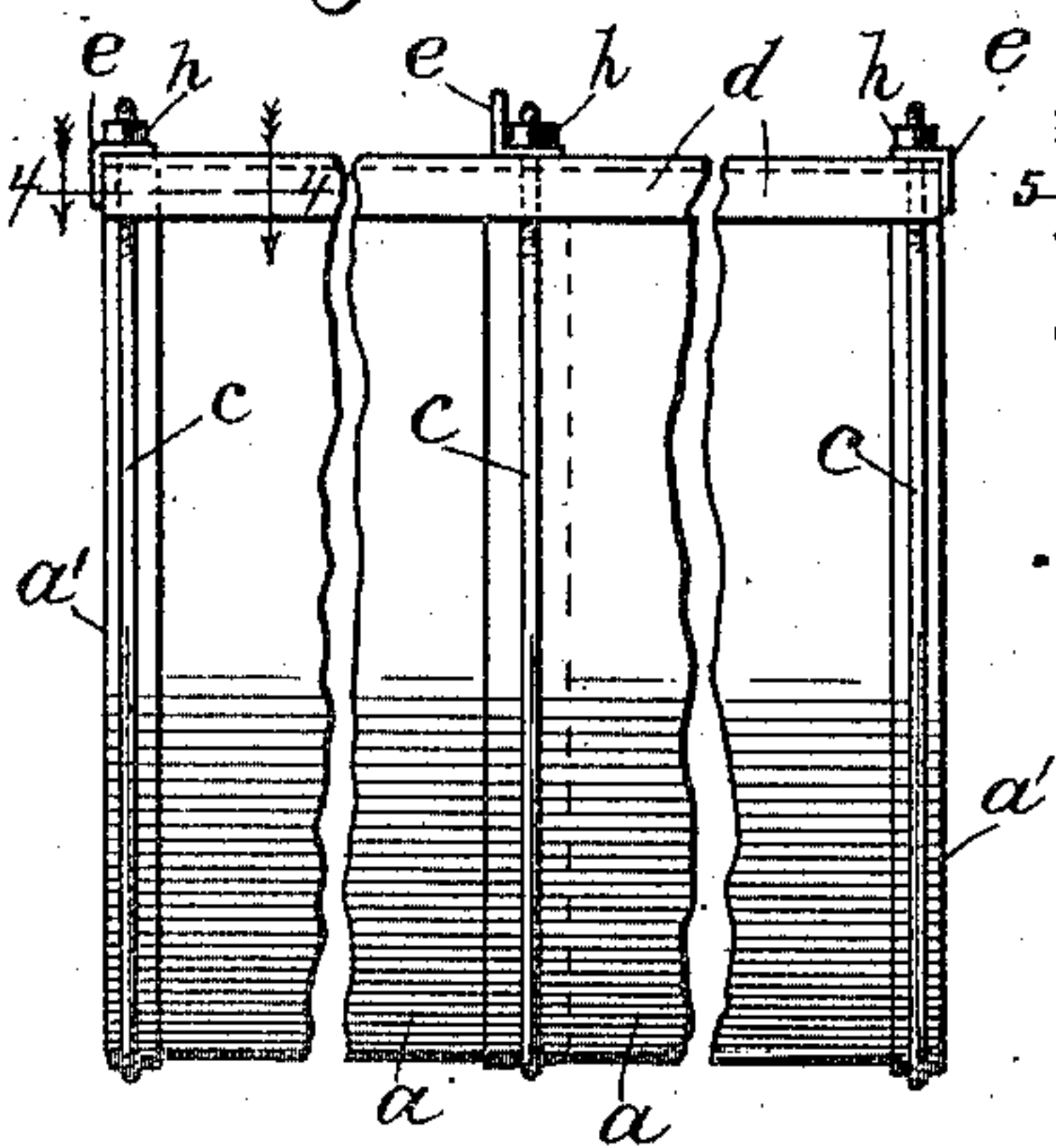


Fig. 2.

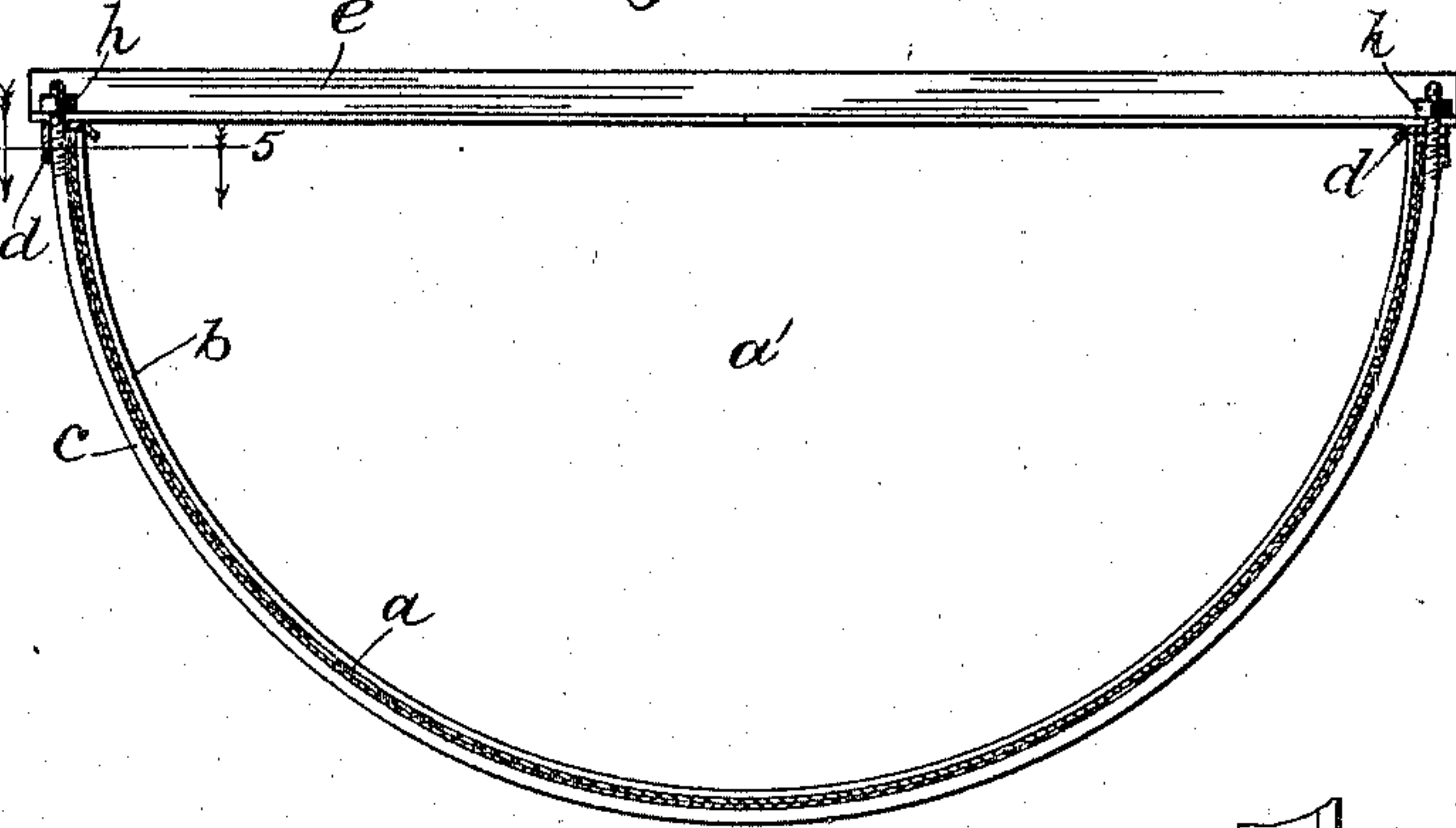


Fig. 3.

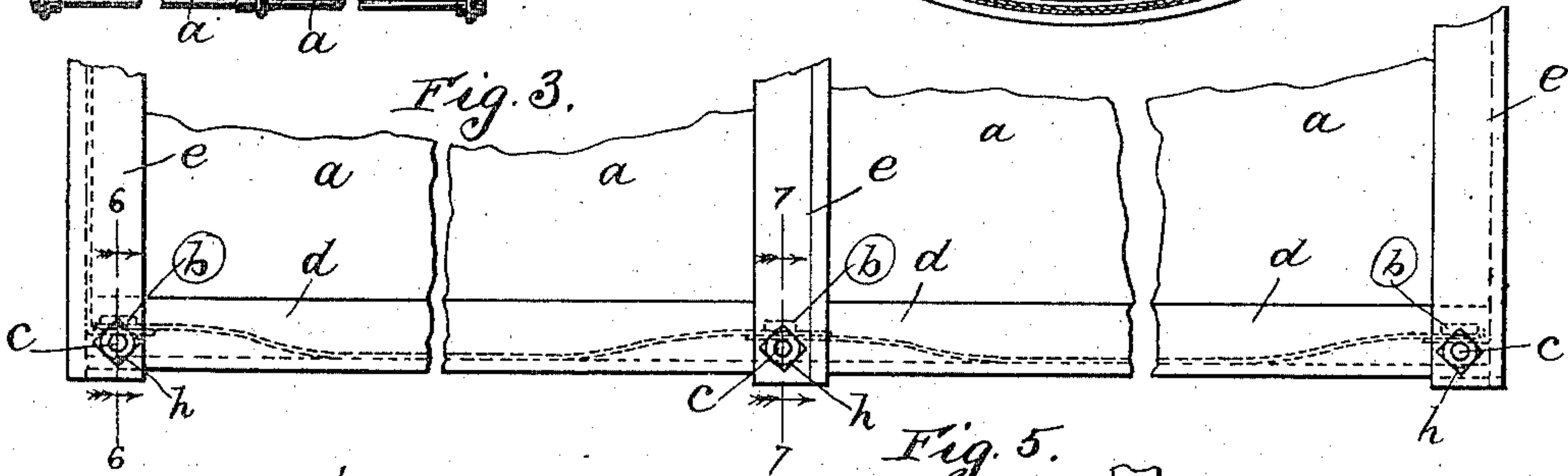


Fig. 4.

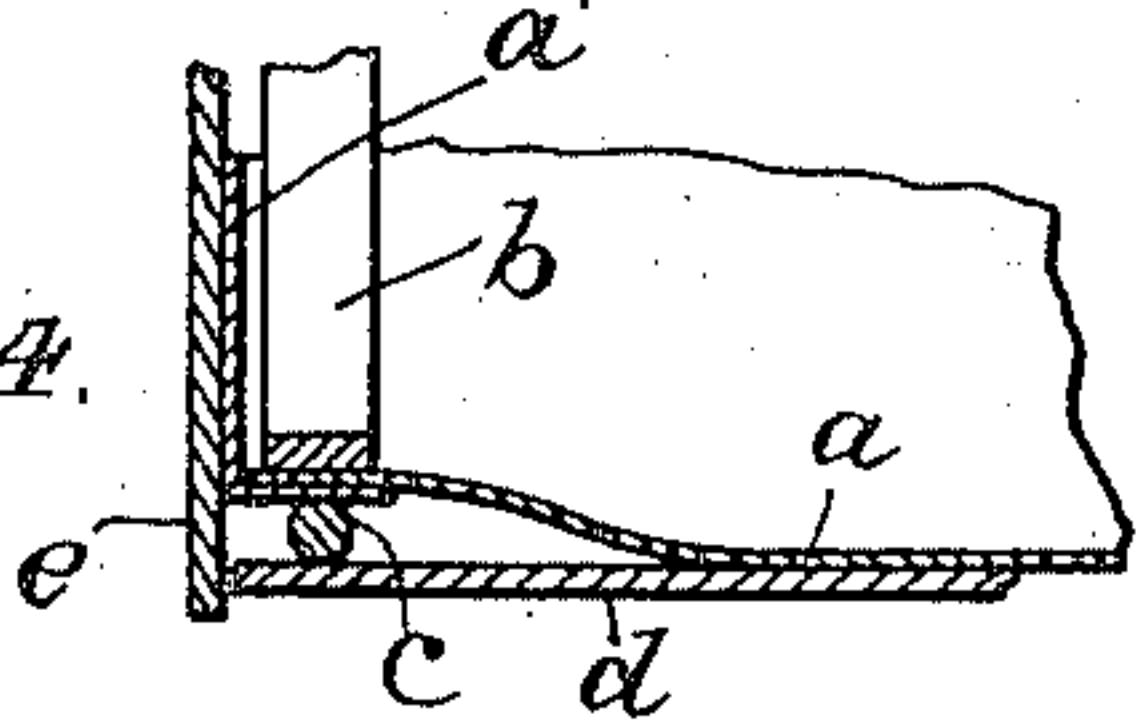


Fig. 5.

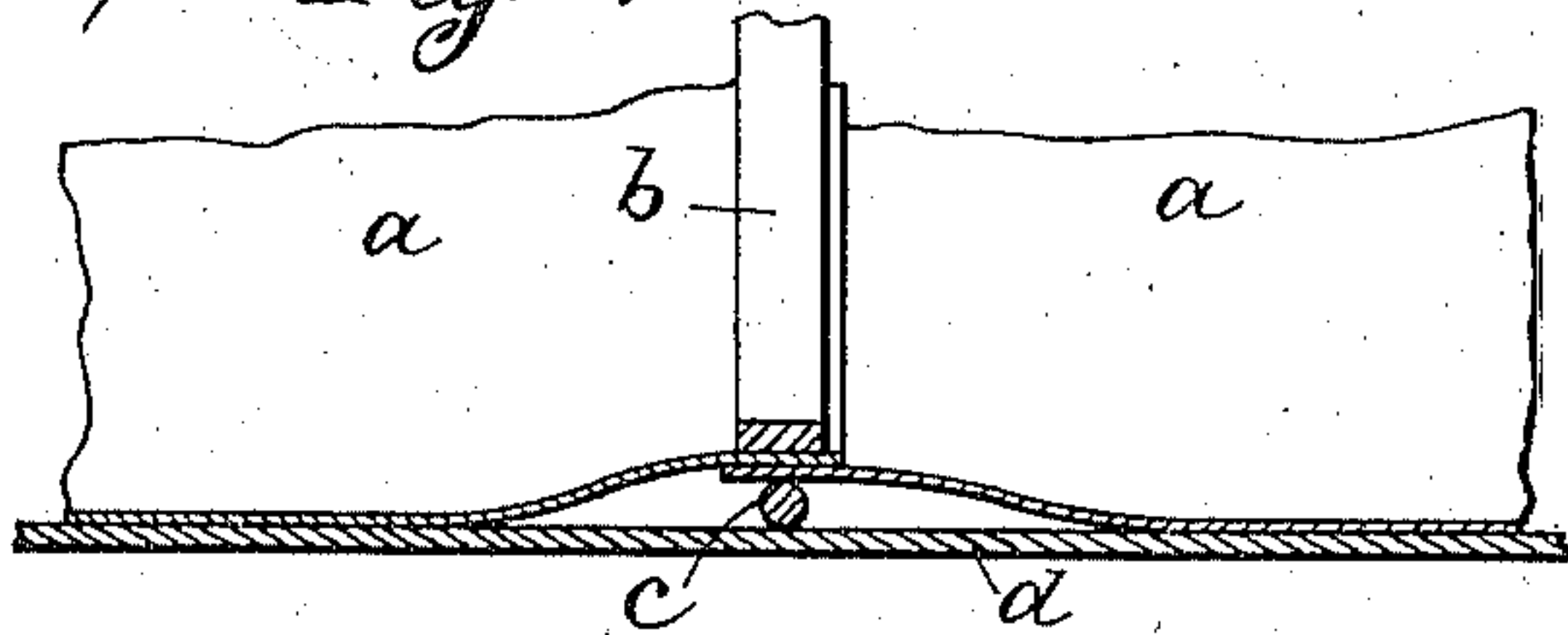


Fig. 6.

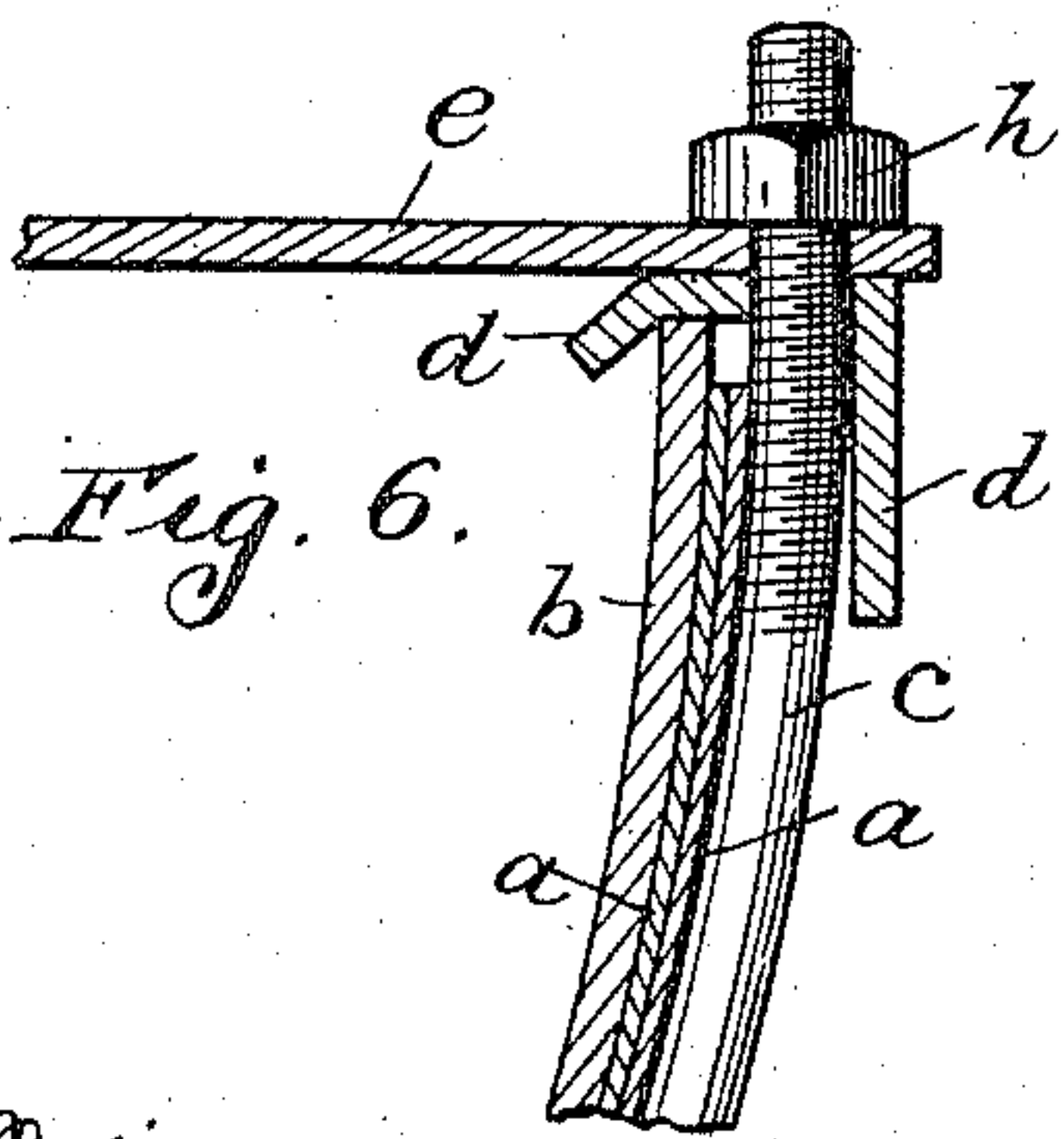
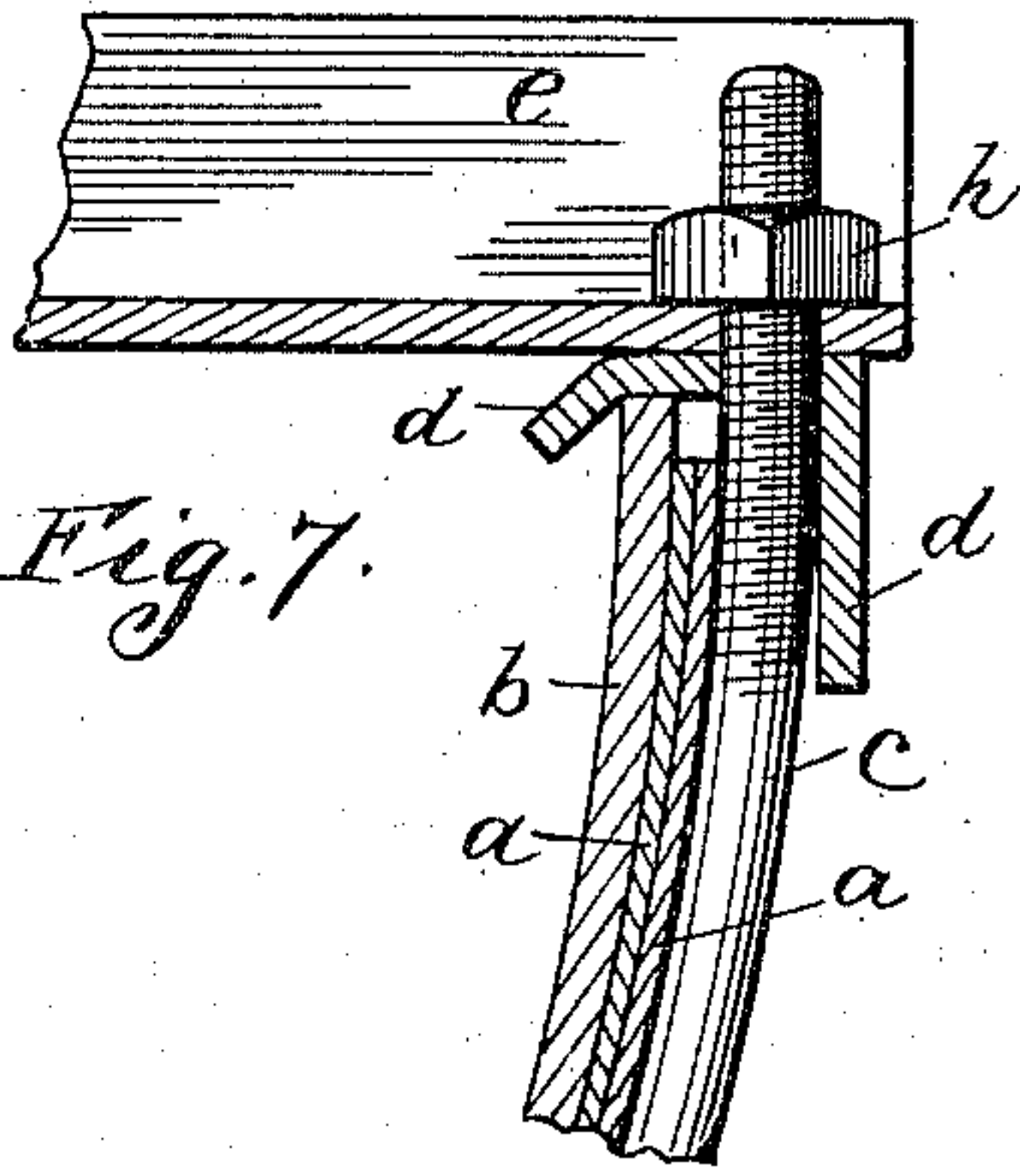


Fig. 7.



Witnesses:

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UNITED STATES PATENT OFFICE.

LA VERNE W. NOYES, OF CHICAGO, ILLINOIS.

SHEET-METAL TANK.

SPECIFICATION forming part of Letters Patent No. 575,369, dated January 19, 1897.

Application filed May 1, 1896. Serial No. 589,844. (No model.)

To all whom it may concern:

Be it known that I, LA VERNE W. NOYES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Sheet-Metal Tanks, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a sheet-metal tank, my object being to provide an improved construction whereby the several sheets of metal comprising the tank may be securely joined together without the employment of rivets, solder, and the like, and, furthermore, to provide a tank which may be readily taken apart and assembled at will to facilitate shipment or repair. In accordance with my invention sheets of metal are provided which are bent into curved form and placed together with the ends overlapping, a band or rod being placed against the overlapping ends of the sheets upon the interior of the tank, while upon the exterior of the tank is provided a band the ends of which pass through a cross-piece and stringers resting above the ends of the inner band. Means are provided for drawing up the ends of the outer band to thus clamp the overlapping ends of the metal sheets together and thereby form a joint or seam which is perfectly water-tight. The ends of the tank are formed from sheets of metal cut into semicircular or segmental form and provided with rims or flanges which overlap the ends of the curved sheets either upon the interior or exterior, the overlapping ends being likewise clamped together to form a water-tight seam by means of outer and inner bands. The inner band is preferably formed with a flat surface resting against the sheet metal, while the outer band is preferably made in the form of a rod of round cross-section, having threaded ends which pass through holes in the ends of the cross-piece, nuts being screwed upon said threaded ends and against the cross-piece to lock the parts in position. The cross-pieces are preferably formed of angle-bars, and the cross-pieces at the ends of the tank are placed with one of the flanges extending downward to form a support against which the upper edges of the

end pieces may rest, the cross-pieces thus assisting in withstanding the pressure upon the end pieces due to the water in the tank. A longitudinally-extending stringer is provided upon each side of the tank, the stringers being bolted to the cross-pieces and formed of angle-bars placed with one of the flanges extending downward to form a support against which the upper edges of the curved sheets may rest to thus assist the metal sheets in withstanding the outward pressure of the water. To limit the inward movement of the ends of the inner band when the cross-piece is forced down thereon, the horizontal flange of each of the longitudinal stringers is turned down at the edge at points opposite the inner bands to form stops that maintain the ends of the inner bands in position.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a view in elevation of a tank embodying my invention, intermediate portions of the tank being broken away. Fig. 2 is a transverse sectional view of the tank. Fig. 3 is a plan view of the tank. Fig. 4 is a sectional view on line 4 4, Fig. 1. Fig. 5 is a sectional view on line 5 5, Fig. 2. Fig. 6 is a detail view of one of the end connections. Fig. 7 is a similar view of one of the intermediate connections.

Like letters refer to like parts in the several figures.

The curved or bent metal sheets *a a* and the end sheets *a' a'*, provided with the rims or flanges, are placed together with the ends overlapping, and upon the interior are placed the bands *b*, while upon the exterior are placed the bands *c*. Upon the ends of the inner bands are placed the longitudinal angle-bar stringers *d d*, one of the flanges of the stringer extending downward upon the exterior of the curved sheets to form supports for the upper edges thereof. The exterior bands *c* are provided with threaded ends which pass through holes in the stringers and through holes in the cross-pieces *e e*, resting upon the stringers, nuts *h h* being screwed upon the ends of the outer band to lock the parts in position and clamp the overlapping sheets together to form a water-tight seam. The horizontal flanges of the stringers are turned down at points opposite the ends of the inner bands to form

stops which maintain the ends of the inner bands in position. The cross-pieces at the ends of the tank are placed with one of the flanges extending downward upon the exterior of the end sheets to thus form supports against which the upper edges of the sheets may rest. The intermediate cross-pieces are placed with the flanges extending upward.

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

1. In a sheet-metal tank, the combination with a bent or curved sheet, of an end sheet having a flange or rim, said flange and the end of said bent sheet being overlapped, an exterior and an interior band resting upon opposite sides of said overlapped portions and clamping the same together to form a water-tight joint, a cross-piece extending between the upper ends of said bands, the upper edge of said end sheet being arranged to lie against said cross-piece whereby the end piece is reinforced by said cross-piece, substantially as described.

2. In a sheet-metal tank, the combination with bent or curved sheets placed together with the ends overlapping, of an exterior and an interior band resting upon opposite sides of said overlapping ends and clamping the same together to form a water-tight joint, a longitudinal stringer joining the ends of the pairs of bands to impart rigidity to the tank, the upper edges of said curved sheets being arranged to lie against said longitudinal stringer when subjected to pressure to thus reinforce the metal sheets, substantially as described.

3. In a sheet-metal tank, the combination with a bent or curved sheet, of an end sheet having a flange or rim, said flange and the end of said curved sheet being overlapped, an exterior and an interior band resting upon opposite sides of said overlapping portions and clamping the same together to form a water-tight joint, a cross-piece extending between the upper ends of said bands, said cross-piece being in the form of an angle-bar having one flange horizontal and resting above the upper edge of the end piece and the other flange vertical and extending downward to rest upon the exterior of the upper edge of said end piece to support the same, substantially as described.

4. In a sheet-metal tank, the combination with bent or curved sheets placed together with the ends overlapping, of an exterior and an interior band resting upon opposite sides of said overlapping ends and clamping the

same together to form a water-tight joint, a longitudinal stringer joining the ends of the pairs of bands to impart rigidity to the tank, said stringer being in the form of an angle-bar having one flange horizontal and resting above the upper edges of said curved sheets and the other flange vertical and extending downward to rest upon the exterior of the upper edges of said curved sheets to support the same, substantially as described.

5. In a sheet-metal tank, the combination with the curved or bent sheets overlapping at the ends and the end sheets provided with flanges or rims, said rims and the ends of the adjacent curved sheets overlapping, an exterior and an interior band at each of said joints, said overlapping portions being clamped between said bands to form water-tight joints, cross-pieces joining the ends of said bands, longitudinal stringers joining the ends of the pairs of bands, said cross-pieces and stringers being formed of angle-bars having one flange horizontal and resting above the upper edges of said sheets and the other flange vertical and extending downward to rest upon the exterior of the upper edges of the sheets to support the same, substantially as described.

6. In a sheet-metal tank, the combination with the sheets overlapping at the ends, of the inner bands, the longitudinal stringers resting thereon and having the edges turned down to form stops for the ends of said inner band, the outer bands, and the cross-pieces, substantially as described.

7. In a sheet-metal tank the combination with the overlapping curved sheets *a a*, of the end sheets *a' a'* provided with overlapping rims, the flat-faced inner bands *b*, the round outer bands *c* provided with threaded ends, the longitudinal stringers *d d* formed of angle-bars and having downwardly-extending flanges acting as supports for the sheets and provided with the turned-down edges to act as stops for the inner bands, the angle-bar cross-pieces *e e* at the ends of the tank having downwardly-extending flanges serving as supports for the end sheets, the intermediate cross-pieces *e* having upwardly-extending flanges, and the nuts screwing upon the ends of the outer bands, substantially as described.

In witness whereof I hereunto subscribe my name this 27th day of April, A. D. 1896.

LA VERNE W. NOYES.

Witnesses:

P. BIRD PRICE,
W. CLYDE JONES.