

(No Model.)

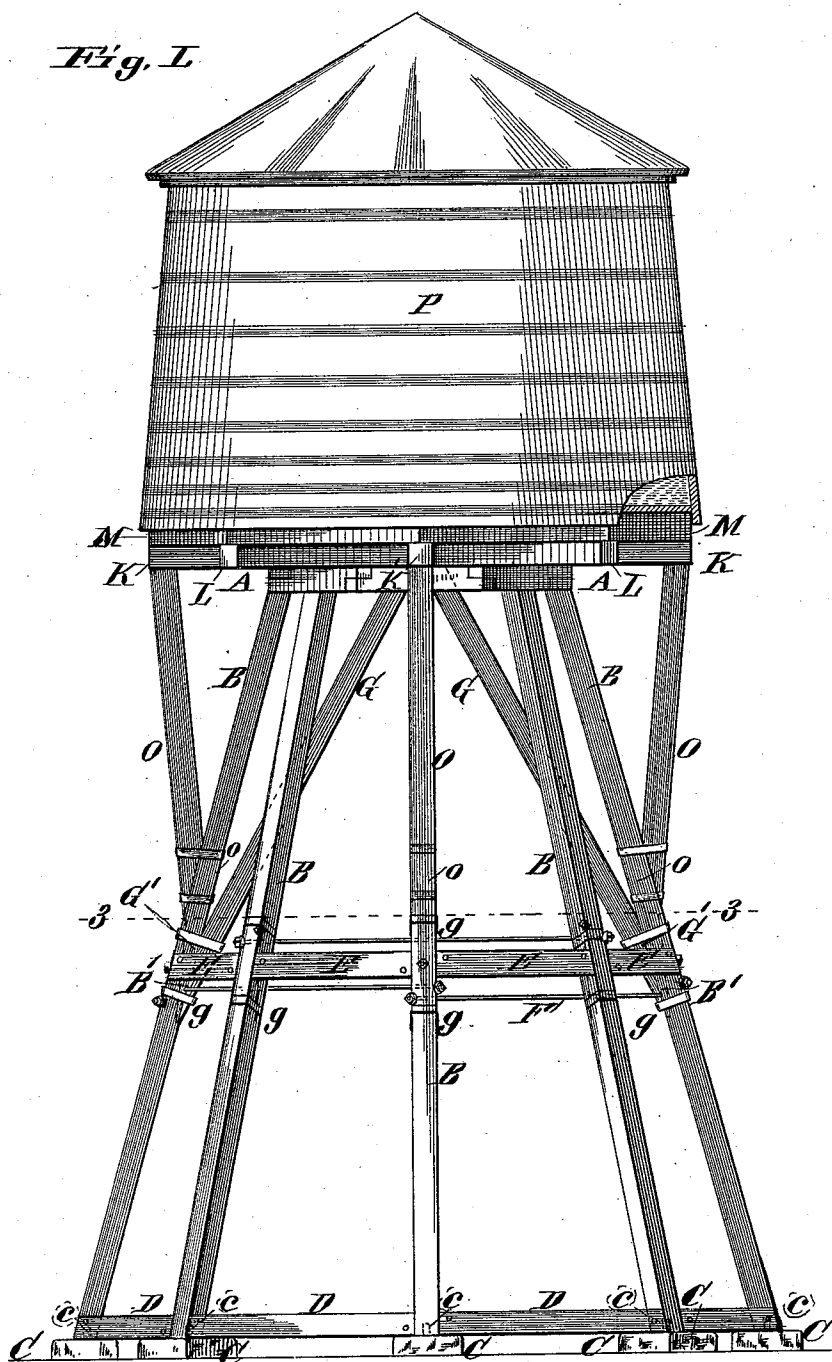
2 Sheets—Sheet 1.

H. W. GLEASON.
TOWER.

No. 534,327.

Patented Feb. 19, 1895.

Fig. 1



Attest:
Charles Pickles
A. Bonville

Inventor:
Hubert W. Gleason
by Res. Moody
his Atty.

(No Model.)

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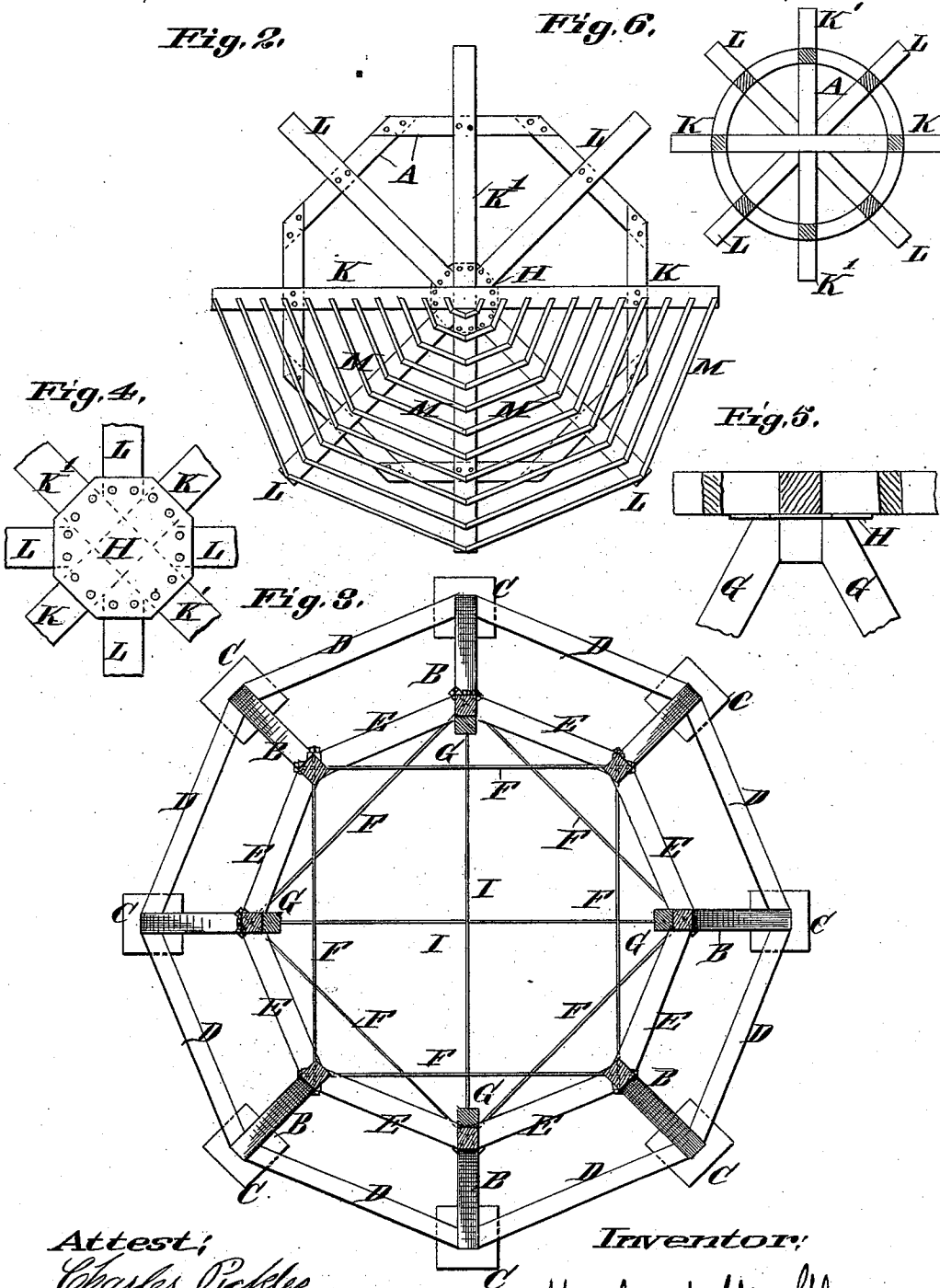
Fig. 2.

Fig. 6.

Fig. 4.

Fig. 5.

Fig. 3.



Attest;
Charles Pickles
A. Bonville

Inventor;
Herbert W. Gleason
by Res T Moody
his Atty.

UNITED STATES PATENT OFFICE.

HERBERT W. GLEASON, OF ST. LOUIS, MISSOURI.

TOWER.

SPECIFICATION forming part of Letters Patent No. 534,327, dated February 19, 1895.

Application filed September 12, 1894. Serial No. 522,815. (No model.)

To all whom it may concern:

Be it known that I, HERBERT W. GLEASON, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a new and useful Tower, of which the following is a specification.

My invention relates to improvements in towers whose tops are supported upon posts and the objects of my improvements are to economize space, material and labor. I attain these objects by the structure illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of a tower embodying my invention, and a water tank supported thereby. Fig. 2 is a top view of the cap, and cross beams thereon, and illustrates, in the lower half of the view the manner in which I prefer to lay the joists upon said beams, where the tower is designed to support a water tank. Fig. 3 is in part a cross section of my tower along the line 3—3 of Fig. 1 and in part, a view in perspective showing the arrangements of posts. Fig. 4 is a view looking from below of the shoe used to connect the cross beams together at the center of the tower. Fig. 5 represents a side view of said shoe and of central supports beneath it the superstructure being shown in cross section. Fig. 6 is a modification showing a circular cap.

Similar letters refer to similar parts throughout the several views.

A, (Figs. 1, 2 and 6) represents the cap of the tower. In Figs. 1 and 2 it is represented as octagonal in shape but it may be a polygon having any number of sides more than four, or may be formed in the shape of a circle as it is shown in Fig. 6. The shape which I prefer is that of an octagon.

B, B, B, B, B, B, B, B, are posts used to support the cap. They are preferably placed at equal distances apart and where the cap is polygonal in shape, and the posts equal in number to the sides of the cap, as I prefer they should be, each post preferably comes beneath the center of one of the sides of the cap as shown in Fig. 1. The posts incline inward from bottom to top as represented in Figs. 1 and 3. They preferably rest upon foundations of concrete or masonry, and are held in place at their lower ends by dowel pins or other suitable means.

C, C, C, C, C, C, C, C, (Figs. 1 and 3) represent foundations for the posts, and c, c, c, c, (Fig. 1) represent dowel pins.

D, D, D, D, D, D, D, D, (Figs. 1 and 3) are braces placed between the posts, directly above the foundation C.

E, E, E, E, E, E, E, E, (Figs. 1 and 3) represent braces placed between the posts preferably about midway between the cap, and the foundations.

F, F, F, F, F, F, F, F, (Figs. 1 and 3) are tie rods designed to hold the posts together and prevent spreading. They are equal in number to the posts. Two are connected to each post one running from it to the second post from it on one side and the other to the second post from it on the other side.

G, G, G, G, (Figs. 1, 3 and 5) are posts preferably four in number springing from the inner sides of posts, B, B, B, B, and supporting the center of the superstructure. Their upper ends bear against the shoe H (Figs. 2, 4 and 5) by which the cross beams resting directly upon the cap, rest and are connected centrally. I connect said central supports with the posts B by scarf joints G', G', (Fig. 1.) In the drawings (Fig. 1) the bands by which the two posts are united are lettered g. Where the tower is very high the posts B if made of wood are usually spliced and in such cases I prefer to splice them about the center as shown in Fig. 1, where the splice is lettered B'; and, where the central supports G are used the bands g, should pass entirely around the posts and they then serve to hold the two portions of the posts B, together as well as to hold the central supports G in place.

I, I, (Fig. 3) are cross ties which I prefer to use where the central supports G form a part of my structure and are especially designed to strengthen those portions of the structure bearing the weight of the central support. They connect opposite posts. The ties F, F are shown represented as passing through the posts with which they are connected. This is not essential and in some cases is undesirable. Any well known method of connecting them with the posts may be adopted.

Upon the cap A, in my tower I prefer to form the floor for the water tank or other thing to be supported substantially as fol-

lows: Across the cap I lay two beams K, K', at right angles to each other and mortise them where they cross each other so as to leave their upper surfaces flush with each other, and to their under sides I attach the shoe H (Figs. 2, 4). I prefer to so place these beams that they will each rest upon the cap directly over posts in the manner shown in Figs. 1 and 6 and they preferably extend some distance beyond the sides of the cap and I prefer that the cap piece should be of such a size as to make its sides come at about the center of gravity of that portion of the weight of the tank or other thing intended to be supported lying between its center and circumference, supporting the center of the tank or other thing supported to be exactly at the center of the tower. In addition to the cross beams K, K', I prefer to use four other beams L, L, L, L, (Figs. 2, 4 and 6) whose inner ends rest upon the shoe H to which they are attached and whose outer ends are supported by the cap A just as the other beams are. Upon the beams K, K' and L, I arrange the joists M (Fig. 2) and where the thing to be supported is a water tank I prefer to allow the tank to rest upon said joists.

In some cases it is desirable to extend the flooring and the beams which support it, so far beyond the sides of the cap A, that it is best to provide supports for the ends of the beams K and K', and in such cases, I prefer to use the braces O (Fig. 1) which are preferably four in number. Their lower ends preferably rest upon the same posts which support the central supports G, which said central supports tend to brace said posts against an inward pressure. They may be attached to the posts B by means of the scarf joints O, O, O, Fig. 1, and preferably support the ends of the beams K and K' which are slightly stronger than the beams L, though they may be arranged to support the latter beam advantageously instead of the former or to support the ends of all if desired. In the drawings (Fig. 1) my tower is represented, supporting a water tank P which is one of the purposes for which I consider it most useful. The manner in which the tank is preferably arranged on the tower where my tower is used to support a tank is shown in the drawings.

The word "circularly" is not used in this specification in its strict sense. When used with reference to the arrangement of the supporting posts it is intended to mean that they are arranged substantially as they would be if arranged around the edge of a circle or a polygon having five or more sides, or even an ellipse.

The posts, G, instead of being supported by the posts B may extend to the ground or the foundations upon which the posts B rest.

In my improved tower braces may be substituted for the ties F, where ties F are substituted for the braces D.

I claim—

1. The combination of a cap, supporting posts more than four in number, circularly arranged and sloping outward from top to bottom, and ties for binding said posts together, equal in number to the posts; each post having a tie running from it to the second post from it on each side, substantially as described.

2. The combination of a cap, supporting posts more than four in number, circularly arranged and sloping outward from top to bottom, ties for binding said posts together, equal in number to said posts, two running from each post, one to the second post on one side, one to the second post on its other side, and braces arranged between the posts in the neighborhood of said ties, substantially as described.

3. The combination of a cap, supporting posts more than four in number circularly arranged, and sloping outward from top to bottom, ties for binding said posts together, equal in number to said posts, two running from each post, one to the second post from it on one side and one to the second post from it on the other side, and two series of braces arranged between said posts, one set in the neighborhood of said ties and one set about the lower ends of said posts, substantially as described.

4. The combination of a cap a series of main supporting posts more than four in number circularly arranged and sloping outward from top to bottom, central supports springing from the inner sides of main supports, and slanting inward toward the center, ties connecting opposite main supports bearing central supports, a shoe upheld by said central supports, and floor beams resting upon said shoe, substantially as described.

5. The combination of a cap, a series of main supports circularly arranged, a series of central supports springing from said main supports and slanting inward and a series of outer supports springing from the same posts bearing said central supports and the main supporting posts bearing said secondary supports, being strengthened by ties, substantially as described.

6. The combination of the cap A, the cross bearing K and K', the shoe H, and the beams L, substantially as described.

7. The combination of a cap, a series of supporting posts more than four in number circularly arranged and slanting outward from top to bottom and a supported weight each of said posts being so arranged that its upper end is substantially beneath the center of gravity of its mass and the center of gravity of that portion of its mass lying between its center of gravity and its circumference along the radial line on which the post is placed.

8. The combination of a water tank and a supporting tower consisting essentially of a cap and a series of supporting posts more than four in number circularly arranged at substantially equal distances from each other,

and slanting outward from top to bottom and the upper end of each post being placed substantially beneath what would be the line of division, if the tank and its contents were divided into an inner and outer portion of equal weight by a line parallel with the outside of the tank, substantially as described.

9. The combination of the posts B, cap A, beams K and K' and L and the joists M all arranged, substantially as and for the purposes set forth.

10. The combination of the cap A, posts B, ties F and I braces D and E, central supports

G, shoe H, and floor beams resting upon said shoe, and said cap, substantially as described. 15

11. The combination of the cap A, posts B, circularly arranged and slanting outward from top to bottom and central supports G, substantially as described.

Witness my hand this 10th day of September, 1894. 20

HERBERT W. GLEASON.

Witnesses:

BENJ. F. REX,
A. BONVILLE.