

(No Model.)

J. LOCKWOOD.

WATER TOWER.

No. 390,980.

Patented Oct. 9, 1888.

Fig. 1.

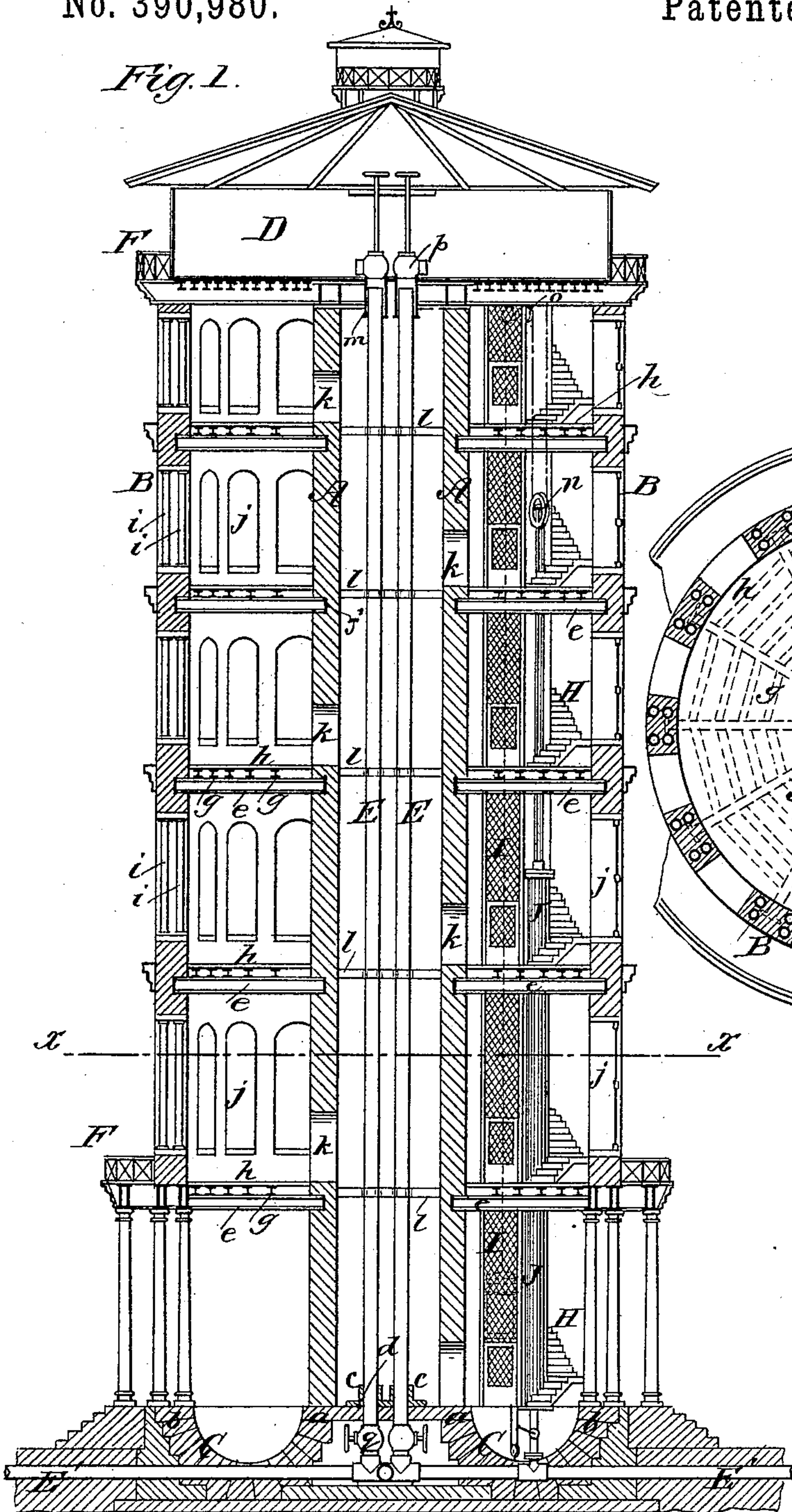
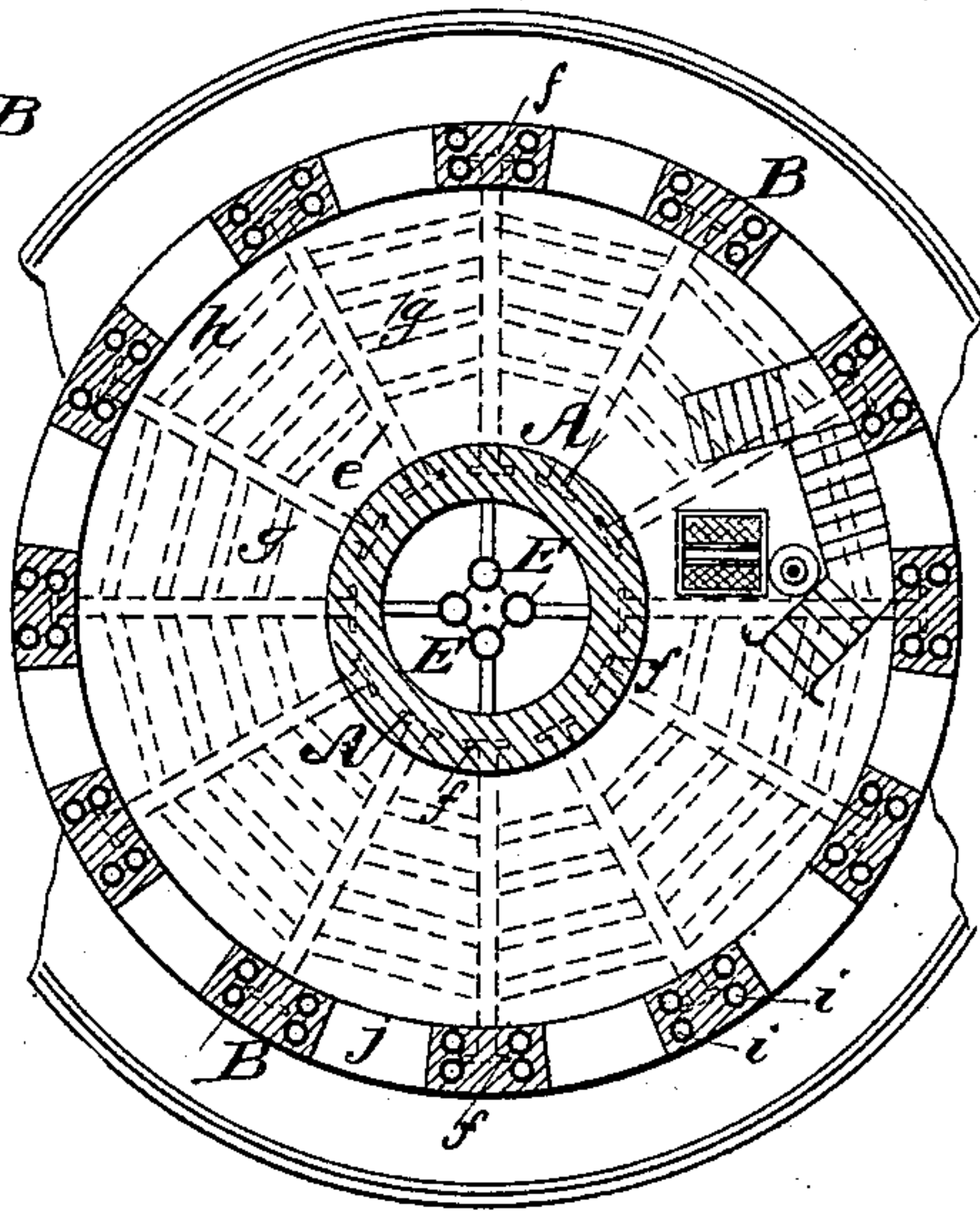


Fig. 2.



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WATER-TOWER.

SPECIFICATION forming part of Letters Patent No. 390,980, dated October 9, 1888.

Application filed June 4, 1888. Serial No. 275,999. (No model.)

To all whom it may concern:

Be it known that I, JOHN LOCKWOOD, a citizen of the United States, residing at Jamaica, Queens county, New York, have invented certain new and useful Improvements in Water-Towers, of which the following is a specification.

This invention relates to the construction of a tower adapted to sustain a hydrostatic column for use in the storage and supply to points of various altitudes or distances relative to the pumping-source.

The object of the invention is to embody a structure capable of withstanding the pressure resultant from a column extended at great height, and also of withstanding the weight essential to the material of construction composing such a structure.

The invention consists of a structure composed of a cylindric interior tower of masonry or other suitable material, an external cylindric tower concentric therewith, also composed, preferably, of masonry, and tied or connected at successive points of altitude with the said interior tower by means of radial or otherwise disposed horizontal girders, the said interior and exterior towers being adapted to sustain a storage reservoir or tank at this summit.

The invention also consists of a construction of the foundation adapted to sustain and counterbalance the weight of the aforesaid inner and outer structures upon the interior and exterior flanks of an inverted arched annulus, or a series of inverted arches ranged in radial succession about a circle.

The invention also consists in the adaptation of the aforesaid towers and their foundation to sustain the hydrostatic column, whereby the latter rests upon its own base, being counterbalanced, together with the inner tower, upon the interior flanks of the said arches by the gravity of the outer tower upon the exterior flanks thereof.

The invention also consists of a duplicated or clustered construction of the hydrostatic pipes and valves provided therefor, whereby the repairs of either may be effected without the necessity of discharging or cutting off the water-supply.

The herein-described invention embodies a

structure having a succession of floors or observatories, and therefore affords space for convenient means of access to any part thereof by elevators or staircases within, and the structure furthermore presents an external and ornamental as well as substantial appearance.

Referring to the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a structure embodying the invention, showing a tower of moderate height for illustration, capable, however, of greater proportionate height in practice; and Fig. 2, a horizontal section of Fig. 1 on the line *x x*.

The inner tower, A A, and outer tower, B B, surrounding it, rest upon the interior and exterior flanks, *a b*, respectively, of the annular inverted arch or radial succession of arches C C, and the weight of the tank D, with its contents, is proportionately distributed upon the said towers A B.

The tank D is constructed, preferably, of boiler-iron, and from its center the stand-pipes E, clustered together, extend to the central base, *c*, supported by the inner flanks, *a*, of the inverted arches, and upon which the weight of the said pipes is sustained by means of their flanges *d*.

E' are the water-mains conducting to and from the stand-pipes. *e* are the girders extending radially from the inner tower to the outer, and by suitable T-heads thereon, as at *f*, are held fast in the masonry and adapted to tie together the said structure at each successive story.

g are cross beams or joints, arranged as indicated in Fig. 2, uniting the radial girders together and supporting the floorings *h*.

The outer tower is composed partly of the pillars *i*, built into the masonry, strengthening the same and permitting the interception of windows *j*, from which view may be obtained, and galleries or balconies F are provided at suitable points, such as those shown.

The inner tower is composed of a solid cylindric wall of masonry, excepting such apertures or doors, as *k*, as may give access to the stand-pipes.

The stand-pipes E are composed of sections bolted together, and are held from horizontal displacement by means of the beams or braces

7. The expansion and contraction of the said pipes is permitted without displacement of the tank above or other parts, by means of the expansion-joints at *m*, which consist of sliding or telescoping sections of the pipe adapted to move water-tight in suitable packings.

p and *q* are globe or other valves, by means of which any of the stand-pipes may be cut out of use when occasion requires without interference with the operation of the remaining ones.

H H, &c., represent portions of a winding staircase, and *I* the shaft in which one or more elevators are operated by the hydraulic power derived from the stand-pipes *E*.

J is a hydraulic-elevator cylinder, the stroke of the piston whereof is multiplied by means of the cable-sheaves *n o*, in the usual manner, propelling the car the entire height of the tower.

It is to be understood that a single stand-pipe, in lieu of the group herein shown, may be employed, if preferred.

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

1. The herein-described water-tower, consisting of an interior cylindric tower, an exterior cylindric tower concentric therewith, the horizontal ranges of girders extending between and connecting the said towers, the same being combined with the reservoir *D*, and adapted to sustain the weight of said reservoir *D* co-operatively, as set forth.

2. In a water-tower consisting of an interior and exterior cylindric wall, as described, the

combination therewith of the foundation composed of an inverted arched annulus, or a series of inverted arches ranged in radial succession, the inner and outer flanks whereof being located respectively beneath the said interior and exterior tower-walls, for the purposes specified.

3. In a water-tower, the combination of the interior and exterior cylindric tower-walls, the stand pipe or pipes located centrally to the inner tower-wall, and the inverted arched annular foundation adapted to sustain the exterior wall upon its outer flanks, and the interior wall, together with said stand pipe or pipes, upon its inner flanks, as described.

4. A water-tower consisting of a separate interior and an exterior cylindric wall, a reservoir supported at the summit of said walls, and a stand pipe or pipes braced centrally from and within the said inner wall, supported at its base, and provided with an expansion-joint, as described, to connect with said reservoir irrespective of the vertical expansion or contraction of said pipe or pipes.

5. In a water-tower, the combination, with the elevated reservoir *D*, of the stand-pipe composed of a group of sections, each of said sections having independent valve-connections with the said reservoir and with the ground-mains, for the purposes set forth.

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