

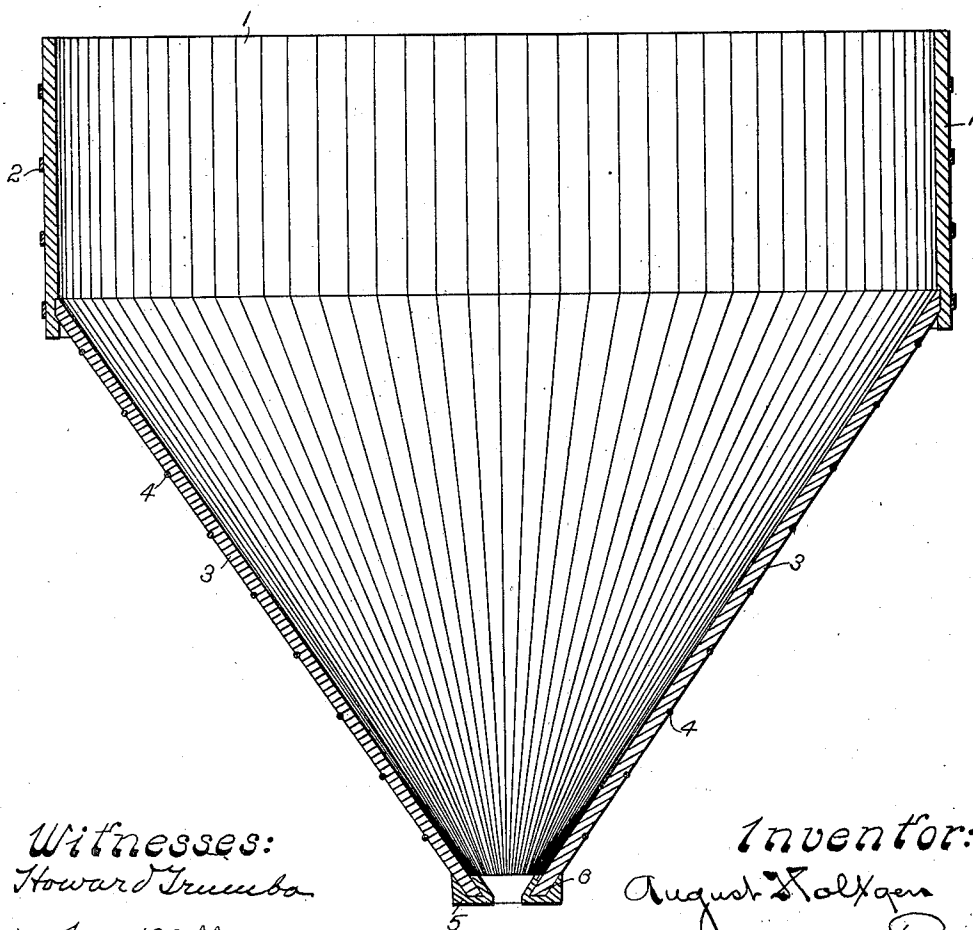
No. 736,520.

PATENTED AUG. 18, 1903.

A. HOLTGEN.
TANK.

APPLICATION FILED JULY 26, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

AUGUST HOLTGEN, OF SAN FRANCISCO, CALIFORNIA.

TANK.

SPECIFICATION forming part of Letters Patent No. 736,520, dated August 18, 1903.

Application filed July 26, 1902. Serial No. 117,153. (No model.)

To all whom it may concern:

Be it known that I, AUGUST HOLTGEN, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Tanks; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to tank construction.

In many manufacturing, extraction, and storage purposes in which large tanks are employed the material contained in such tanks frequently carries large percentages of disintegrated material of greater specific gravity than the fluid in which it is held in solution or suspension. Thus there frequently occurs a deposit on the bottom of such tanks of the heavy material. When it becomes necessary to draw off the contents of the tank, great difficulty, expense, and disarrangement of the process in which the tank is employed occur through the inability to draw off the sediment continuously or completely. This is particularly the case with large tanks—such as, for example, are employed in the cyanid process of extraction, &c. This has heretofore been a source of much difficulty and expense, as before the invention of the present tank it has been deemed impossible to provide such tanks with tapering or conical-form bottoms. Owing also to the great size of tanks employed in the various processes indicated, it is practically impossible to transport or store such tanks in their complete and assembled form. The bottoms also of such tanks as at present made are a source of weakness and difficulty owing to their consisting of a practically plain surface of large area. These stated difficulties have heretofore been considered insurmountable.

The object of the present invention is to overcome the difficulties referred to and to provide tanks used in various manufacturing, extraction, and storage purposes with tapering or conical bottoms so constructed that they can be readily "knocked down" and packed into small space for transportation or storage when not in use. These objects are accomplished by means of the construction

and devices illustrated in the accompanying 50 drawing, in which the figure is a sectional elevation of one of these tanks.

Referring to the accompanying drawing, 1 is a tank formed of staves bound together and secured by means of hoops 2. 55

3 is a bottom for the tank, formed of a downwardly-tapering form or an inverted cone. This also is constructed of staves of radial sections or stave-like segments. These staves constituting the conical bottom are bound 60 and secured in form by circumscribing hoops 4, which I make of circular section, slightly let into the body of the staves in grooves prepared for them. At the lower or central portion of the bottom is provided a securing or 65 holding device 5 for the ends of the staves preferably made with an annular groove 6, into which the ends of the staves are forced. In the drawing this groove is formed in the upper face of the holding device. 70

Wood has been found in many cases to be the most desirable material, and this invention applies particularly though not essentially to wooden tanks.

Tanks are sometimes made of other than 75 circular section. The invention is therefore not confined to tanks of circular form.

Having now described my invention, what I claim is—

1. A tank of the character described having 80 a knockdown substantially funnel-shaped lower portion formed of radial staves, a locking device at the lower ends of said staves and a series of removable hoops exterior thereto and fitting grooves therein for temporarily securing the staves in place; substantially as described. 85

2. A tank of the character described having a knockdown substantially funnel-shaped bottom formed of radial staves, and a series 90 of removable hoops exterior thereto and fitting grooves therein for temporarily securing the staves in place.

3. A tank of the character described formed of a plurality of staves and hoops for securing the same in place and provided with a knockdown substantially funnel-shaped bottom formed of radial staves, and a series of 95

removable hoops exterior to the bottom staves and fitting grooves therein for temporarily securing the staves in place.

4. A tank of the character described formed
5 of a plurality of staves and hoops for securing the same in place and provided with a knockdown substantially funnel-shaped bottom formed of radial staves, and a series of removable hoops exterior to the bottom staves

and fitting grooves therein for temporarily securing the staves in place, in combination with auxiliary means for closing the opening at the lower edges of said bottom staves.

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