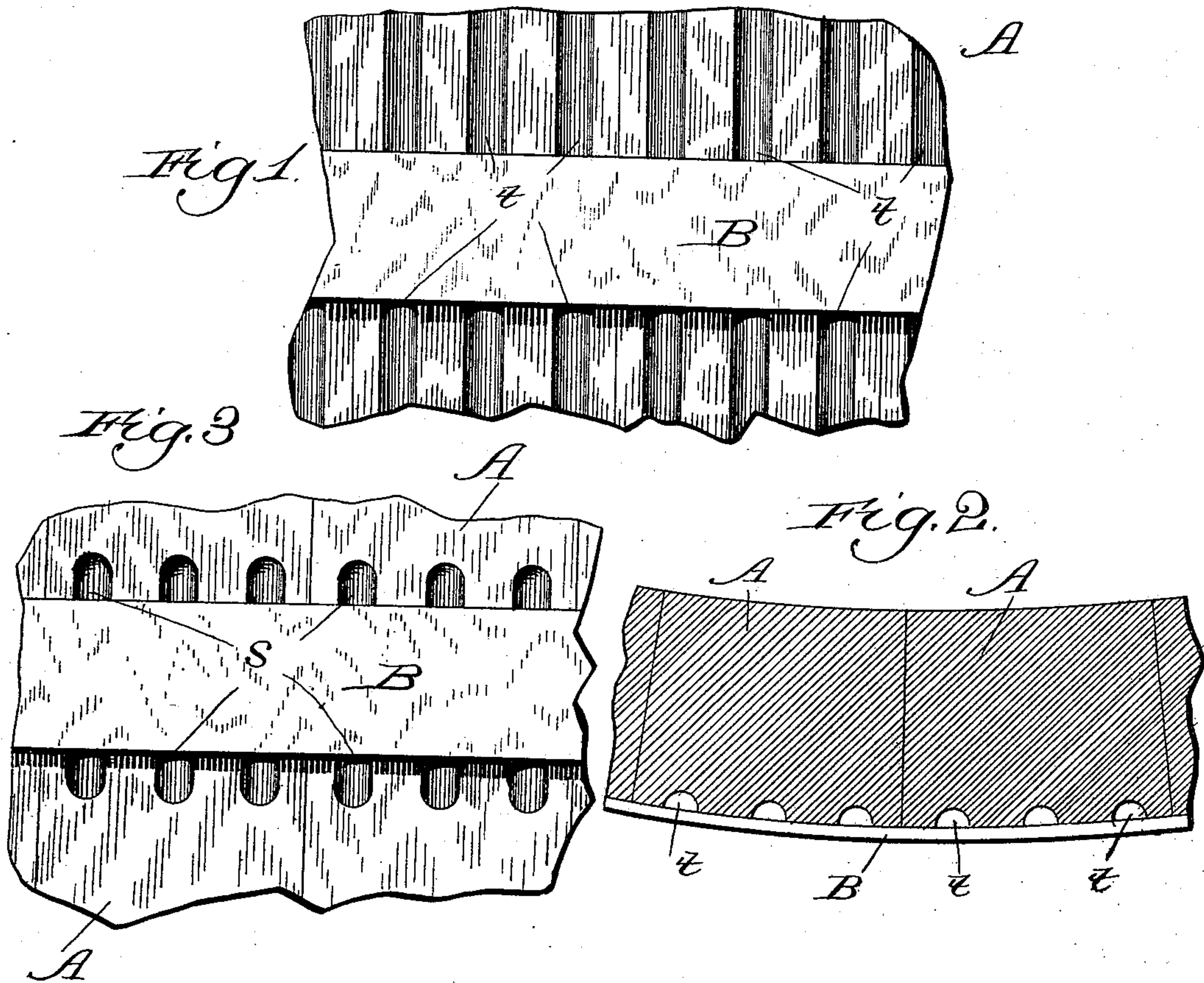


(No Model.)

C. OLSEN.
TANK.

No. 322,746.

Patented July 21, 1885.



Witnesses:
Chas. E. Gaylord.
Mason Bros.

Inventor:
Christian Olsen,
By Dyrenforth and Dyrenforth,
Attys.

UNITED STATES PATENT OFFICE.

CHRISTIAN OLSEN, OF CHICAGO, ILLINOIS.

TANK.

SPECIFICATION forming part of Letters Patent No. 322,746, dated July 21, 1885.

Application filed April 15, 1885. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN OLSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tanks; and I hereby declare the following to be a full, clear, and exact description of the same.

The use of the present form of wooden tanks to contain the various liquids required in the arts of brewing, starch-making, distilling, and the like is ordinarily attended with the very serious inconvenience of rapid and premature decay in the wood composing the staves of the same, thereby obviously entailing also greatly added expense. Even when the tanks are constructed of woods best fitted to resist decay, a more or less rapid decomposition is inevitable, beginning where the surfaces are covered by the hoops, and extending thence into the substance of the staves, and progressing within the latter vertically both up and down, until they become weakened to such a degree as to render the tanks unfit for use. The oozing of the liquid contents through possible cracks between the staves, and probably through the pores of the wood composing the same, causes moisture to accumulate underneath the hoops upon the surface of the tank, whence the atmosphere with its antiseptic qualities is excluded. As the hoops prevent contact of air with those portions of the staves which lie immediately beneath them, thereby excluding such portions from the drying and antiseptic qualities of the surrounding atmosphere, the latter's preservative properties act only upon the wood between the hoops.

It is my object to provide staves for tanks of such construction that the preservative influence of atmospheric air shall be equally effective upon all parts of the wood composing the staves; and to this end my invention consists in the construction of the staves to provide permanent air-spaces between the inner surface of the hoops and the staves; and it also consists in the construction and combinations of parts forming a tank.

Referring to the drawings, Figure 1 is a view in elevation of a broken portion of the

exterior surface of a tank, showing the preferred manner of applying my improvement; Fig. 2 a sectional plan view of the same, and Fig. 3 a view in elevation of a broken portion of the exterior surface of a tank, showing a modification of my improvement.

A A are staves, and B is a hoop, preferably of metal and of the description commonly used on tanks. Each stave A is provided with one or more longitudinal grooves, *t*, formed in the exterior surface of the same, to permit ready circulation of atmospheric air beneath the hoop B. The grooves *t* are formed preferably about one inch apart, extending vertically the full height of the tank, and by preference are circular in cross-section, as shown in Fig. 2, though any other form of recess permitting a free circulation of air between the interior surface of the hoop and the surface of the staves is within the scope of my invention. The depth and width of the recesses are regulated according to the width of the hoops employed and thickness of the staves, though these dimensions must always be such as to afford permanent air-spaces and preclude the possibility of their becoming filled up with dirt, &c. A four-and-one-half-inch hoop, for example, if the widest employed on a tank in which the staves are about two and one-half inches thick would require the recesses to be about three-eighths of an inch in depth and about three-fourths of an inch in width.

It is not desirable, on the one hand, to form the grooves *t* at a greater distance from each other than about one inch, since in that case the beneficial effect of the freely-circulating air in the grooves may be lost to the fibers of the wood lying so much at one side as to be without its reach through penetration; nor, on the other hand, is it desirable that the grooves shall approach each other much more nearly, since considerably narrower surfaces would necessitate the multiplication of grooves, whereby the tank might be unnecessarily weakened.

The modification represented in Fig. 3 of the drawings shows the staves A provided with vertical recesses *s*, of any desired form in cross-section, extending beneath the hoop B, and

for a short distance only above and below it. While this construction will afford the advantages designed to be accomplished, it presents the objection of being difficult to form, and is therefore not so desirable as that shown in Figs. 1 and 2.

I am aware that it is not broadly new to indent longitudinally or at an angle staves for barrels, kegs, pails, tubs, and the like, to improve the appearance of the articles and prevent the hoops from slipping; and I am also aware that it is old to crimp transversely and longitudinally the hoops to surround these articles, and afford thereby sharp surfaces upon the hoops to penetrate the staves and prevent their slipping on the latter.

What I claim as new, and desire to secure by Letters Patent, is—

1. A stave for tanks having a portion of its surface cut away to afford one or more longitudinal grooves, as and for the purpose set forth.

2. In a tank, the combination of the hoops B and staves A, provided with vertical longitudinal grooves, formed by cutting away from the surfaces of the staves, substantially as described, and for the purpose set forth.

CHRISTIAN OLSEN.

In presence of—

A. S. PARÉ,

A. GEO. BEAUDRY.