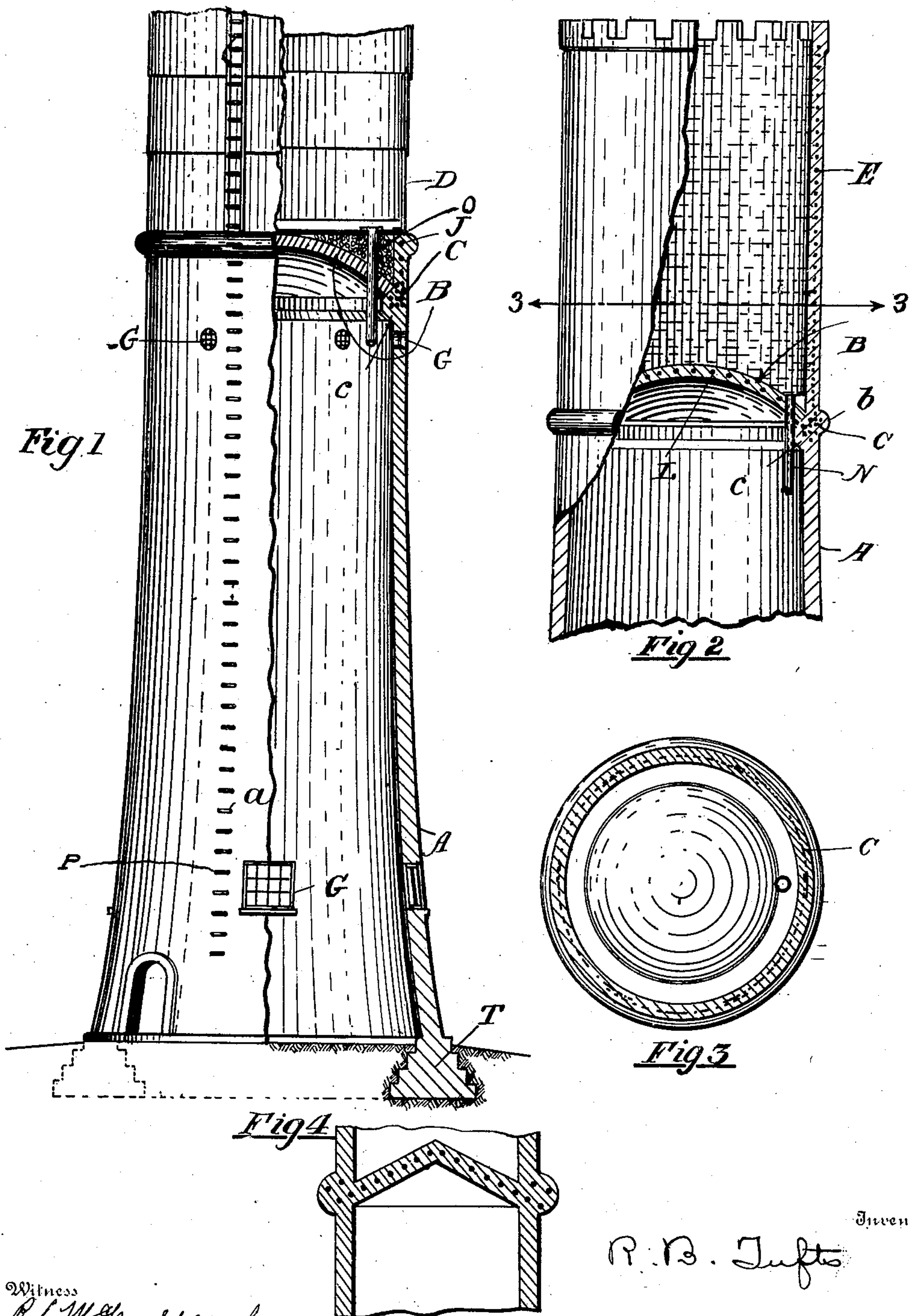


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PATENTED JULY 30, 1907.

R. B. TUFTS.
TOWER AND TANK.

APPLICATION FILED DEC. 17, 1906.



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ROBERT B. TUFTS, OF ATLANTA, GEORGIA.

TOWER AND TANK.

No. 862,035.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT B. TUFTS, a citizen of the United States, and a resident of Atlanta, Fulton county, State of Georgia, have invented certain new and useful Improvements in Towers and Tanks, of which the following is a specification.

My invention relates to concrete structures, and more particularly to those intended for the support of water tanks in elevated positions, and my invention consists of a structure having a hollow concrete shaft and arched partitions and reinforced so as to support the weight and thrust coming upon such partitions as fully set forth hereinafter and as illustrated in the accompanying drawings in which—

Figure 1 is a sectional elevation of a concrete structure embodying my improvements; Fig. 2 a similar section illustrating a modification Fig. 3 a section on the line 3—3 of Fig. 2; Fig. 4 a sectional view showing a different form of partition.

For general purposes the structure rests upon a concrete footing I, which is preferably stepped as shown and is integral with the body A of the structure, also of concrete, and of a general cylindrical form, either uniform in diameter and thickness or gradually contracted both in diameter and thickness as shown, forming a hollow shaft of any desired height and which may be of concrete alone or reinforced by any suitable metallic rods, bars, netting etc. as may be found desirable. When required there may be windows or openings G at any suitable points, and in a structure such as illustrated of considerable height yoke-shaped strips of metal have their ends inserted in the body of the structure during process of construction to constitute hand and foot pieces *a*, by means of which to climb to the top of the structure at the inside.

The shaft is intended primarily for the support of a second elevated structure, which may be a tank, as a tank D of metal, Fig. 1, or a tank E of concrete, Fig. 2, but in either case in order to constitute or support the bottom of the tank, I form integral with the shaft A a concrete partition B, either in the shape of an arch, an inverted hollow section of a sphere, or of a cone as illustrated in Fig. 4, in either case the central portion of the partition B being above the edges so that the pressure tends to flatten the same and force the edges laterally outward. In order to support this thrust I reinforce the shaft near the top by inserting therein metallic rods C either in the form of continuous rings, or a continuous bar or strip bent to form a number of coils, or there may be a number of bent rods with their ends linked together. In either case the rods C serve to strengthen

the shaft near the top so as to resist the lateral thrust or pressure of the arched partition or part B, and due to the pressure thereon of the upper structure or its contents. In order to secure greater strength at this point, the shaft may have an enlargement or thickened portion *b* as shown in Fig. 2, thereby permitting the insertion of a greater number of reinforcing rods C, and a greater body of concrete material about the said rods, and there is also an inward projection or enlargement *c* below the edge of the bottom or partition B, thereby securing a better support for the latter.

Preferably, the body of the shaft is continued above the bottom or partition B, either to form a flange, which has reinforcing rods J, as shown in Fig. 1, or a tank or receptacle E, as shown in Fig. 2, the flange or sides of the receptacle being integral with the shaft. Where the shaft is simply intended to form a flange, the space between the latter and the arched portion B may be filled with a filling O of concrete or other material to form a flat bed for the bottom of the metallic tank D, and if desired the partition or bottom B may be reinforced with strengthening rods L of any suitable character and arrangement.

A structure of the above character as compared with the ordinary structures of masonry or metal has the advantages of durability, cheapness of structure and maintenance, and over metallic structures of beams and posts etc. it has the advantage of constituting in the shaft A a storage chamber of great utility in many instances, and one in which the water pipes leading from the tank are protected from frost and danger of breakage from this source.

Although I have shown the portion B of the structure adjacent to the top thereof, I have termed it a partition inasmuch as although it is shown as a base or support for the tank, it may be arranged at any point in the height of the structure, or a series of the same may be arranged to support or constitute floors at different heights, and under the general term arch as applied to the portion B I include partitions which may be either arches, sections of a hollow sphere as included in Figs. 1 and 2, or of a hollow cone as in Fig. 4.

Without limiting myself to the precise construction and arrangement of parts shown I claim as my invention—

1. A concrete structure consisting of a hollow shaft of concrete provided with a transverse partition elevated at the center and with metallic reinforcing rods embedded in the shaft opposite the edge of said partition, for the purpose set forth.

2. The combination in a concrete structure of a hollow concrete shaft, having an enlargement near the upper end

and extended above said enlargement, with metallic reinforcing rods embedded in the enlarged and extended portion, and an arched partition bearing upon the shaft adjacent the enlargement.

- 5 3. The combination in a concrete structure, of a hollow shaft of concrete, an arched partition having its bearing upon the shaft below the upper end of the latter, a filler O between the upper end of the shaft and the partition, and reinforcing rods embedded in the shaft adjacent to the

point where the partition unites with the latter, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT B. TUFTS.

Witnesses:

J. C. CLARK,

EDWARD JOHNSON.