

(No Model.)

3 Sheets—Sheet 1.

H. S. TAYLOR & C. B. JEFFERSON.  
TANK FOR PRODUCING THEATRICAL EFFECTS.

No. 420,126.

Patented Jan. 28, 1890.

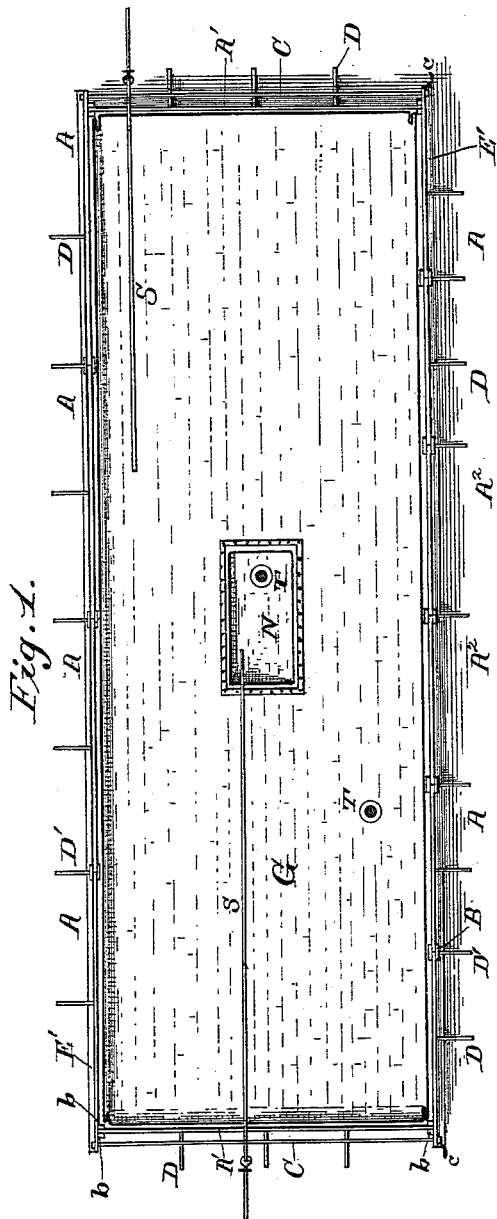


Fig. 2.

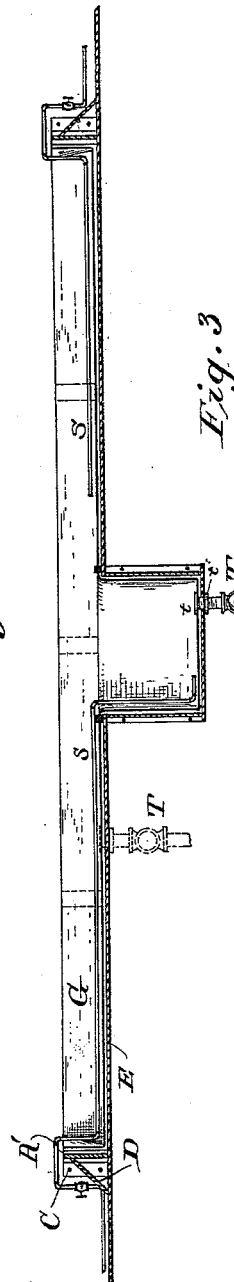


Fig. 3

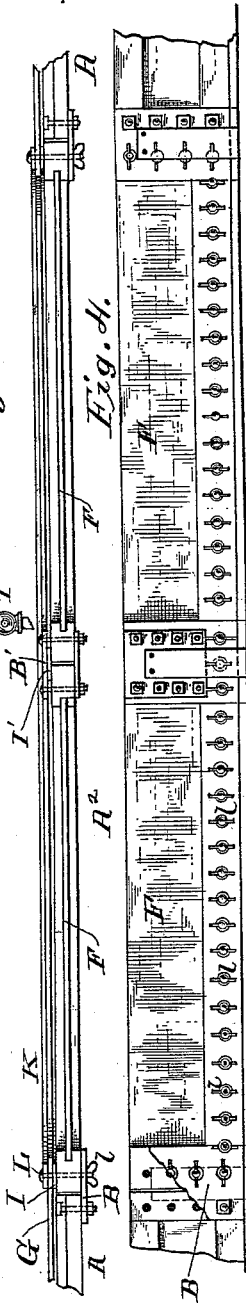


Fig. 4.

Witnesses  
Arthur D. Erb.

Jos. C. Ringwalt, Jr.

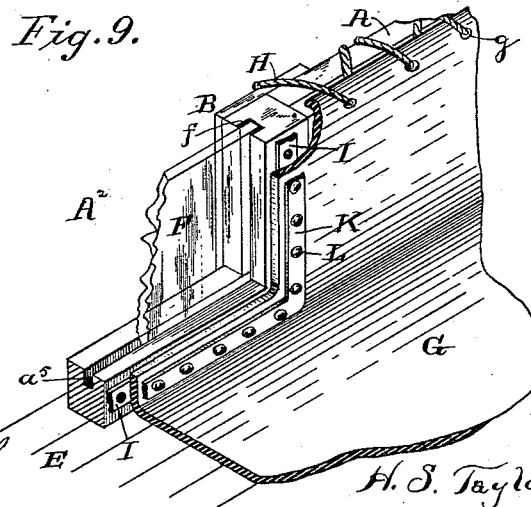
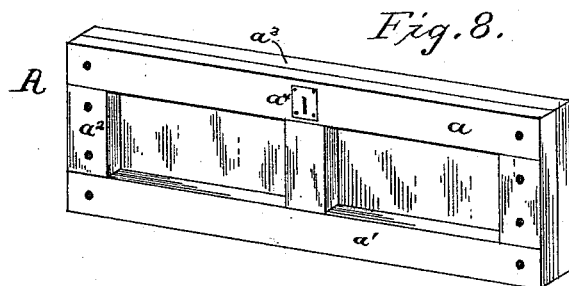
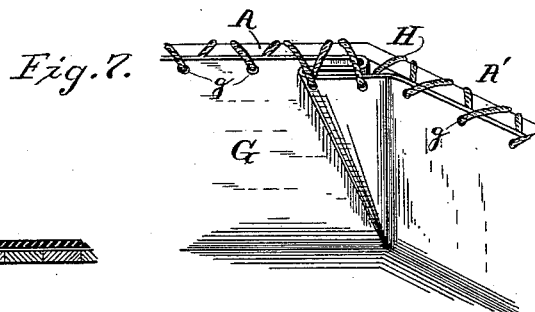
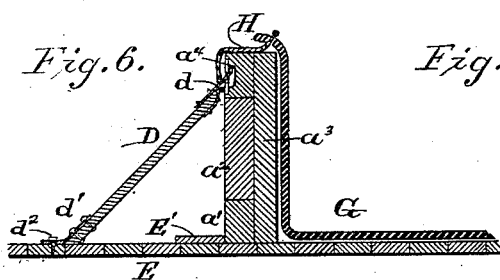
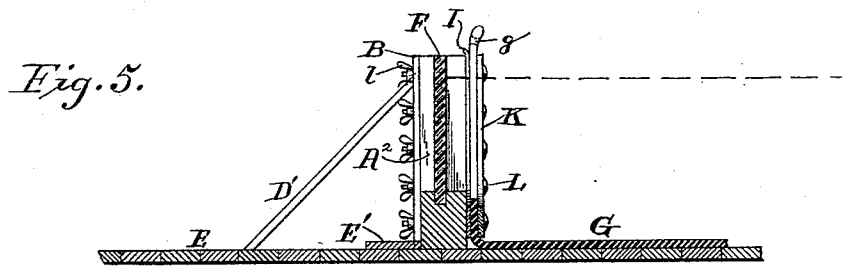
Inventors.  
H. S. Taylor & C. B. Jefferson

By their Attorneys  
Whitelsey & Wright.

H. S. TAYLOR & C. B. JEFFERSON.  
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Witnesses  
*Arthur A. Quid*  
*Jos. C. Ringwalt, Jr.*

Inventors,  
*H. S. Taylor & C. B. Jefferson*  
By their Attorneys  
*Whitney & Wright*

(No Model.)

3 Sheets—Sheet 3.

H. S. TAYLOR & C. B. JEFFERSON.  
TANK FOR PRODUCING THEATRICAL EFFECTS.

No. 420,126.

Patented Jan. 28, 1890.

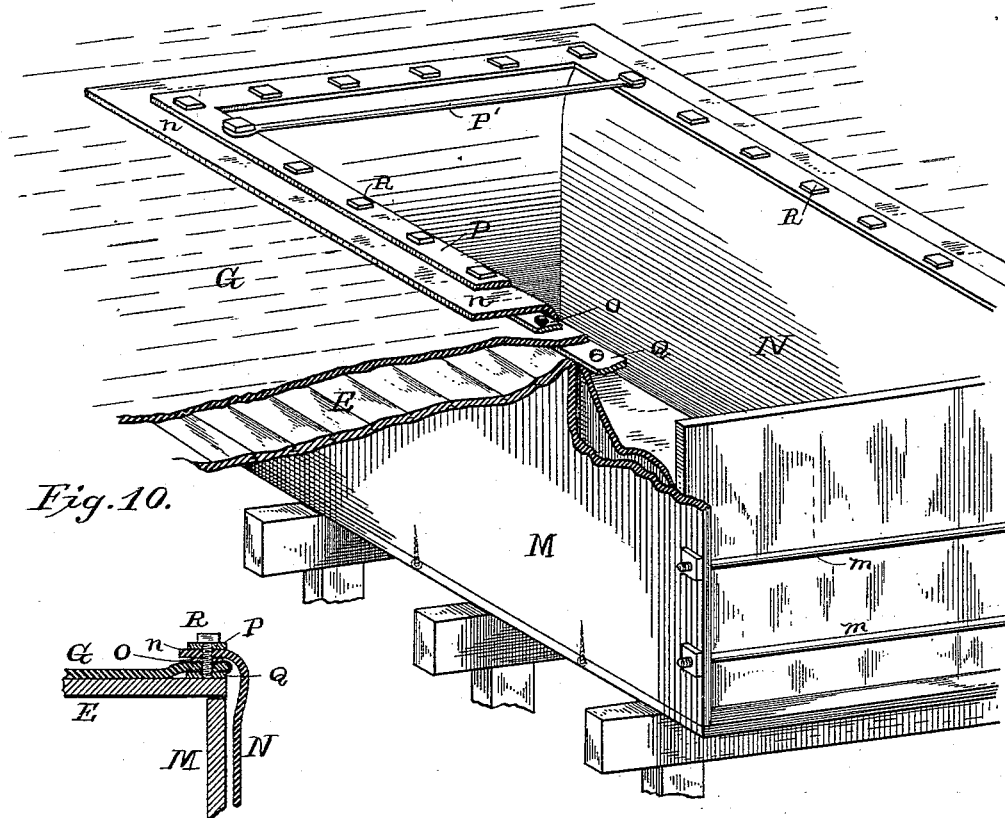


Fig. 11.

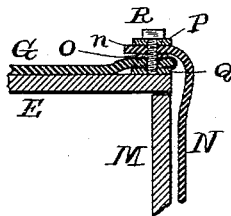
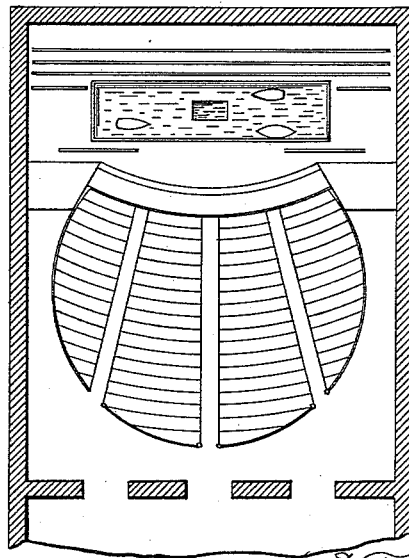


Fig. 12.



Witnesses  
*Arthur A. Esch*

*Jos. C. Ringwalt, Jr.*

Inventors

*H. S. Taylor & C. B. Jefferson*  
By their Attorneys  
*Whitney & Wright*

# UNITED STATES PATENT OFFICE.

HAL S. TAYLOR AND CHARLES B. JEFFERSON, OF NEW YORK, N. Y.

## TANK FOR PRODUCING THEATRICAL EFFECTS.

SPECIFICATION forming part of Letters Patent No. 420,126, dated January 28, 1890.

Application filed October 19, 1889. Serial No. 327,586. (No model.)

*To all whom it may concern:*

Be it known that we, HAL S. TAYLOR and CHARLES B. JEFFERSON, citizens of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Tanks for Producing Theatrical Effects; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to theatrical appliances; and its object is to enable the production on the stage of a theater of aquatic effects upon a scale surpassing all previous efforts so far as we are aware.

In the representation of aquatic scenes upon the stage heretofore it has been customary to use what are known as "set waters," consisting, usually, of painted wire-gauze. Painted cloth has also been used, sometimes movable by suitable mechanism to imitate waves. Boats have been used in connection with these imitation waters, and have been mounted on rollers to enable them to be drawn about upon the stage. Real water has also been used upon the stage to imitate cascades and brooks of running water; but, so far as we are aware, no one has ever heretofore used a tank of real water extending across the stage from wing to wing and occupying all or nearly all of the entire stage, and capable of floating row-boats, sail-boats, or steam-launches for the purpose of conveying from one part of the stage to another the persons assuming the characters in the play. Nor are we aware of any tank being heretofore used of a depth, in whole or in part, sufficient to permit of the diving therein by one of the actors taking part in the play. Nor are we aware of a tank of the dimensions above indicated being made portable, so as to be readily transported from place to place and set up or taken down when desired. All of these results are accomplished by the tank we have invented, and which forms the subject-matter of this application.

In the drawings, Figure 1 is a plan view of our tank. Fig. 2 is a central longitudinal sec-

tion. Fig. 3 is a plan of the glass front. Fig. 4 is a front elevation of the same. Fig. 5 is a cross-section of the same. Fig. 6 is a cross-section through the wall of the tank. Fig. 7 is a perspective view of a corner of the tank. Fig. 8 is a view of one of the panels of the retaining-wall. Fig. 9 shows the mode of clamping the rubber lining to the frame-work of the glass front. Fig. 10 is a perspective view showing the dependent auxiliary tank partly broken away. Fig. 11 is a section of the joint uniting the linings of the main and auxiliary tanks; and Fig. 12 is a diagram of a theater showing the relative positions of tank, stage, and auditorium.

The same letters indicate like parts in all the figures.

The main tank is erected by setting upon the stage a low retaining-wall of rigid materials, firmly braced against outward pressure from within, and inclosing a preferably rectangular space of the required size. The receptacle thus formed is lined with a sheet of flexible material impervious to water, which lies flat upon that part of the stage within the retaining-walls, and is carried up to the edge of said walls and secured there.

As shown in the drawings, we prefer to construct the retaining-walls of wood, made up into panels A, of convenient size for handling. Each panel consists of a top and bottom rail  $a$  and  $a'$ , united by uprights  $a^2$ , and backed with planking  $a^3$ . These panels are placed end to end and united by fish-plates B, bolted firmly over the joint. The back wall of the tank is shown in Fig. 1 as composed of four panels. The end walls are composed each of a single panel A', the ends of which slide down into grooves formed by cleats  $b$ , fastened to the end panels of the back and front walls. These end panels project far enough beyond the end walls A' to permit tie-rods C to be passed through the front and rear walls outside of the end walls. The tie-rods are tightened up by nuts  $c$  to firmly clamp the end walls in position. Braces D and D' extend from the upper edges of the panels to the stage. The former are composed of bars of wood or other suitable material, provided with a spur of iron  $d$ , which enters a cavity in the frame of the panel A. The cavity is covered with a metal

plate  $a^4$ , in which is a hole to admit the spur  $d$ . The foot of the brace is provided with a knee  $d'$  of metal, which is fastened to the stage E by a lag-screw  $d^2$ . These braces can be quickly put up or taken down, and are very firm. The braces D' consist simply of wooden bars nailed in place. They are to be used whenever a brace is required, where no provision has been made for the braces D.

The retaining-walls are further braced against the pressure of the water by cleats E', nailed to the stage along the bottom of the panels. One or more panels A<sup>2</sup> of the retaining-wall may be provided with glass plates instead of planking, in order to give a view into the water in the tank. We prefer to construct these panels as shown in Figs. 3, 4, 5, and 9, in which the frame is grooved at  $a^5$  to receive the plate of glass F, which is secured in the groove by water-proof cement  $f$ .

Within the retaining-walls is placed a removable lining G, of flexible water-proof material, preferably rubber. This is preferably made in the form of a flat sheet, large enough to cover the stage inside of the walls and extend up to or above the top of said walls on all sides. The surplus material at the corners is disposed of by doubling, as shown in Fig. 7. The edges of the sheet are preferably somewhat thickened, as shown, and are provided with a row of eyelet-holes  $g$ , all around through which is passed the rope H, by which the lining is lashed in place. The rope is passed over the edge of the panels and under the braces D D'. The pressure of the water holds the lining flat upon the stage and against the inside of the walls.

At the places where the glazed panels are used it is necessary, of course, to cut away the lining behind them, in order not to obstruct the view of the water. The joint between the lining and the frame of these panels is clearly shown in Figs. 5 and 9. Between the frame of the panel and the lining is placed a gasket or packing I, preferably of thin rubber, since the lining must be made of such heavy material as to be too hard and unyielding to make a tight joint itself. Against the lining is placed a clamping-frame K of metal, preferably steel, shaped so as to conform to the edge of the cut-away portion of the lining, and extending down one end of the glazed panel along the bottom rail or rails to the other end and up to the top again. Bolts L are passed from the inside of the tank through the clamping-frame K, lining G, gasket I, frame A, and fish-plate B, and are secured by wing-nuts  $l$  on the outside, thereby clamping the lining closely to the frame of the glazed panel and preventing any leakage of water. The bolts may be arranged in a straight line, as shown, or may be staggered.

When two or more glazed panels are used, the joint between them is made water-tight by a strip of rubber or other packing I', placed under a fish-plate B' on the inside of the tank.

In order to give a depth of water sufficient to permit diving, we prefer to construct a part of the tank of greater depth than the rest, the location of that part depending upon the action of the play. This is accomplished by means of an auxiliary tank of smaller dimensions than the main tank and depending below the bottom of said main tank. As shown in Figs. 1, 2, and 10, it is constructed by cutting a hole of suitable dimensions through the flooring of the stage, beneath which is arranged a wooden box M, supported on strong timbers. The box is preferably composed of five parts—sides, ends, and bottom—separably held together by tie-rods  $m$  across the ends, so that it can be knocked down for transportation. A removable lining N is fitted to the box, preferably made of rubber molded to conform to the inner dimensions of the box. An outwardly-turned flange  $n$  is provided around its upper edge to enable it to be united to the lining of the main tank, in which is cut a hole corresponding in size and location with that in the floor of the stage. The lining N of the auxiliary tank is brought up through this hole, and is joined to the lining G in any of the well-known methods of making such joints. We prefer that shown in Fig. 11, where the linings G and N are lapped together with a gasket O of thin rubber between them, and metallic frames P Q are placed, respectively, above and beneath the lap. Screws R are passed through holes in the frame P, flange  $n$ , gasket O, and lining G, and are tapped into the frame Q, thereby tightly clamping all the parts together.

At one end of the dependent auxiliary tank may be provided a handle for the use of persons taking part in the play. It is preferably composed of a bar P', extending across the tank and having flattened apertured ends, which are held by two of the screws R.

In order to heat the water in the tanks to a temperature of 75° or 80° for the purpose of rendering it comfortable for the persons who may be obliged during the play to enter it, we provide steam-pipes S, suitably located and delivering steam directly into the water.

Outlets T are provided for drawing off the water. These may be composed of a pipe passed down through a hole in the lining and provided with a flange  $t$  and a threaded collar  $t'$ , between which the lining is tightly clamped. The pipes are furnished with stop-valves of any desired pattern.

We have found that a tank of the above description having a length of about sixty feet with a width of twenty feet and affording a general depth of about two feet, and in the auxiliary tank a depth of six or seven feet, is well adapted for the realistic representation of aquatic scenes upon the stage of a theater.

As shown in Fig. 12, the tank extends clear across the stage, the ends being concealed from the audience by the scenery in the wings.

If the stage is deep enough, acting can take place on its unoccupied portion in front of the tank, either in scenes in which the water is used or not. If the stage is only barely large enough to accommodate the tank, a portion or the whole of it can be floored over to form a second stage, upon which acting may take place.

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

1. The combination, with the stage of a theater, of a tank resting upon and supported by the stage and having a portion depending below the stage, substantially as described.

2. The combination, with the stage of a theater, of a main tank occupying the larger part of the same, and a dependent auxiliary tank located below the main tank and communicating therewith, substantially as described.

3. The combination, with the stage of a theater, of a portable main tank occupying the larger part of the stage, and a portable dependent auxiliary tank separably attached to the main tank, substantially as described.

4. A portable tank for a theater, consisting of suitable retaining-walls of rigid material, and a flexible water-proof lining, substantially as described.

5. A portable tank for a theater, consisting of retaining-walls of rigid material, made in sections, and a lining composed of a sheet of flexible water-proof material, substantially as described.

6. The combination, with the flooring of a theater-stage, of sectional retaining-walls erected thereon, and a flexible water-proof lining spread upon the stage and carried up to or near to the top of the retaining-walls and secured thereto, substantially as described.

7. The combination, with the flooring of a theater-stage, of a rectangular retaining-wall erected thereon, composed of panels A A', fish-plates B, covering the joints, tie-rods C across the ends, and suitable braces, substantially as described.

8. The combination, with the panel having

a cavity covered by a perforated plate  $a^4$ , of the brace D, having a spur  $d$  to enter said cavity, substantially as described.

9. The combination, with the panel having a cavity, of the brace D, having a spur  $d$  to enter said cavity, and a knee  $d'$ , by which to secure the foot of the brace, substantially as described.

10. A portable tank for theaters, consisting of a rigid retaining-wall composed of separable panels, one or more of which is glazed, and a flexible water-proof lining cut away adjacent to the glazed panels, substantially as described.

11. The combination, with the frame of a panel, of the lining G, the gasket I between the frame and the lining, the clamping-plate K, and the bolts L, substantially as described.

12. The combination, with the stage of a theater, of a main tank supported thereby, and an auxiliary tank depending through a hole in the stage, consisting of a box of rigid material, having a lining of flexible water-proof material, substantially as described.

13. The combination, with the stage E, of a knockdown box M, arranged beneath the same, having a water-proof lining N, molded to fit the inside of the box and provided with a flange  $n$ , substantially as described.

14. The combination, with the stage E, of a main tank having a lining G, a dependent auxiliary tank having a lining N, provided with a flange  $n$ , lapped over the lining G, clamping-frames P Q above and below the laps, a gasket O between the linings, and screws R, uniting the frames, substantially as described.

15. The combination, with the main stage of a theater, of a main tank and a dependent auxiliary tank, having a handle adjacent to said auxiliary tank, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

HAL S. TAYLOR.  
C. B. JEFFERSON.

Witnesses:

W. J. TILTON,  
GEO. P. WHITTLESEY.