May 3, 1955 G. ALLEN 2,707,625

COOLING TOWER CORNER POSTS

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Fig. 1.

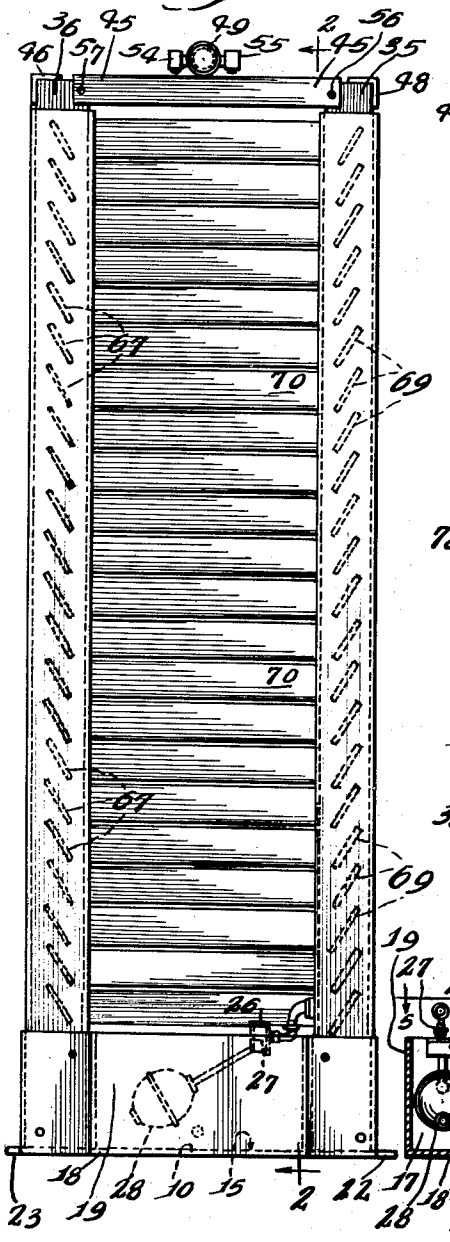
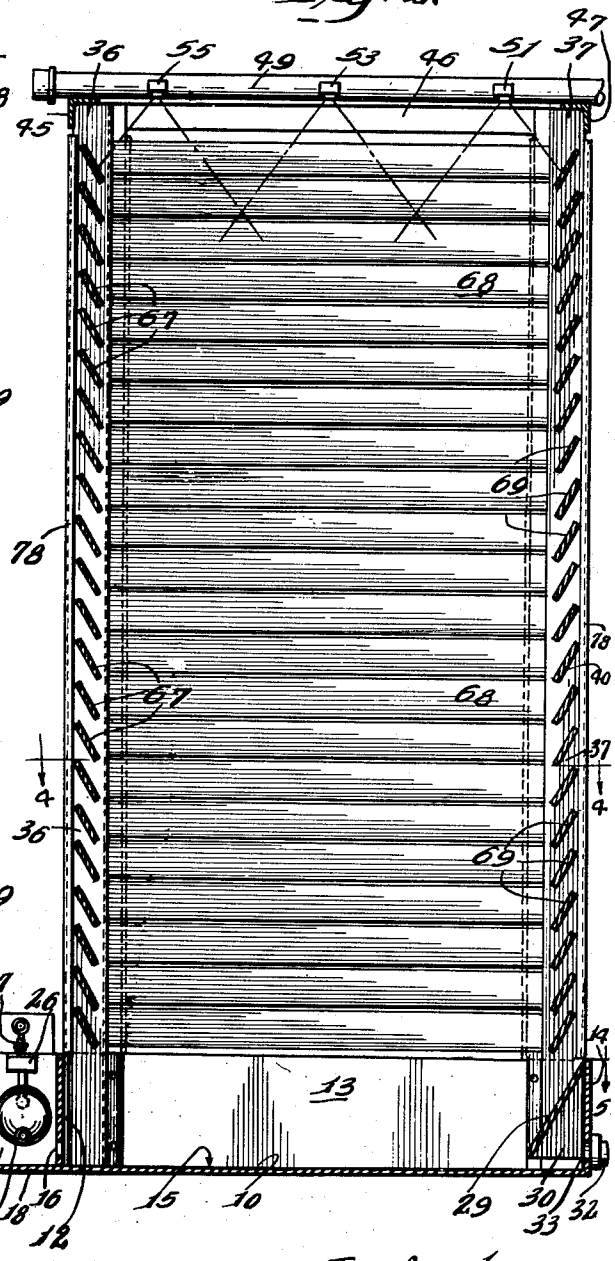


Fig. 2.



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Fig. 3.

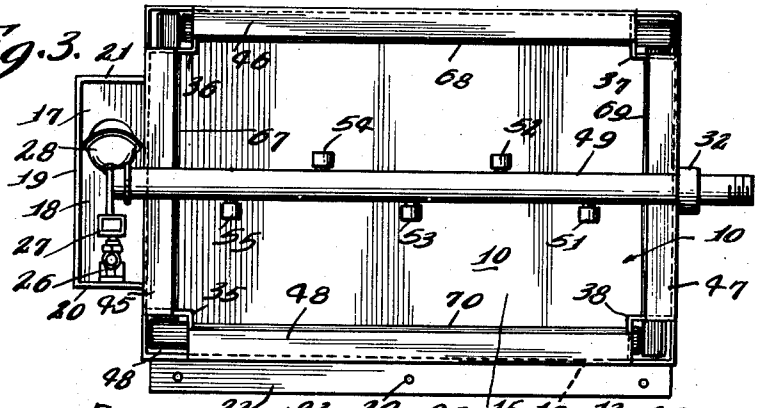


Fig. 4.

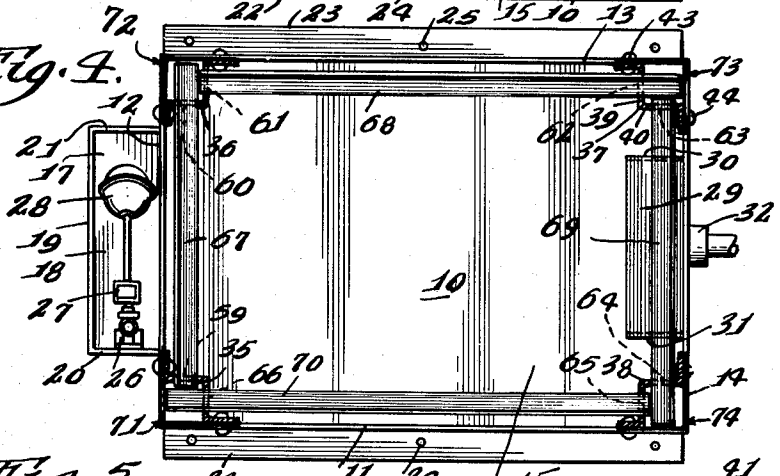


Fig. 5.

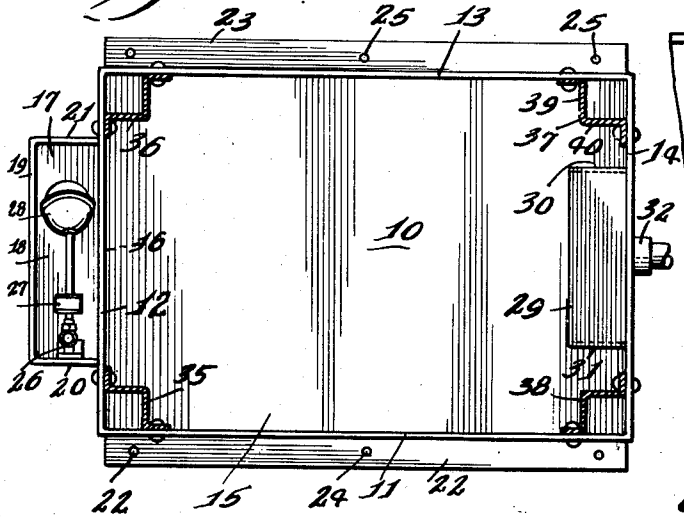
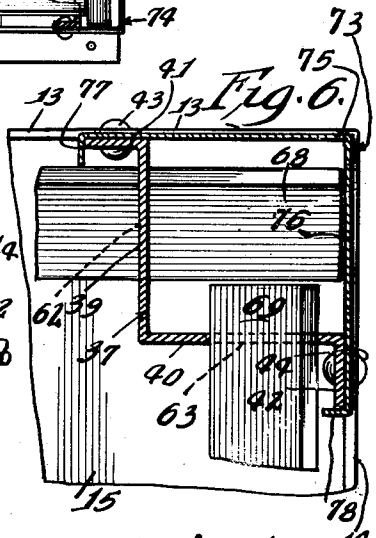


Fig. 6.



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COOLING TOWER CORNER POSTS

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Application March 7, 1951, Serial No. 214,374

7 Claims. (Cl. 261—111)

The present invention relates to a spray-cooling system, such as in atmospheric-cooling towers, spray-ponds, or the like, and more particularly to the corner structure thereof and usually referred to as the corner post.

Among the objects of the present invention is to provide a novel cooling tower structure, or the like, and also a novel arrangement of louver members or elements, and the like.

Another object is to provide a novel corner structure, or corner post so called, or the like.

A further object is to provide a novel arrangement of the louver members.

Still a further object is to provide easily placeable and replaceable, and also easily detachable, guards or the like at the corner for the louver members.

Other objects, advantages, capabilities, features, and like are comprehended by the invention, as will later appear, and as are inherently possessed by the invention.

Referring briefly to the drawing:

Fig. 1 is a view in elevation of a cooling tower means embodying the invention;

Fig. 2 is a view in a vertical plane 2—2 shown in Fig. 1 of the drawings;

Fig. 3 is a top plan view of the device;

Fig. 4 is a horizontal sectional view as taken in a plane represented by line 4—4 in Fig. 2 of the drawings;

Fig. 5 is a horizontal sectional view as taken in a plane represented by line 5—5 in Fig. 2 of the drawings; and

Fig. 6 is a fragmentary sectional view of an enlarged scale and as taken in plane 4—4 as shown in Fig. 2 of the drawings.

Referring more in detail to the drawings, the embodiment chosen to illustrate the invention is shown as comprising a basal member or floor **10** having side walls or the like **11**, **12**, **13**, and **14**, which side walls form a pool or pond, or the like, **15**.

The side wall **12** has one or more openings **16** leading from a low level of the chamber **15** to a float chamber **17** having a bottom **18** and side walls **19**, **20**, **21**, the wall **12** of the chamber **15** forming a fourth wall of the chamber **17**.

The base or floor **10** has side extensions or flanges **22**, **23**, having openings **24**, **25**, for passage of suitable fastening elements.

To a wall of the chamber **17**, such as the side wall **20**, is suitably fastened a bracket or other fixture **26** for supporting a float operated valve **27** operable by a float **28** in the chamber **17**.

At the opposite side of the chamber **15** is a baffle plate or wall member **29** having end walls **30**, **31**, near the wall **14**, and the wall **14** has a pipe connection **32** in communication with the chamber in the baffle **29** by a suitable opening **33** in the wall **14**.

At the corners of the chamber **15** are post members **35**, **36**, **37**, **38**, of angular form, each having (see Fig. 6 in particular) side walls **39**, **40**, with toe parts **41**, **42**, secured, as by suitable securing members **43**, **44**, for

holding the post **37**, and similar posts **35**, **36**, **38**, firmly in place, as the lower end portion or portions thereof, to the side wall or walls **13** and **14**, and **11** and **12**, and **12** and **13**, and **14** and **11**, respectively, so that the posts **37**, **38**, **35**, **36**, will extend up in firm position, as shown in particular in Figs. 1 and 2, and in upright position.

At the top or upper end portions of these post members **35**, **36**, **37**, **38** are provided upwardly extending portions to which are connected connecting members **45**, **46**, **47**, **48**, so that the connecting members connect the post members as follows, **45** to **35** and **36**, **46** to **36** and **37**, **47** to **37** and **38**, **48** to **38** and **35**. These connecting members may be of angular form (see Fig. 1), parts **46**, **48**, and Fig. 2, parts **45**, **47**, so that the upper part or flange thereof will overlie or seat upon the upper ends of the posts **35**, **36**, **37**, **38**, and the lower part or flange will be against the outer flanged parts or toe parts, see **41**, **42** in Fig. 6, and secured thereto by suitable means, as rivets or the like **56**, **57**, see Fig. 1.

On the top, as on the cross bars **45**, **47**, is a water supply pipe **49** having spray heads or the like **51**, **52**, **53**, **54**, **55** (see Figs. 1, 2, 3) for the spraying of cooling water into the tower, or pond, or the like.

The side walls of the posts **35**, **36**, **37**, **38** (see side walls in Fig. 6) are provided with inclined slots or openings (see Fig. 4), **59**, **60**, **61**, **62**, **63**, **64**, **65**, **66**, in the post walls such as in the walls **39**, **40** (see Fig. 6) as follows (see Fig. 4): slots **59** in post **35**; slots **60** in post **36**; slots **61** in post **36**; slots **62** in wall **39** of post **37**; slots **63** in wall **40** of post **37**; slots **64** in post **38**; slots **65** in post **38**; and slot **66** in post **35**.

In these slots extend end portions of louver strips, or bars, or the like, **67**, **68**, **69**, **70** (see Fig. 4) such that the head end portion of a set of bars will be disposed behind the last end portion of a next set of bars, so normally the bars sort are mutually interlocking, or the like, when guard walls are attached as later described.

At each corner post is provided a shield or guard wall member **71**, **72**, **73**, **74** (see **73** in Fig. 6). Each one of these (see Fig. 6 in particular and by way of example) comprises walls **75**, **76**, at right angles to each other, and at the free edges of which are flanges or toes **77**, **78**, adapted to overlie or spring over the edges of flange or toe portions **41**, **42** (see Fig. 6) so as to be held in place, and, hence, to be opposite the head end or portion of a set of bars, such as bars **68** (see Fig. 4), that is, the part **76** of the guard is opposite the head portion of the bars **68** (see also Fig. 6), while the tail end portions of the bars **69** are guarded by the head end portion of the bar **68**, as clearly shown in Fig. 6. Thus, they all have the same or like relationship. When it is desired to remove or replace any of the bars **67**, **68**, **69**, **70**, the guards **71**, **72**, **73**, **74**, are removed by springing out of place (see Fig. 6) to expose the ends thereof and affording freedom of removal.

The guards **71**, **72**, **73**, **74**, as shown are with the lower ends resting on the top or top edge of the walls **11**, **12**, **13**, **14**, of the pond **15**, and the upper ends being lower than the top bar members **45**, **46**, **47**, **48**. Hence, the guards may be put in place and removed without any removal of fastening means, such as bolts or the like.

In operation the spray head **50—55** sprays a liquid, as water, downward in the tower and within the sets of the enclosed louvre bars **67**, **68**, **69**, **70**, so as to deflect the spray liquid with the chamber enclosed by them. The liquid collects in the pond space and its level operates the float **28** to control the outlet of the liquid at the **32** in a known manner.

When it is desired to remove the louver for any reason, it is simple to remove a guard wall **71**, or **72**, or **73**, or **74**, so as to have access to the ends of louver members or bars **67**, or **68**, or **69**, or **70**, whereby they may be

withdrawn, as for example, looking at Fig. 4, after removal of the guard 73 the louver bars 68 may be withdrawn, and conversely, put in place, the louver bars 67 acting as limit stops, and similarly when guard 74 is removed, likewise as to bars 69, and when guard 71 is removed likewise as to the bars 67; and similarly when guard 72 is removed likewise as to the bars 67. It is a simple matter to move the bars in or out, the overlapping ends or heads of a set of bars, such as bars 67 (see Fig. 4) acting to back, so to speak, the ends or toes of the bars 68, and when replacing the guard 73 in place, sort of snapping it in place, it guards the head ends of the bars 68. Likewise for all the guards.

While I have herein described and upon the drawings shown an illustrative embodiment of the invention, it is to be understood that the invention is not limited thereto but comprehends other constructions, arrangements of parts, details, features, and the like without departing from the spirit of the invention.

Having thus disclosed the invention, I claim:

1. A cooling tower structure comprising a tank, a corner post projecting upwardly from the interior of said tank having an upright wall provided with completely defined louver bar openings for the reception of end portions of louver bar members, louver bar members positioned in said openings and extending completely through said post, and guard means detachably mounted on said post for guarding said louver bar members in place, said post and guard means defining a vertical passage receiving said end portions and leading downwardly to said tank, said guard means having a wall portion located opposite the extending portion of said louver bar members for guarding the same in place, said guard means having a toe-like portion for engaging said post to hold said wall portion in place opposite the extending portion of said bar members.

2. A cooling tower structure as set forth in claim 1, wherein said wall portion of said guard means has a resilient portion for yielding to permit movement of said toe-like portion for engagement and disengagement thereof with and from said post.

3. A cooling tower structure comprising a tank, a corner post projecting upwardly from the interior of said tank having upright walls arranged at an angle to each other, said walls being provided with completely defined louver bar openings for the reception of end portions of louver bar members, louver bar members positioned in said openings and extending completely through said upright walls, guard means for guarding said louver bar members in place, said post and guard means defining a vertical passage receiving said end portions and leading downwardly to said tank, said guard means having wall portions arranged at an angle to each other and located spacedly from the angularly arranged upright walls of said corner post, said wall portions having toe-like portions engaging said upright walls of said corner post, one of said wall portions being located opposite an end portion of certain of said louver bar members which extend through the openings in one of said upright walls of said corner post.

4. A cooling tower structure as set forth in claim 3, wherein said upright walls of said corner post have laterally extending portions, and the toe-like portions of said guard means being arranged to engage said laterally extending portions of said corner post.

5. A cooling tower structure comprising spaced corner posts each of which has upright walls provided with louver bar openings for the reception of end portions of louver bar members, louver bar members extending between adjacent spaced corner posts with the end portions thereof positioned in said openings and extending completely through said posts, and guard means on said posts forming an abutment and closure for the end portions of said louver bar members, the upright walls of each corner post being arranged at an angle to each other, the louver bar members having head end potions and tail end portions, said guard means having wall portions arranged at an angle to each other with said latter wall portions arranged in spaced relation with respect to the angularly arranged walls of the corner posts, the head end portion of a predetermined louver bar member which extends through the corner post being in abutting relationship to the lateral side of a tail end portion of an adjacent louver bar member which extends through the adjacent wall of the same post.

6. A cooling tower structure as set forth in claim 5, wherein said wall portions of said guard means have toe-like portions for engaging said upright walls of said corner posts.

7. A cooling tower structure of polygonal transverse section including horizontally spaced vertically extending corner posts having angularly joined walls, said walls being provided with horizontally aligned louver bar openings for the reception of end portions of louver bar members, louver bar members extending between adjajacent corner posts with the end portions thereof threaded through said openings and extending completely through said post walls, said louver bar members having head end portions and tail end portions, the head end portions of predetermined louver bar members extending through predetermined walls of predetermined posts in end abutting relationship to the lateral sides of tail end portions of predetermined louver bars extending through adjacent angularly joined walls of said predetermined posts, and removable guard means on said posts forming a closure and abutment for the end portions of said louver bar members.

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