Nov. 22, 1966 A. D. GOETTL 3,287,003

PAD RACK CONSTRUCTION FOR EVAPORATIVE COOLERS

Filed June 18, 1964

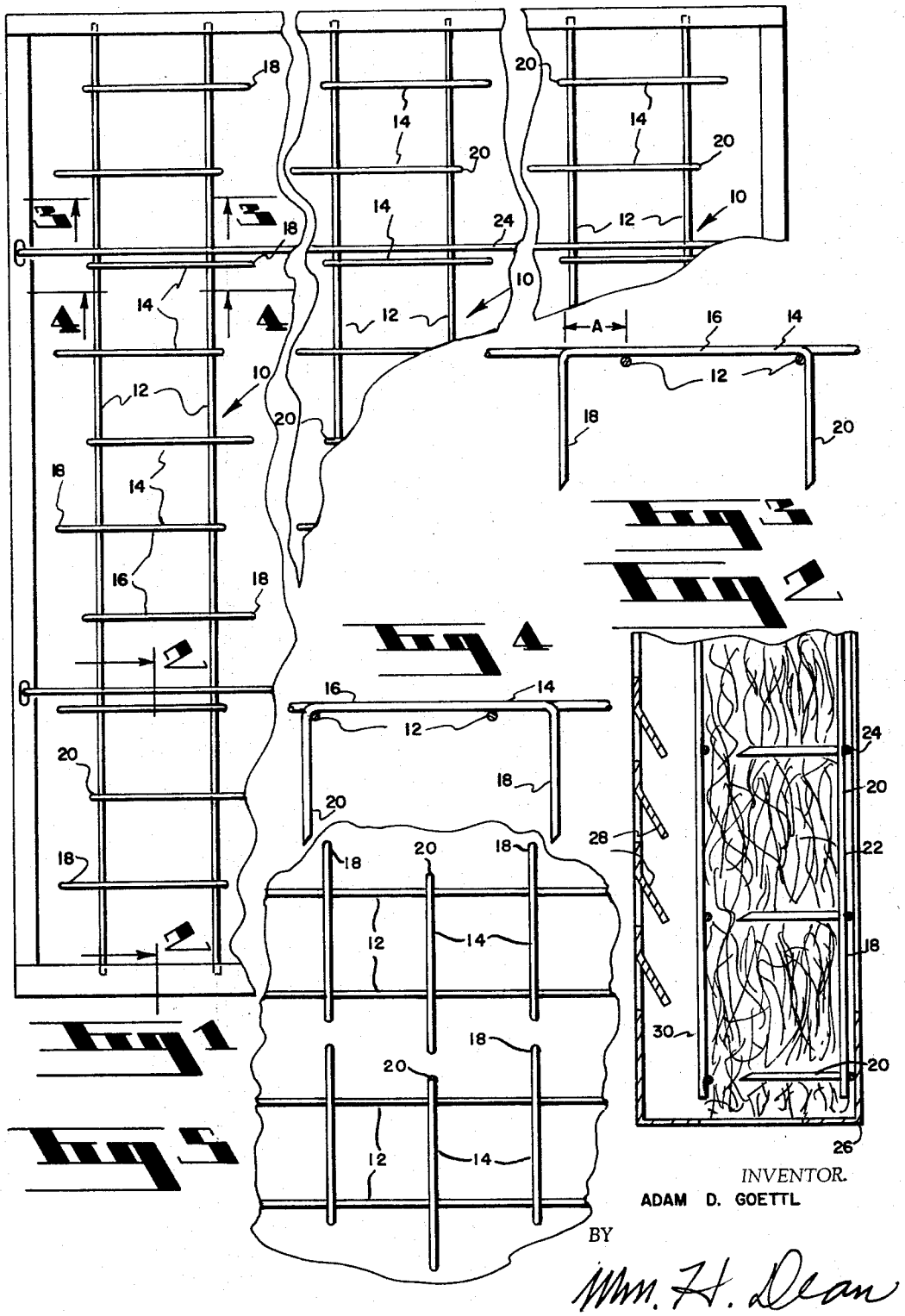

Fig 1

Fig 2

Fig 3

Fig 4

Fig 5

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3,287,003

Patented Nov. 22, 1966

3,287,003

PAD RACK CONSTRUCTION FOR EVAPORATIVE COOLERS

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Filed June 18, 1964, Ser. No. 376,088
6 Claims. (Cl. 261—94)

This invention relates to a pad rack construction for evaporative coolers, and, more particularly, to a pad rack construction for impaling and supporting foraminous evaporative cooler pads, such as, aspen fiber pads or the like.

Operation of evaporative cooler pads through long seasons has always created the problems of properly supporting these pads so that they do not sag or settle into alternate loose and concentrated areas. During operation evaporative cooler pads are laden with moisture and air passes therethrough. These pads are also subject to some vibration induced aerodynamically, and the tendency is for these pads of aspen fibers or other materials to settle when laden with water and when under vibration.

Various racks for supporting the pads under these conditions have been devised, and many of them do not provide uniform support for the foraminous pads, and consequently some areas of the pads settle into concentrated masses while other areas become relatively loose and open.

Accordingly, it is an object of the present invention to provide a pad rack construction for evaporative coolers which uniformly and properly supports foraminous evaporative cooler pads by means of uniformly staggered pad impaling prongs which are of a very novel, economical and rigid construction.

Another object of the invention is to provide a pad rack construction for evaporative coolers which is very simple, economical to produce and which is very efficient in supporting evaporative cooler pads.

Another object of the invention is to provide a novel pad rack construction for evaporative coolers wherein a plurality of sub assemblies of pairs of longitudinal wires are parallel with each other and spaced apart and support cross bars of generally U-shaped configuration each having a pair of legs and wherein the legs are spaced farther apart than the longitudinal bars of the sub assemblies so that the U-shaped cross bars may be staggered with respect to these legs to locate them in various offset staggered positions to uniformly distribute them throughout the area of a pad which is impaled upon these legs.

Another object of the invention is to provide a pad rack construction for evaporative coolers which readily lends itself to mass production by automatic machinery.

Another object of the invention is to provide a novel construction which promotes uniformity in the staggered disposition of prongs for holding an evaporative cooler pad and which also promotes a very strong pad rack with a minimum of material used therein.

Another object of the invention is to provide a pad rack construction which requires a minimum of pad rack prong structures due to even distribution thereof over a required pad area, thereby rendering the construction of the invention very economical to produce as compared to conventional structures.

Further objects and advantages of the invention may be apparent from the following specification, appended claims and accompanying drawings in which:

FIG. 1 is a side elevational view of an evaporative cooler pad rack construction;

FIG. 2 is an enlarged fragmentary sectional view thereof taken from the line 2—2 of FIG. 1;

FIG. 3 is an enlarged fragmentary sectional view taken from the line 3—3 of FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view taken from the line 4—4 of FIG. 1; and

FIG. 5 is a fragmentary view of a modified form of pad rack structures in accordance with the invention.

As shown in FIGS. 1 and 2 of the drawings, the pad rack construction of the invention comprises a plurality of pad rack sub assemblies designated **10**, each assembly **10** having a pair of longitudinal bars **12** and each pair of longitudinal bars **12** carrying a plurality of staggered U-shaped cross bars **14** each having a center or middle section **16** and a pair of legs **18** and **20**. Each leg **20** is closely adjacent one of the longitudinal bars **12**, the other leg **18** being spaced a considerable distance from the remaining longitudinal bar **12** due to the fact that each middle portion **16** of each U-shaped cross bar is longer than a distance between the longitudinal bars **12**. Thus, the legs **18** are alternately staggered and so are the legs **20** in order to provide even distribution of these legs **18** and **20** in a foraminous evaporative cooler pad **22**, as shown in FIG. 2 of the drawings. The sub assemblies **10** are connected by connector bars **24** which are disposed transversely relative to the longitudinal bars **12** and are rigidly connected thereto by welding or otherwise. Further, it will be noted that the U-shaped cross bars **14** are preferably welded to the longitudinal bars **12**.

Reference is made to FIGS. 3 and 4 of the drawings in which a pair of cross bars **14** are shown in connection with a pair of longitudinal bars **12**.

With reference to FIG. 1 of the drawings it will be seen that the cross bars **14**, shown in FIGS. 3 and 4 of the drawings, are adjacent on the longitudinal bars **12**, and that the cross bar **14**, shown in FIG. 3 of the drawings, has its leg portion **18** spaced as indicated at A a considerable distance from one of the bars **12** while the leg portion **20** of the cross bar **14** is closely adjacent the opposite longitudinal bar **12**. As shown in FIG. 4 of the drawings, the U-shaped cross bar **14** is staggered with respect to the cross bar **14**, shown in FIG. 3 of the drawings, in which case the leg **18**, shown in FIG. 4, is spaced from the same bar **12** that the leg **20** is closely adjacent in FIG. 3. Thus, the adjacent cross bars longitudinally of the longitudinal bars **12** are staggered with respect to the leg portions **18** and **20**.

The pad rack construction of the invention, shown in FIG. 2, is held in a conventional frame **26** which is of usual sheet metal construction wherein air flow louvers **28** permit air to move inwardly through a foraminous pad rack **30** and through the evaporative cooler pad **22** and through the rack which consists of the sub assemblies **10** and the connector bars **24**.

Due to the staggered distribution of the legs **18** and **20** of the cross bars **14**, the evaporative cooler pad **22** is uniformly supported and prevented from undue sagging and/or displacement.

As shown in FIG. 1, it will be seen that each leg por-

tion **18** of one assembly **10** is adjacent to a leg portion **20** of an adjacent assembly **10** whereby the legs **18** are staggered with respect to adjacent cross bars on each assembly, and with respect to the corresponding cross bar portions of adjacent sub assemblies **10**.

As shown in FIG. 5, the pad rack sub assemblies **10** may be disposed with their bars **12** horizontally and the assemblies **10** may be varied in spaced relation to each other. Further, the distance between bars **12** and the relative length of each middle section **16** may vary so that relative staggered spacing of the pad holding prongs may be uniformly distributed to best advantage.

It will be obvious to those skilled in the art that various modifications of the present invention may be resorted to in a manner limited only by a just interpretation of the following claims.

I claim:

1. In an evaporative cooler pad rack construction the combination of: a pad rack comprising a plurality of rack sub assemblies; a pair of spaced apart longitudinal bars in each sub assembly; substantially U-shaped cross bars fixed to said longitudinal bars, said cross bars spaced apart longitudinally along said longitudinal bars; each cross bar being U-shaped and thereby having a middle portion and a pair of leg portions; said leg portions being at opposite ends of said middle portion and disposed angularly relative thereto, the length of each middle portion being greater than the distance between the bars in each pair of longitudinal bars; each cross bar having one of its leg portions nearer one of said longitudinal bars than the remaining leg portion of said last mentioned cross member is to the other longitudinal bar of the last mentioned pair of longitudinal bars, each one of said cross bars being staggered with respect to an adjacent cross bar whereby each of said one leg portions is next to one of said remaining leg portions longitudinally along said longitudinal bars.

2. In an evaporative cooler pad rack construction the combination of: a pad rack comprising a plurality of rack sub assemblies; a pair of spaced apart longitudinal bars in each sub assembly; substantially U-shaped cross bars fixed to said longitudinal bars, said cross bars spaced apart longitudinally along said longitudinal bars; each cross bar being U-shaped and thereby having a middle portion and a pair of leg portions; said leg portions being at opposite ends of said middle portion and disposed angularly relative thereto, the length of each middle portion being greater than the distance between the bars in each pair of longitudinal bars; each cross bar having one of its leg portions nearer one of said longitudinal bars than the remaining leg portions of said last mentioned cross member is to the other longitudinal bar of the last mentioned pair of longitudinal bars, each one of said cross bars being staggered with respect to an adjacent cross bar whereby each of said one leg portions is next to one of said remaining leg portions longitudinally along said longitudinal bars; said longitudinal bars of adjacent sub assemblies being in substantially parallel spaced relation to each other and connector bars interconnecting said sub assemblies, said connector bars disposed transversely of said longitudinal bars and fixed thereto.

3. In an evaporative cooler pad rack construction the combination of: a pad rack comprising a plurality of rack sub assemblies; a pair of spaced apart longitudinal bars in each sub assembly; substantially U-shaped cross bars fixed to said longitudinal bars, said cross bars spaced apart longitudinally along said longitudinal bars; each cross bar being U-shaped and thereby having a middle portion and a pair of leg portions; said leg portions being at opposite ends of said middle portion and disposed angularly relative thereto, the length of each middle portion being greater than the distance between the bars in each pair of longitudinal bars; each cross bar having one of its leg portions nearer one of said longitudinal bars than the remaining leg portion of said last mentioned cross member is to the other longitudinal bar of the last mentioned pair of longitudinal bars, each one of said cross bars being staggered with respect to an adjacent cross bar whereby each of said one leg portions is next to one of said remaining leg portions longitudinally along said longitudinal bars; said one leg portion of each cross bar of each sub assembly being adjacent one of said remaining leg portions of a similar cross bar of an adjacent sub assembly.

4. In an evaporative cooler pad rack construction the combination of: a pad rack comprising a plurality of rack sub assemblies; a pair of spaced apart longitudinal bars in each sub assembly; substantially U-shaped cross bars fixed to said longitudinal bars, said cross bars spaced apart longitudinally along said longitudinal bars; each cross bar being U-shaped and thereby having a middle portion and a pair of leg portions; said leg portions being at opposite ends of said middle portion and disposed angularly relative thereto, the length of each middle portion being greater than the distance between the bars in each pair of longitudinal bars; each cross bar having one of its leg portions nearer one of said longitudinal bars than the remaining leg portion of said last mentioned cross member is to the other longitudinal bar of the last mentioned pair of longitudinal bars, each one of said cross bars being staggered with respect to an adjacent cross bar whereby each of said one leg portions is next to one of said remaining leg portions longitudinally along said longitudinal bars; a foraminous evaporative cooler pad impaled on said leg portions of said cross bars.

5. In an evaporative cooler pad rack construction the combination of: a pad rack comprising a plurality of rack sub assemblies; a pair of spaced apart longitudinal bars in each sub assembly; substantially U-shaped cross bars fixed to said longitudinal bars, said cross bars spaced apart longitudinally along said longitudinal bars; each cross bar being U-shaped and thereby having a middle portion and a pair of leg portions; said leg portions being at opposite ends of said middle portion and disposed angularly relative thereto, the length of each middle portion being greater than the distance between the bars in each pair of longitudinal bars; each cross bar having one of its leg portions nearer one of said longitudinal bars than the remaining leg portion of said last mentioned cross member is to the other longitudinal bar of the last mentioned pair of longitudinal bars, each one of said cross bars being staggered with respect to an adjacent cross bar whereby each of said one leg portions is next to one of said remaining leg portions longitudinally along said longitudinal bars; a foraminous evaporative cooler pad impaled on said leg portions of said cross bars; said longitudinal bars of adjacent sub assemblies being in substantially parallel spaced relation to each other; and connector bars interconnecting said sub assemblies, said connector bars disposed tranversely relative to said longitudinal bars and fixed thereto.

6. In an evaporative cooler pad rack construction the combination of: a pad rack comprising a plurality of rack sub assemblies; a pair of spaced apart longitudinal bars in each sub assembly; substantially U-shaped cross bars fixed to said longitudinal bars, said cross bars spaced apart longitudinally along said longitudinal bars; each cross bar being U-shaped and thereby having a middle portion and a pair of leg portions; said leg portions being at opposite ends of said middle portion and disposed angularly relative thereto, the length of each middle portion being greater than the distance between the bars in each pair of longitudinal bars; each cross bar having one of its leg portions nearer one of said longitudinal bars than the remaining leg portion of said last mentioned cross member is to the other longitudinal bar of the last mentioned pair of longitudinal bars, each one of said cross bars being staggered with respect to an adjacent cross bar whereby each of said one leg portions is next

to one of said remaining leg portions longitudinally along said longitudinal bars; a foraminous evaporative cooler pad impaled on said leg portions of said cross bars; said longitudinal bars of adjacent sub assemblies being in substantially parallel spaced relation to each other; and connector bars interconnecting said sub assemblies, said connector bars disposed transversely relative to said longitudinal bars and fixed thereto; said one leg portion of each cross bar of each sub assembly being adjacent one of said remaining leg portions of a similar cross bar of an adjacent sub assembly.

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