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CONSTRUCTION OF TANKS, SILOS, AND LIKE VESSELS

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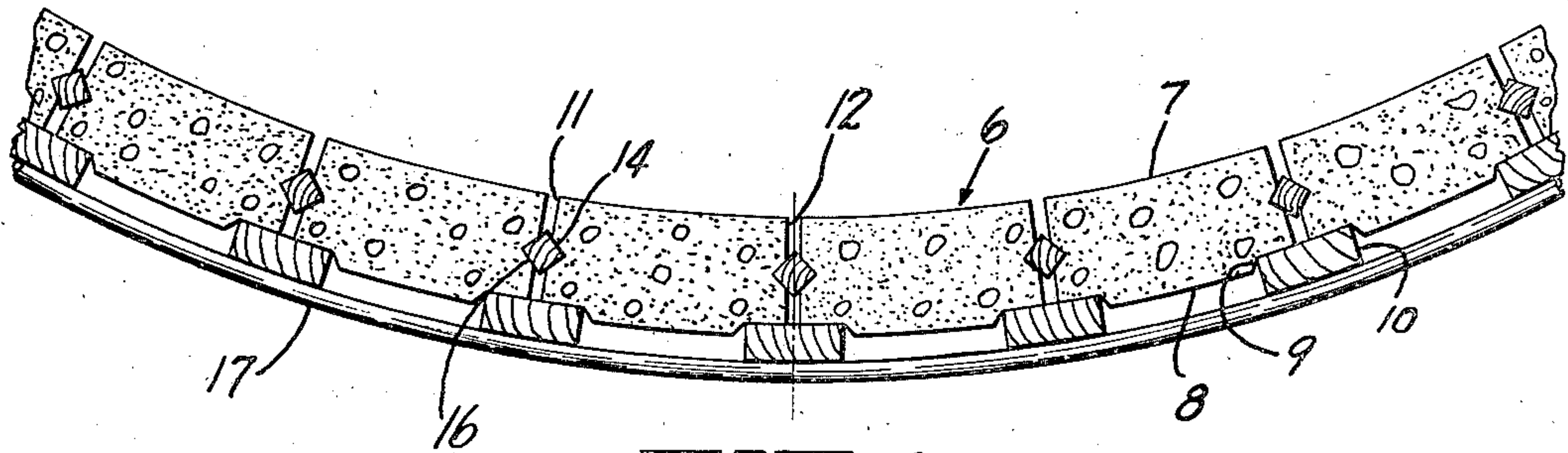


FIG. 1

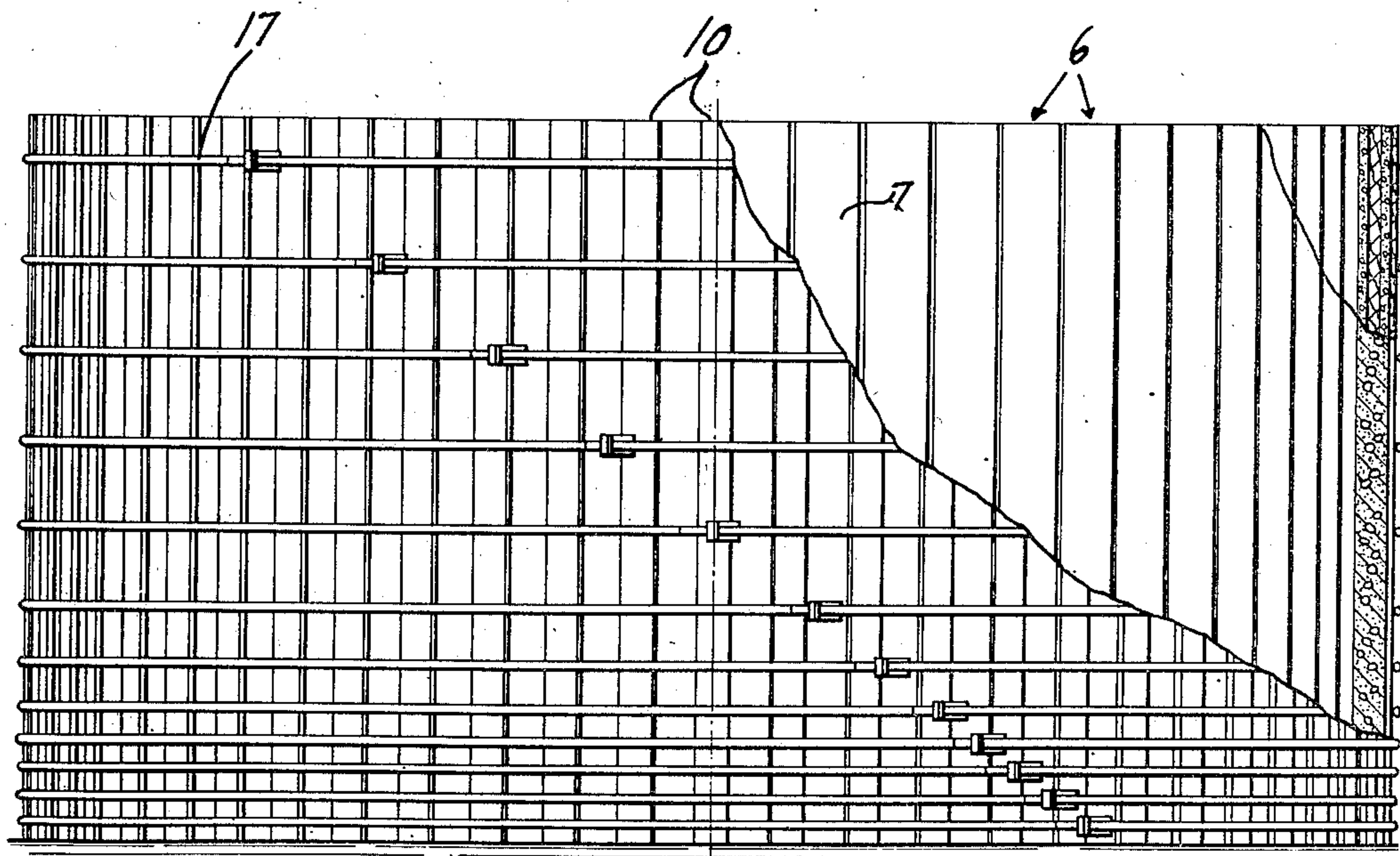


FIG. 2

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CONSTRUCTION OF TANKS, SILOS, AND
LIKE VESSELS

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1 Claim. (Cl. 72—6)

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This invention relates to improvements in the construction of tanks, silos and like vessels.

The present invention relates to construction of vessels of concrete and particularly to one wherein a plurality of staves are provided and are secured together by several hoops which encircle the assembled, positioned staves. It is, of course, well known to manufacture vessels of this character from wood staves, each of which is cut in such a manner that the butting edges coincide with the radii of the final vessel. In accordance with this invention, the staves are fashioned of concrete and are held together by several encircling hoops. To ensure that the concrete staves can be formed without use of a complicated mold and to obviate any final finishing operation, I provide, between each adjacent pair of concrete staves, an abutment member or spline which provides the contact between the staves, joining the staves in a sealing engagement. Utilization of this construction enables me to case the staves using simple forms so that the final tank construction is quite inexpensive and is competitive with wood tanks.

It is the generally broad object of the present invention to provide an improved, concrete stave construction which can be utilized in providing tanks, silos and like vessels.

The invention includes other objects and features of advantage, some of which, together with the foregoing will appear hereinafter wherein the present preferred construction of this invention is illustrated.

Referring to the drawing accompanying and forming a part hereof, Figure 1 is a section taken transversely through the wall of a tank constructed in accordance with the present invention.

Figure 2 is a side elevation with two different portions of the tank broken away to illustrate the side wall construction and the detail of construction utilized to provide the juncture between adjacent concrete staves.

Referring to the drawing, I provide a plurality of staves indicated generally at 6 and of a height corresponding to that desired for the vessel. Each stave is case of concrete, includes an arcuate inner face 7 and an arcuate outer face 8, the latter being additionally relieved as at 9 to provide a recess in which battens 10 are mounted when the staves are assembled. The side edges 11 and 12 of each stave fall along the radii of the final vessel, each stave representing an arcuate segment taken between two circles, the distance between the two circles corresponding to the depth of the

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stave, and the arcuate length of the segment corresponding to the angular width of the particular arc applied to the circles. Each stave can include steel reinforcement which I have not shown in the drawing.

In accordance with this invention, sides 11 and 12 of each stave are recessed as at 14 about midway along each edge. Preferably, each recess is V-shaped in outline. Between adjacent staves and in the cooperatively positioned recesses 14 is mounted a wood spacer or spline 16 of a configuration adapted to fit in and seal the space between the adjacent staves. In the drawings I have shown spacer 16 as square in cross section and fitting into the two adjacent V-shaped recesses 14. This construction has proven quite useful. Spline 16 can also be made circular in section, recesses 14 then being fashioned so as to fit a spacer of this section.

The staves are assembled in much the same manner as is usual for assembly of a vessel fashioned of such elements. Thus, assuming that a suitable bottom or base has been provided, it is only necessary to mount the staves in an upright position on this, splines 16 being positioned between recesses 14 on the adjacent staves. At the same time, the encircling hoops 17 are applied over battens 10, the hoops being finally drawn up tight in the usual manner to ensure that the vessel is fluid tight.

Provision of the splines between the staves permits the latter to be made with a generally rectangular cross-section for the splines space the staves apart and sides 11 and 12 need not fall along the radii of the tank. The splines can also be made of wood with a cross-section corresponding to an equilateral triangle, the base of which is engaged with the adjacent staves.

I claim:

A vessel of the character described consisting essentially of a plurality of substantially vertical precast concrete staves arranged in a side by side relationship and extending from the bottom to the top of the vessel, each stave being substantially rectangular in horizontal section and having an inner and an outer vertical face and vertical sides arranged at a radial angle to one another, each side having a longitudinal V-shaped recess along each vertical face thereof and intermediate the inner and outer faces of the stave, a rectangular wood spacer positioned between each adjacent stave pair in engagement with the vertical V-shaped recesses therein, and maintaining adjacent staves in a spaced relationship, the outer vertical face of each stave being recessed

adjacent each side thereof to provide a recess in the front face of the stave for a batten, a vertical batten fitted into the vertical recesses in each adjacent stave pair and covering the space between the adjacent stave pair and extending out beyond the stave pair, and hoops positioned over said battens for retaining said staves in sealing engagement with said spacers and for retaining said battens in position on said stave pairs.

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