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COOLING TOWER SCREEN AND BRACKETS THEREFOR

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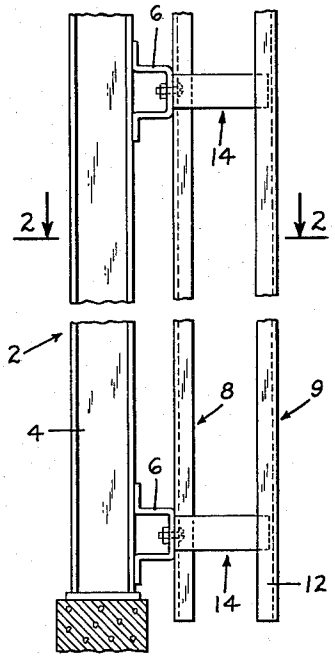


FIG. 1.

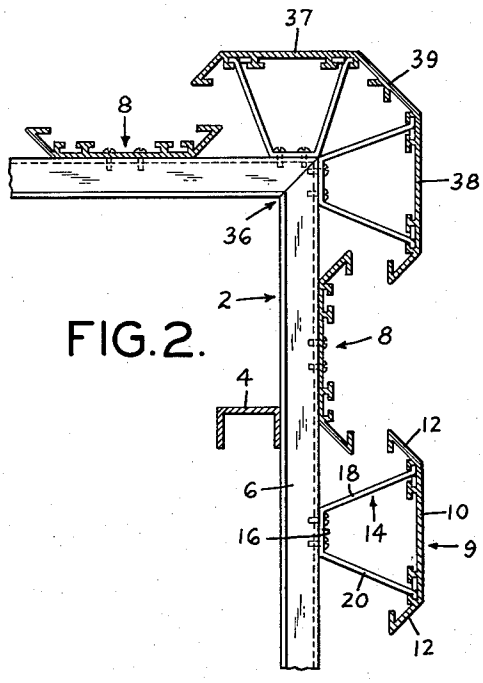


FIG. 2.

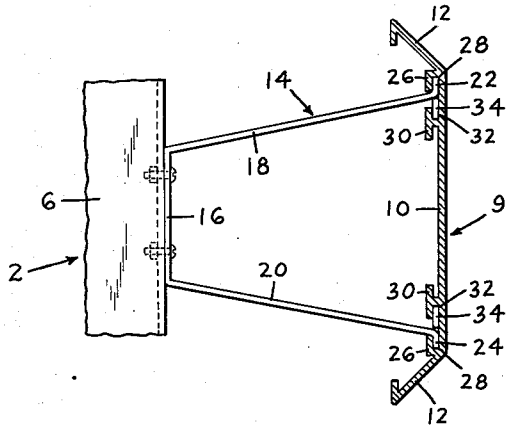


FIG. 3.

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COOLING TOWER SCREEN AND BRACKETS THEREFOR

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This invention relates to screens for protecting and shading cooling towers and the like, and more particularly to a novel supporting structure by means of which the blades or panels of the screen are attached to a tower framework.

Cooling tower screens are well known and are made in a wide variety of shapes and sizes depending on the size and shape of the cooling tower. Inasmuch as the towers and the screens therefore may differ considerably, each of the screens must be separately designed, fabricated and assembled prior to installation. Such operations amount to custom-building of the screens and are correspondingly expensive and time-consuming.

In accordance with the present invention, I have provided a screen utilizing a plurality of essentially identical slats or blades adapted to be positioned in a parallel but spaced-apart relationship on the surface of an area to be covered. The blades are alternately positioned adjacent and spaced from a supporting framework in a manner such that they substantially cover the entire surface area as viewed from a direction approximately perpendicular to the surface, and yet so spaced from each other to permit the flow of air therethrough. Every other blade is bolted or otherwise fastened directly to the framework, the remaining blades being reversed with respect to the blades in the frame and being held spaced from the frame by means of brackets on which the slats may be detachably supported.

The brackets comprise U-shaped elements having bases secured to the supporting frame of the screen and legs extending outwardly for engagement with cooperating flanges on the inside surface of the slats or blades. The brackets and cooperating blade flanges are such that the brackets can be positioned anywhere along the panels. Thus, the blades can be cut to desired lengths and mounted on the frame at the site of use without the need for prior assembly, thereby eliminating a great deal of the fabricating and transportation difficulties encountered with the prior screens.

Other features and advantages of the invention will become apparent upon consideration of the accompanying drawings in which:

FIGURE 1 is a side elevational view of a cooling tower screen embodying the present invention;

FIGURE 2 is a cross sectional view taken along line 2—2 of FIGURE 1; and

FIGURE 3 is a view of a bracket of the screen for supporting a screen blade.

The form of screen chosen for illustration of the invention includes a frame 2 which can be mounted on one or more sides of a cooling tower or the like. The frame may be formed of a plurality of vertically disposed channels 4 or the like which can be fixed to the sides of the tower. The vertical extrusions 4 may be connected by horizontal channels 6 for rigidifying the frame.

A plurality of vertical blades 8 and 9, positioned in a parallel but spaced apart relationship along the frame 2, and specifically on members 6, are alternately mounted directly on the frame and spaced therefrom in the manner described in greater detail hereinafter to permit flow of air through the screen. The blades are all essentially the same in shape and include a central panel 10 and obliquely inclined edge flanges 12. It should also be noted that the blades 8 and 9 are oriented with their edge flanges

12 directed alternately toward and away from the frame 2. The blades 8 mounted directly on the frame have their flanges directed outwardly away from the frame while the spaced blades 9 have their flanges directed toward the frame.

Brackets 14 are provided to hold the blades 9 in the positions spaced relative to the frame 2 to permit a maximum amount of air to pass through the screen to the cooling tower, and still, in the manner shown, to exclude direct sunlight from the tower.

FIGURE 3 illustrates the bracket holding means 14 for the blades 9 the latter having their flanged edges 12 facing toward the frame 2. Each bracket is a substantially U-shaped member having its base 16 mounted on the horizontal channel 6. The base 16 may be made flat as is shown in FIGURE 3, and can be screwed, bolted, or otherwise fastened, to the frame means. On the ends of the upstanding legs 18 and 20 of the bracket are outwardly extending flanges 22 and 24 which are substantially perpendicular to the legs. The blade 9 is provided with spaced apart undercut ribs 26 on the surface between its flanges 12 forming opposing slots 28 which extend longitudinally the full length of the blade. The slots 28 are spaced apart from each other a sufficient distance to permit the bracket flanges 22 and 24 to spring into the slots 28 thereby assuring a strong connection between the bracket and the blade.

Additional longitudinally extending undercut ribs 30 on the blade provide slots 32 opposing the slots 28. Thin metal strips 34 forming wedges may be inserted in each slot 32 behind the outwardly extending flanges 22 and 24 to retain them in their seated position. These wedges may also be L-shaped, having an upstanding portion bearing on the legs 18 and 20 of the brackets, or can be merely flat strips adapted to fit on the bottom of the respective slots and against the legs of the bracket in the manner shown to hold them rigidly in position. The length of the wedges need merely be sufficient to hold the brackets in position, and should be of minimum dimensions to permit it to be easily inserted and wedged into position behind the bracket legs in the respective slots.

As illustrated in FIGURE 2, on the corner areas 36 of the screen, a pair of vertically extending, bracket held blades 37 and 38 may be utilized in edge to edge engagement, or joined by narrow connecting panel 39 integral therewith or secured thereto, without reversed panels 8 to provide a corner covering. The brackets for panels 37 and 38 are similar to the brackets 14 for panels 9.

It will be apparent from the foregoing, that a very simple and highly flexible universal structural unit has been provided as a covering screen. It is quickly and easily assembled and disassembled, and the covering slats are oriented to permit a maximum amount of air to enter and to exclude a maximum amount of direct sunlight. The bracket units and slats can be manufactured in a limited number of sizes and shapes, and can be readily used to provide a great variety of screens of different shapes and sizes. It is also apparent from the foregoing that an extremely useful bracket is provided which can be utilized regardless of the distance between the frame centers, and which will securely hold the blades in a manner in which they can be easily released if desired.

I claim:

1. A cooling tower screen comprising a frame, a bracket mounted on said frame, said bracket having a base, and a pair of springy legs extending outwardly from said base, laterally and outwardly extending flanges at the free ends of said legs, an elongated blade having substantially parallel longitudinally extending rib portions on one side thereof parallel to and spaced inwardly from the longitudinal edges of the blade, said parallel ribs containing grooves facing toward each other, said bracket flanges

being releasably engaged in the grooves to secure said blade to said frame, a detachable wedge for each leg, means on said blade adjacent to said ribs for receiving said detachable wedges and supporting them for engagement with said legs to hold said flanges in said grooves.

2. A cooling tower screen comprising a frame, a bracket mounted on said frame, said bracket having a base, and a pair of springy legs extending outwardly from said base, laterally extending flanges at the free edges of said legs, an elongated blade having longitudinally extending rib portions on one side thereof parallel to the edges of the blade containing opposed spaced apart grooves, said bracket flanges being releasably engaged in the grooves to secure said blade to said frame, a detachable wedging means, said blade having longitudinally extending grooves opposing said first-mentioned grooves into which said wedging means is inserted, the width of the wedging means being sufficient to bear on said legs when both are seated in their respective grooves, to hold said flanges in said grooves.

3. A shade screen assembly as claimed in claim 2, wherein said blades have a substantially flat central panel and flanges diverging outwardly from said panel at the edges thereof and inwardly toward said bracket means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,742,116	Fitzgerald	Apr. 17, 1956
2,755,522	Tate	July 24, 1956