

(No Model.)

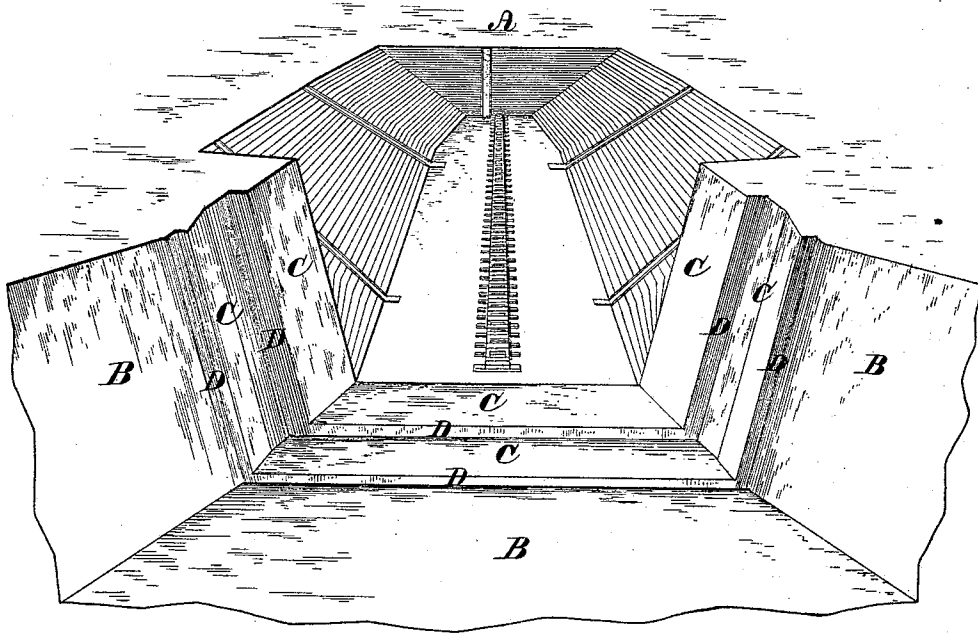
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W. E. SIMPSON.
PERMANENT DRY DOCK.

No. 471,805.

Patented Mar. 29, 1892.

Fig. 1.



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Fig. 2.

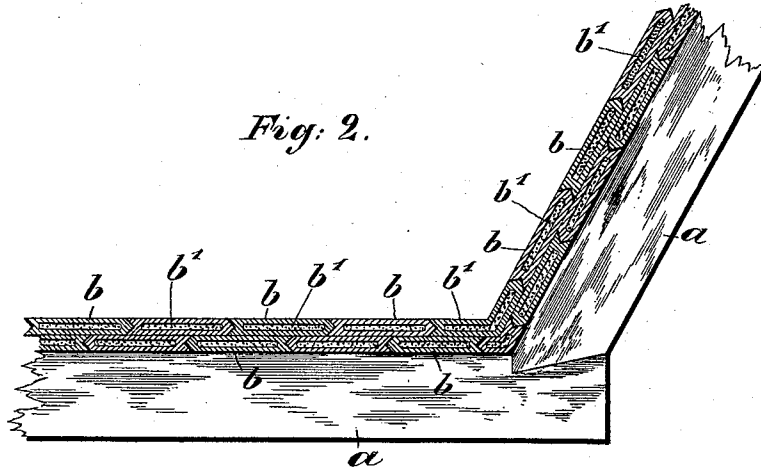


Fig. 3.

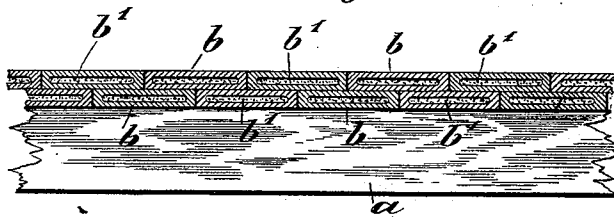
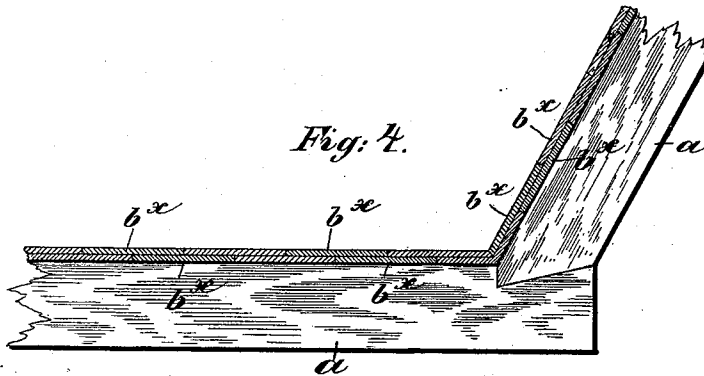


Fig. 4.



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UNITED STATES PATENT OFFICE

WILLIE E. SIMPSON, OF BROOKLYN, ASSIGNOR TO JAMES E. SIMPSON & CO.,
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PERMANENT DRY-DOCK.

SPECIFICATION forming part of Letters Patent No. 471,805, dated March 29, 1892.

Application filed May 1, 1891. Serial No. 391,300. (No model.)

To all whom it may concern:

Be it known that I, WILLIE E. SIMPSON, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented certain Improvements in Permanent Dry-Docks, of which the following is a specification.

My invention relates to the class of permanent dry-docks, the object being, mainly, to protect the parts subject to injury from destructive agencies—such as the *Teredo navalis* or *Limnoriae* and other marine worms—and incidentally to impart to the dock increased strength and durability over those constructed in the usual manner.

Up to the present time it has been the practice to construct permanent dry-docks of wood, of stone, or of concrete, (*en masse*.) The first-named material offers little or no resistance to these destructive agencies. Indeed, it rather invites attack from the teredo where exposed. The second is or may be made quite durable, but is very costly, requiring much heavier foundations to support the weight than where wood is employed. The material is also much more expensive proportionately than wood. The use of concrete, when properly applied, insures a good degree of durability in some situations; but in many places it is subject to climatic influences and tends to disintegration, which leads to heavier expenses for repairs than are warranted by the first cost without increasing the efficiency of the dock as compared with one constructed either of wood or stone.

My invention consists, essentially, in a permanent dock of which the exposed surfaces of the entrance-ways are of metal. The entrance-ways comprise, ordinarily, the table end, both bottoms and sides, the abutment, both bottoms and sides, and the sills, both bottoms and sides. The metal surfaces of these parts may be backed by any material. Usually the metal surfaces will rest on an inclined backing supported by piles driven into the ground.

In the accompanying drawings, which serve to illustrate my invention, Figure 1 is a general perspective view, on a small scale, of a permanent dock provided with my improvements. In this view the observer is supposed to be looking into the dock from the entrance.

Fig. 2 is a transverse vertical fragmentary section of a portion of the entrance-way on a large scale, showing one mode of constructing the metal surface or protecting-covering. Figs. 3 and 4 are similar sectional views showing other forms of protecting metal coverings. These will be hereinafter referred to.

In Fig. 1, A represents the dock proper to receive a vessel. B is the table end; C, the abutments, and D the sills. These form the entrance-ways to the dock proper. The floating gate is not shown in the figure.

In Figs. 2 and 3, *a* represents backing-timbers of wood, and on these are laid in two layers, with broken joints, the metal plates *b*, forming the protecting covering or surface. As represented in these figures, the plates *b* are of iron, cast hollow, and the hollows filled with concrete *b'* or plastic material, such as asphalt. As seen in Fig. 2, the plates *b* are matched—that is, each has a V-shaped tongue at one end and a similar groove at its other end, so that when laid the tongue of one will fit into the groove in the next adjacent plate. This serves to interlock the plates, so that one tends to hold another in place. In Fig. 3 the construction is the same as in Fig. 2, except that the plates are not matched.

Fig. 4 shows metal plates *b*^x without hollows and concrete filling. They may be cast or wrought.

These views illustrate several of the many forms and constructions that may be adopted in forming the protecting-covering of metal when wood is employed as a backing. The plates will, of course, have the proper form and dimensions to fit the surface of the backing at the points where they are applied and be secured in a suitable manner to the backing. The tongues and grooves on the matched plates may have any form desired.

When plates are used similar to those seen in Fig. 4, the concrete or plastic material may be interposed as a layer between the plates.

Having thus described my invention, I claim—

1. A permanent dry-dock the entrance-ways of which have a surface of metal where exposed to destructive agencies, such as the *Teredo navalis*, substantially as set forth.

2. A permanent dry-dock having its en-

trance-ways constructed of a wooden backing and such wooden backing having its surface where exposed to destructive agencies covered with metal, substantially as set forth.

5 3. A permanent dry-dock having the exposed surface of its entrance-ways covered with plates of metal, said plates having hollows in them filled with concrete or its specified equivalent, substantially as set forth.

10 4. A permanent dry-dock having the exposed portions of its entrance-ways covered

with metal and concrete or its specified equivalent, as set forth, the concrete being interposed between layers of metal.

In witness whereof I have hereunto signed 15 my name in the presence of two subscribing witnesses,

WILLIE E. SIMPSON.

Witnesses:

HENRY CONNETT,
JOHN D. CAPLINGER.