Aug. 1, 1933. W. J. HOFFMANN 1,920,642

COOLING TOWER CONSTRUCTION

Filed Oct. 18, 1929 2 Sheets-Sheet 1

Fig. 1.

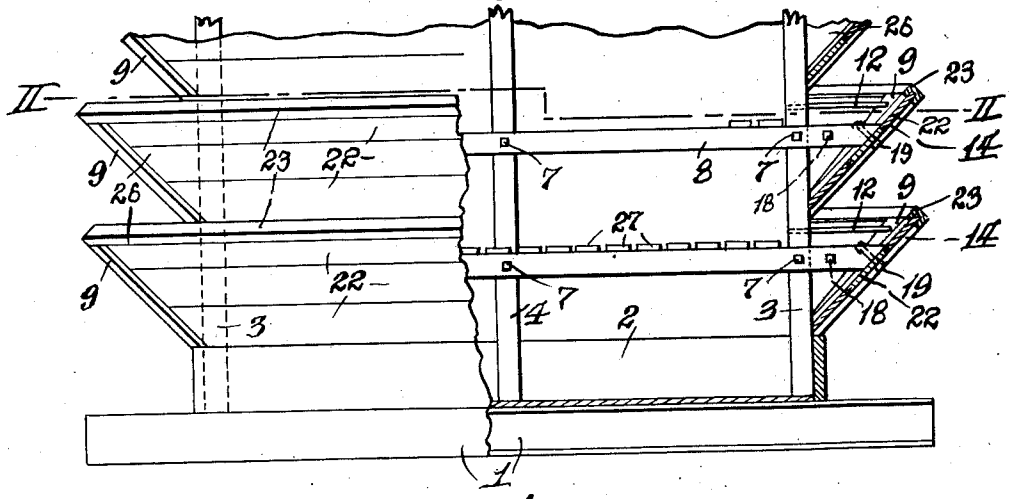
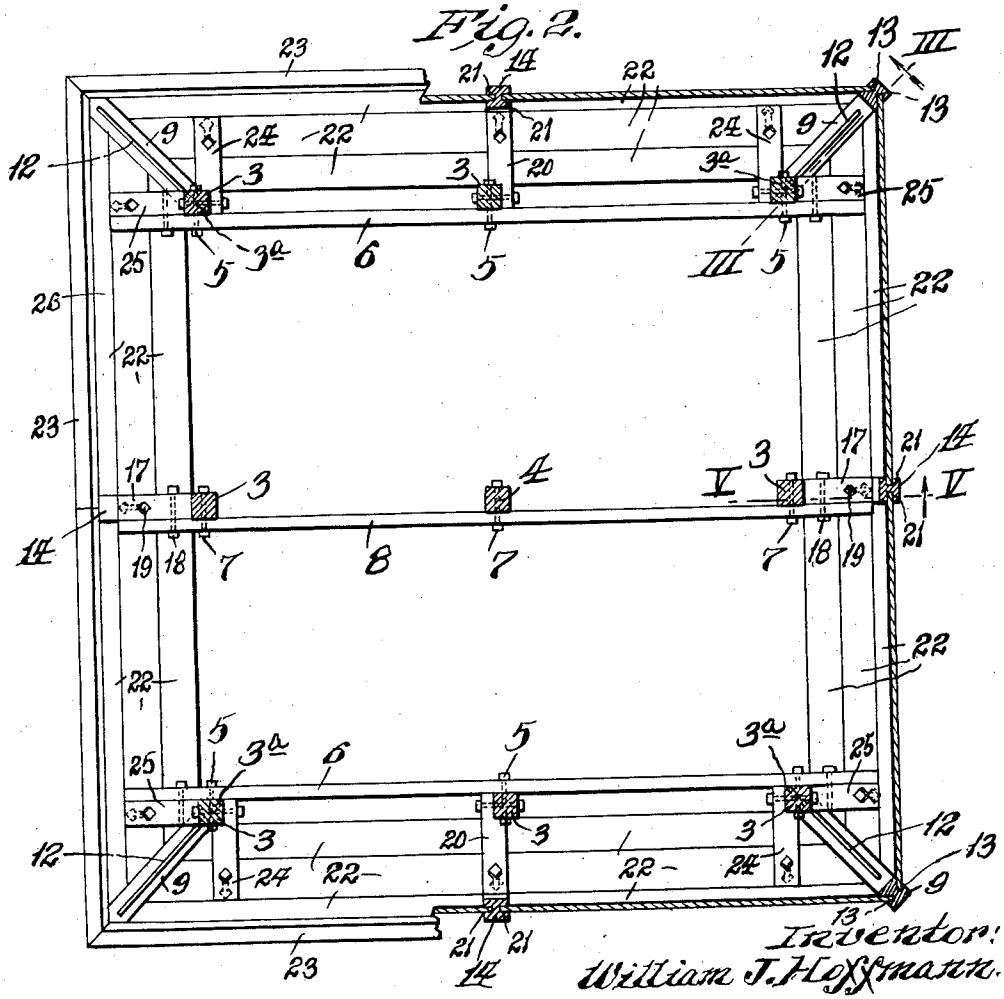


Fig. 2.



Inventor:
William J. Hoffmann.
By Herbert G. Fletcher Atty.

Aug. 1, 1933. W. J. HOFFMANN 1,920,642

COOLING TOWER CONSTRUCTION

Filed Oct. 18, 1929 2 Sheets-Sheet 2

Fig. 3.

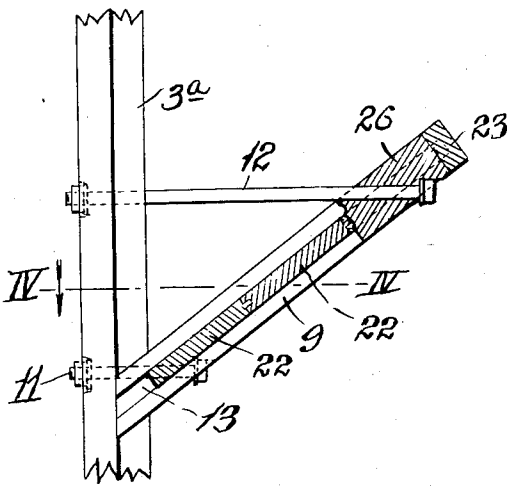


Fig. 5.

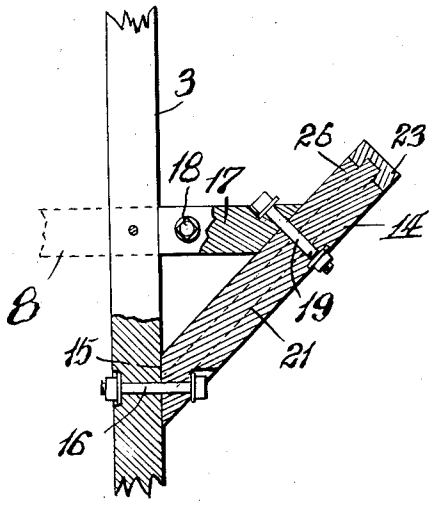


Fig. 4.

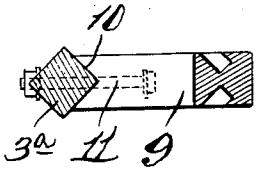
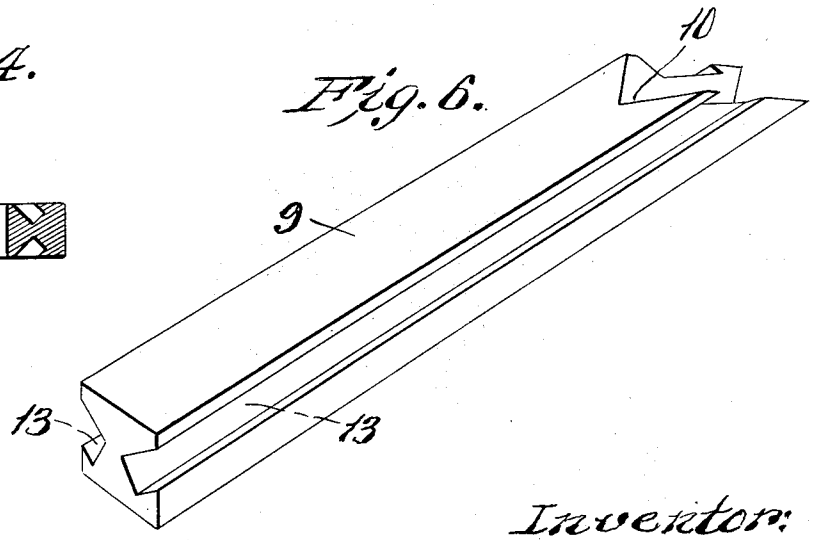


Fig. 6.



Inventor:
William J. Hoffmann.
By Hubert G. Fletcher
Atty.

Patented Aug. 1, 1933

1,920,642

UNITED STATES PATENT OFFICE

1,920,642

COOLING TOWER CONSTRUCTION

William J. Hoffmann, St. Louis, Mo., assignor to Lilie Hoffmann Cooling Towers, Inc., St. Louis, Mo., a Corporation of Missouri

Application October 18, 1929. Serial No. 400,503

8 Claims. (Cl. 20—0.5)

This invention relates to cooling towers and more particularly to the construction of the natural draft type of cooling towers, the primary object of the invention being to provide a tower of a construction in which greater strength and higher efficiency and a consequent minimum of repairs will be a result.

Another object of the invention is to provide a cooling tower of a wooden construction which is designed in a manner so as to minimize the number of metallic securing parts heretofore required.

A further object of the invention is to provide the louvres of a natural draft cooling type tower of a construction that will not warp or buckle.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawings, exemplifying the invention, and in which:—

Figure 1 is an elevation of a fragmentary portion of a natural draft cooling tower, partly in section and showing this improved construction.

Figure 2 is a horizontal section taken approximately on the line II—II of Fig. 1.

Figure 3 is an enlarged fragmentary vertical section taken approximately on the line III—III of Fig. 2.

Figure 4 is an enlarged horizontal section taken approximately on the line IV—IV of Fig. 3.

Figure 5 is an enlarged vertical section taken approximately on the line V—V of Fig. 2.

Figure 6 is an enlarged perspective view of one of the corner posts used in this improved construction.

In the construction of this improved cooling tower, the base or foundation thereof may be provided in any desired manner, this instance of showing however being in providing a base of horizontally disposed channel members 1 having mounted thereon the reservoir or collecting trough 2.

Extending upwardly from the base and in the reservoir 2 are a plurality of uprights 3 which are disposed in a manner so as to form a square as shown in Fig. 2 and having a centrally disposed upright 4. The disposing of the uprights 3 in the form of a square as shown in Fig. 2 provides a pair of outer alining rows of uprights 3 and an intermediately disposed row of alining uprights in which the upright 4 is included and secured to each outer disposed row of uprights by bolts 5 are a series of spaced horizontally disposed sills 6 and secured to the middle row of uprights by bolts 7 are a series of spaced horizontally disposed sills 8.

The uprights 3 which form the corners of the square provided by said uprights are further designated as 3*a* and in abutment with each upright 3*a* at its lower end is an outwardly and upwardly inclined corner post 9, said posts being disposed in sets and on a horizontal plane as shown in Fig. 1 in which each set of four posts will be disposed one above the other.

The lower end of each post 9 is provided with a corner shaped notch 10 for seating engagement with a corner of respective uprights 3*a*, each post being held in its inclined position by a bolt 11 passing through a respective post at its lower end and its relatable upright and a relatively long bolt 12 which is passed through each post adjacent its upper end and its respective upright. Each post 9 on a pair of opposing sides is provided with an angularly disposed groove 13 extending the length thereof.

Disposed intermediately between each pair of corner posts 9 is an outwardly inclined post 14, each of said posts having a vertically disposed face 15 for abutting engagement with respect to intermediately disposed uprights 3, each of said posts 14 being secured at their lower ends to respective uprights by a bolt 16 as shown in Fig. 5, the posts 14 which are disposed adjacent respective ends of the sills 8 being secured to said sills by respective filler lengths 17 which are engaged between respective adjacent uprights 3 and the upper end of each of the posts 14, said filler lengths being secured to the sill 8 by bolts 18 and to the posts 14 by bolts 19. The intermediately disposed posts 14 which are disposed adjacent respective sills 6, are secured at their upper ends to their relatable uprights 3 by a respective securing length 20 which is bolted to a relatable upright 3 and to the upper end of respective posts 14.

Each of the posts 14 on a pair of opposing sides is provided with a longitudinally extending groove 21, said posts 14 and the corner posts 9 by reason of the outward inclination given them having the grooves 21 and 13 on each side of the tower in alinement for the reception of the ends of tongued and grooved boards 22 which are mounted in said grooves as shown in Figs. 1 and 2. The boards 22 when mounted as disclosed in the grooves of respective posts 9 and 14, are securely held thereby without the aid of nailing or the like, the top edge of each top board having a grooved finishing strip 23 mounted thereover,

said strips being secured in position by nailing to the upper end of respective posts.

As the corner posts 9 and the intermediately disposed posts 14 are arranged in horizontal planes one above the other, said posts and the intermediately mounted boarding 22 sustained by the grooves of said posts provide louvres 26 for air entrainment to the tower and as towers of this character are for the purpose of cooling liquid such as water descending there through, this improved construction is provided for preventing warping or buckling of the louvres.

The corners of each louvre is further supported by securing lengths 24 which are secured to respective uprights 3*a* and to a boarded siding 22 and by filler lengths 25 which are secured to respective ends of the sills 6 and the siding as shown in Fig. 2.

The horizontally alined set of sills 6 and 8 of each louvre 26 provide the cooling decks for the flowing water in the tower when the spaced slats 27 are mounted thereon.

What I claim is:

1. A cooling tower comprising a series of spaced uprights, an outwardly and upwardly diagonally diverging post secured to each upright, each of said posts being grooved on opposing sides, and siding boards loosely supported by said posts in the grooves thereof in abutment with said uprights.

2. A cooling tower comprising a series of spaced rectangularly disposed uprights, an outwardly and upwardly diagonally diverging post engaged at its lower end to each upright, each of said posts being grooved on opposing sides, and siding boards supported by said posts in the grooves thereof in abutment with said upright.

3. A cooling tower comprising a series of spaced rectangularly disposed corner uprights, an outwardly and upwardly diagonally diverging post secured to each upright, each of said posts being grooved on opposing sides, and siding boards abutting said uprights and supported at their ends in the grooves of said posts.

4. A cooling tower comprising spaced rectangularly disposed corner uprights, outwardly and upwardly diagonally diverging posts supported from said uprights each having a pair of opposing longitudinal grooves, and side louvre boards having endwise grooved engagement with said posts.

5. A cooling tower comprising spaced rectangularly disposed corner uprights, outwardly and upwardly diagonally diverging posts each having a pair of opposing longitudinal grooves, each of said posts being secured to a respective upright, the side louvre boards having loose endwise grooved engagement with said posts.

6. A cooling tower comprising spaced rectangularly disposed uprights, an outwardly and upwardly diagonally diverging corner post secured to each corner upright, outwardly and upwardly diverging posts disposed intermediate of said corner posts, each of said posts having a pair of opposing longitudinal grooves, and side louvre boards disposed between each corner post and each intermediate post having endwise grooved engagement therewith.

7. In a cooling tower construction, a louvre having right angle corners and comprising spaced rectangularly located corner uprights, an outwardly and upwardly diagonally diverging side grooved post extending from each upright, and side boards having endwise grooved engagement with said posts.

8. In a cooling tower construction, a louvre having right angle corners and comprising corner uprights, an outwardly and upwardly diagonally diverging post extended from each upright, and side boards having end engagement with said posts.

WILLIAM J. HOFFMAN.