United States Patent [19]

Wright

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[54] **CEILING CYCLE RACK**

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[52] **U.S. Cl.** **211/17,** 211/113, 248/339

[51] **Int. Cl.** **B62h 3/12**

[58] **Field of Search** ..... 211/5, 17, 18, 19, 211/20, 21, 22, 117, 118, 176, 115, 116, 64, 113; 248/339, 322, 327, 340, 341, DIG. 3

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[57] **ABSTRACT**

A ceiling cycle rack of an easily portable construction for suspending cycles from ceilings including a plate removably extended from the ceiling by a plurality of hooks or the like, and a pair of J-shaped hangers attached to the plate and laterally adjustable thereon to engage a cycle frame. Fittings are provided to adapt the hanger for suspending girls' cycle frames. Extension means permit adjustment of the vertical height of the cycle. A scale is used to test the weight supporting the capacity of the plate suspension means.

3 Claims, 6 Drawing Figures

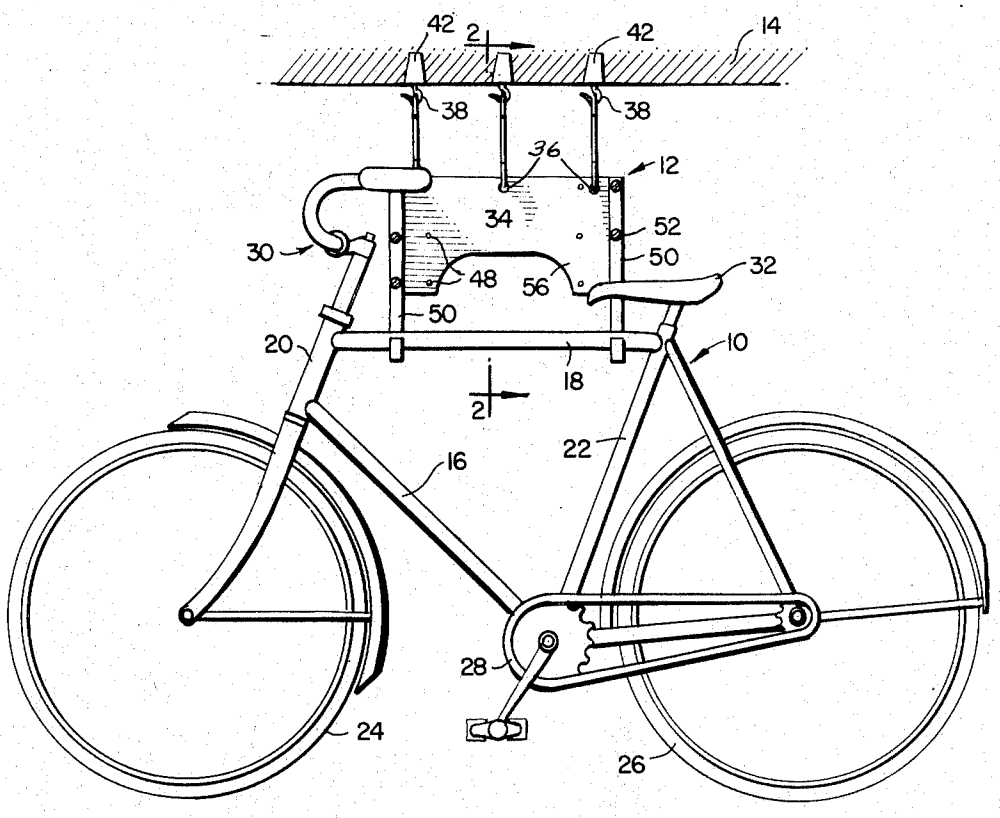


FIG 1.

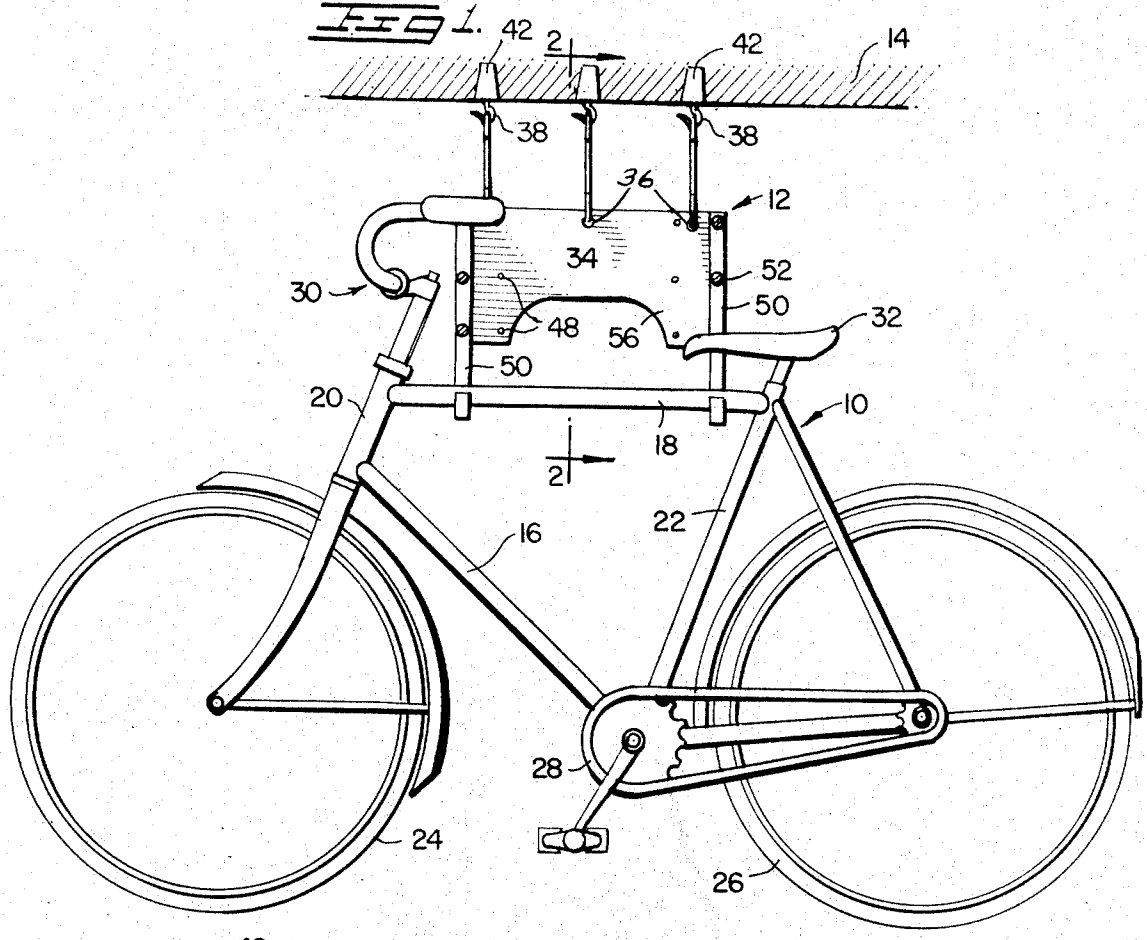


FIG 2.

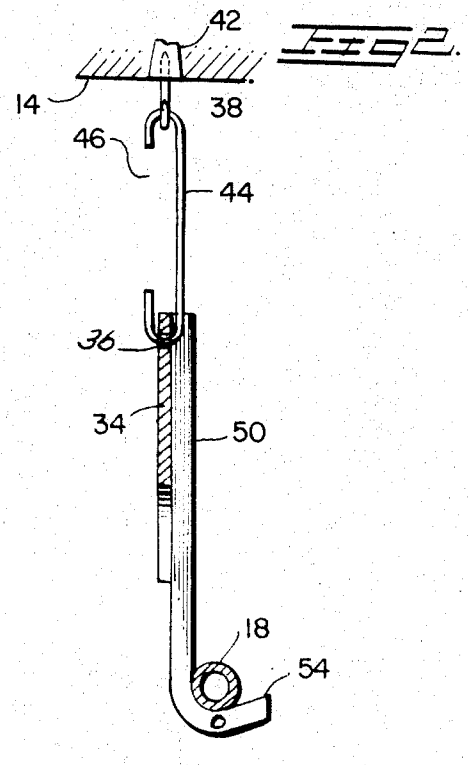


FIG 3.

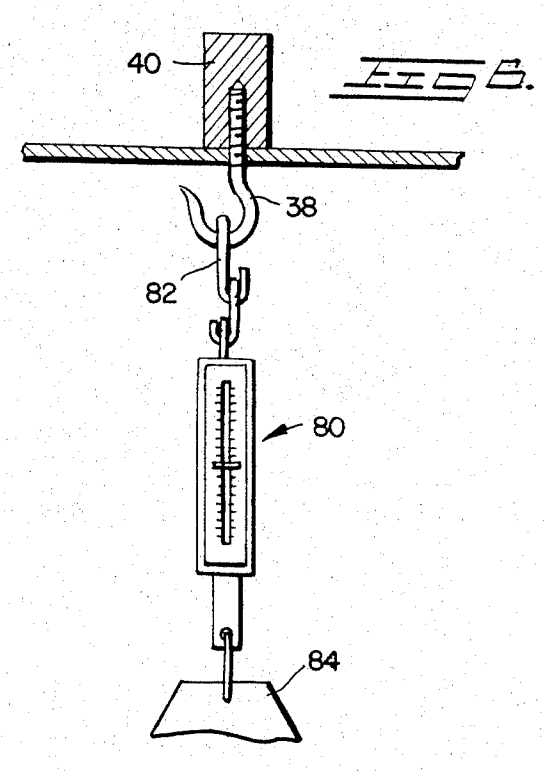


Fig 3.

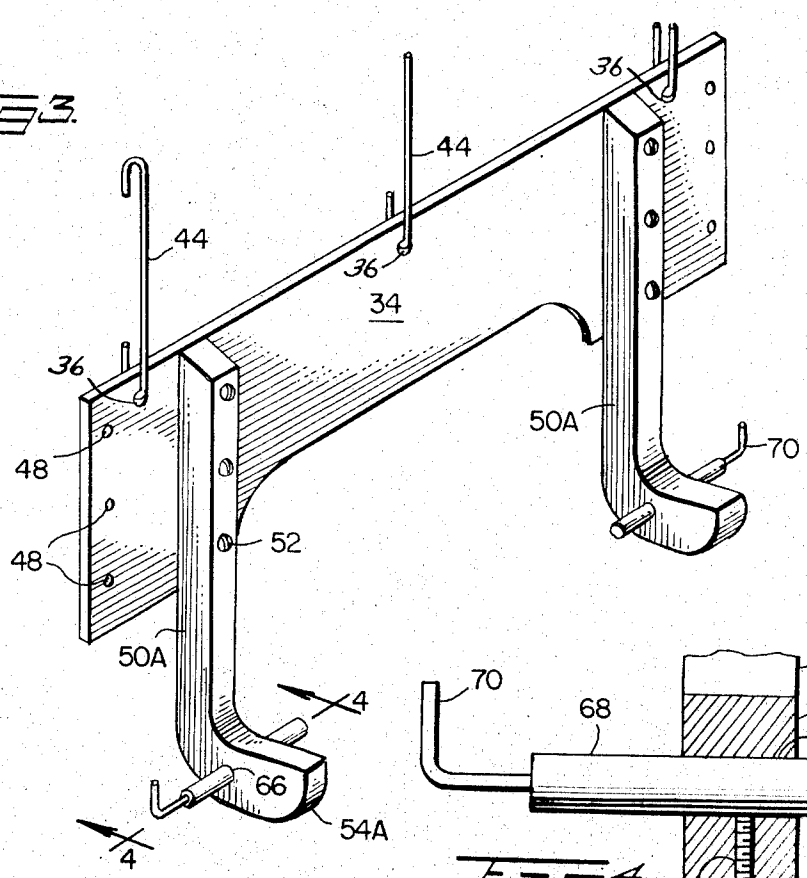
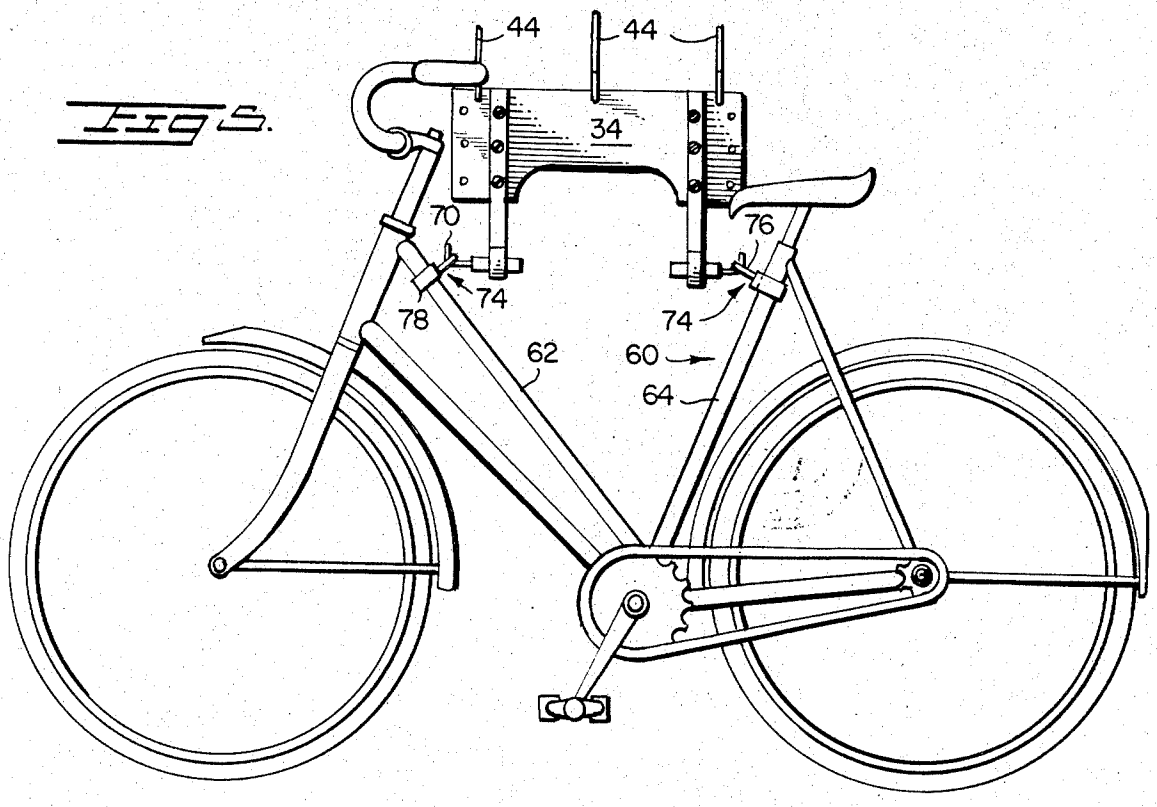


Fig 4

Fig 5.



CEILING CYCLE RACK

BACKGROUND OF THE INVENTION

Heretofore, various structures have been used for suspending bicycles from ceilings, walls and the like. These prior constructions, however, have been in many instances complicated in mounting to supporting structures and cumbersome in removably suspending cycle frames therefrom.

The present invention is for a ceiling cycle rack of an easily portable construction which is simple in design and readily adaptable for different sizes, weights and frame construction.

SUMMARY OF THE INVENTION

The ceiling cycle rack of the invention includes a plate removably suspendable from a ceiling by hooks or the like and of an easily portable construction, whereby it can be moved by a user from one location to another. A pair of J-shaped hangers, which are laterally adjustably attached to the plate, are engageable with the cross bar of a male type cycle frame and fittings are provided to adapt the hanger for suspending female type cycle frames. The vertical height of the cycle suspension can be adjusted. In order to assure sufficient strength to support the weight of the cycle, a scale is used to test the load carrying capacity of the suspension means for the rack.

Additional objects and advantages of the invention will be more readily apparent from a detailed description of embodiments thereof when taken together with the accompanying drawings in which:

FIG. **1** is a side elevational view of the ceiling cycle rack suspended from a conventional ceiling and mounting a male type bicycle;

FIG. **2** is an enlarged, fragmentary sectional view taken along line **2—2** of FIG. **1**;

FIG. **3** is a fragmentary perspective view of a cycle rack for supporting a female type bicycle frame;

FIG. **4** is an enlarged, fragmentary sectional view taken along line **4—4** of FIG. **3** showing adjustability and securement means for a hanger adapter;

FIG. **5** is a side elevational view of a female type bicycle supported on the hanger construction of FIGS. **3** and **4**; and

FIG. **6** is a detailed elevational view of testing means and procedure for weight carrying capacity of ceiling suspension hooks for the cycle rack.

Referring now in more detail to the drawings, in FIG. **1** a male type bicycle generally designated **10** is shown suspended from a ceiling cycle rack generally designated **12** which is suspended from a ceiling **14.** The bicycle includes, as a normal construction, a frame **16** including crossbar **18,** front post **20,** rear frame **22,** front wheel **24,** rear wheel **26,** pedal drive **28,** handlebar **30** and seat **32.** The cycle construction as shown is of a usual type.

The cycle rack **12** includes a flat plate **34** which can be of different materials, such as suitable plastics, metal, wood and the like, and of appropriate dimensions for the desired use. The plate **34** is provided with a plurality of holes **36** proximate the top edge thereof and preferably, as shown, at least three longitudinally spaced holes adapted for suspending the plate from the ceiling. Various means can be used to suspend the plate. In the embodiment of FIG. **1,** screw hooks **38** are used and can be directly engaged in the material of the

ceiling, such as a rafter or stringer or the like, as shown, for example, at **40** in FIG. **6.** It is also contemplated that wood or other metallic or plastic expanding dowels **42** can be inserted in appropriate holes drilled in the ceiling structure.

The dowels can be of a usual type having bores therethrough adapted for receiving the threaded portion of the hooks. Suspension hangers, as shown in detail in FIG. **2** and indicated at **44,** interengage the hooks **38** and the plate **34** with a portion thereof passing through holes **36.** As shown in FIG. **2,** the hangers **44** are preferably of an open construction indicated at **46** to facilitate engagement and mounting of the plate from the hooks and, additionally, can be used as extension hangers by interengaging a plurality of the hangers. It is also contemplated, of course, that the plate **34** can be directly suspended from the hooks **38.** The construction obviously provides for easy vertical adjustment of the plate.

The plate configuration as shown in FIG. **1** includes a plurality of vertical rows of attaching openings **48** to which are attached J-shaped hooks or hangers **50** by means of nuts and bolts **52.** The plural rows which are laterally spaced permit attachment of the members **50** in different positions for adaptability to different cycle frame sizes. When mounted as shown in FIG. **1,** the hook portion **54** of the hangers engages under crossbar **18** of the cycle frame.

The plate **34** can, of course, have different dimensions and configurations. As shown, it includes two end portions in the nature of depending legs **56** at opposite ends of a central cutout portion **58** which provides for lightness and ease of manipulation.

FIGS. **3, 4** and **5** show a modification adapted for suspending a cycle frame **60** which is of a female type which omits the top crossbar in a known manner. This frame includes front **62** and rear **64** V-bars. The J-shaped hangers **50A** have lateral openings **66** extending through the hook portions **54A** in which are adjustably slidably mounted dowel pins **68** mounting suspension hooks **70.** A bolt **72** permits securement of the position of the dowel **68** in the opening **66** to provide flexibility of sizing of the suspension means.

A combination hose clamp/eye bolt **74** is adapted for removable and adjustable mounting on the V-bars **62** and **64** as shown in FIG. **5** and can be easily located at the installation phase and attached by most bikesters. The eyes **76** engage over hooks **70** and the hose clamp or the like of a known type **78** attach the eyes to the bars.

It is extremely important that each suspension hook be tested for weight carrying capacity prior to hanging the cycle. To this end, a scale **80** of a vertical suspension type is suspended by means of a hanger **82** on hook **38** and appropriate weights **84** suspended from the scale can be used to measure the weight carrying capacity of a hook **38.** If, for example, a cycle weighs about 50 pounds, then each ceiling hook would be tested to 30 pounds of weight with the scale **80.** The hook can be tested to indicate, for example, a region of 100 pounds yield to 140 pounds failure. Therefore, the 90 pounds total, or three times 30 pounds considering the three hooks, approaches at least twice the weight of the cycle. It can thus be assured that the possibility of breakage or detachment of the rack is avoided. By the same token, the materials and dimensions of the

various other components is varied to insure safety in operation.

While screw hooks and dowels are shown in the drawings, it is contemplated that butterfly bolts or the like can be used as suspension means for the rack.

Manifestly, minor changes in the details of construction can be effected without departing from the spirit and scope of the invention as defined in and limited solely by the appended claims.

I claim:

1. A ceiling cycle rack comprising:

A. a plate member having a plurality of sets of vertically disposed holes in longitudinally spaced relationship and suspension openings proximate an upper end thereof;

B. suspension means for suspending said plate member from a celing, including:

i. double hook ended members, one end being engageable in said suspension openings and the opposite end being engageable with a ceiling mounted hook;

C. cycle support members attached to said plate adapted for removably supportedly engaging portions of a cycle frame;

D. said cycle support members comprising J-shaped hook members attachable to said plate at selected ones of said sets of holes with the legs thereof depending downwardly from said plate and adapted for engaging under a cycle top bar portion of a cycle frame; and

E. said cycle support members being adjustably mountable by attachment to said sets of holes for spaced adjustment of said J-shaped members to selectively accommodate supporting engagement with portions of cycle frames.

2. A ceiling cycle rack comprising:

A. a plate member having a plurality of sets of vertically disposed holes in longitudinally spaced relationship and suspension openings proximate an upper end thereof;

B. suspension means engageable in said suspension openings for suspending said plate member from a ceiling;

C. cycle support members attached to said plate adapted for removably supportedly engaging portions of a cycle frame;

D. said cycle support members comprising J-shaped hook members attachable to said plate at selected ones of said sets of holes with the legs thereof depending downwardly from said plate feet on the lower end of said J-shaped members, said feet of said J-shaped members having transverse openings therethrough, dowels inserted in said openings, hook members attached to ends of said dowels and extending therefrom, and bicycle frame engaging clamps removably attached to said hooks and adapted for engagement with V-bars of a cycle frame for suspendedly mounting a female type bicycle.

3. A ceiling cycle rack as claimed in claim **2,** wherein said dowels are slidably adjustable in said openings and means for fixedly securing said dowels in adjusted positions in said openings for adjustment of the cycle support members.

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