

[54] EXERCISE STAND FOR BICYCLES

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[22] Filed: **May 1, 1972**

[21] Appl. No.: **249,415**

[52] U.S. Cl. **272/73, 211/22**

[51] Int. Cl. **A63b 69/16, A63b 23/04, A63b 21/00**

[58] Field of Search..... **272/73, DIG. 3; 211/22**

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[57] ABSTRACT

An exercise stand adjustable to accommodate standard size bicycles and pedalling in a stationary position. The base is T-shaped and has a U-shaped bracket with opposed upright arms seated on the leg of the base. Attached to the bracket are fore and aft angled braces supporting the arms. Vertical plates for rear axle support are anchored to and extend upwardly of the arms and carry at their lower ends turnbuckle-operated hook devices to releasably engage rear fork tube frame members of a bicycle and thereby clamp the wheel of the bicycle in an elevated position. The plates can be mounted at selected elevations for different size bicycles. Mounted adjacent the rear of the leg of the base is a lever carrying a tire presser roll to adjust resistance to pedalling.

1 Claim, 4 Drawing Figures

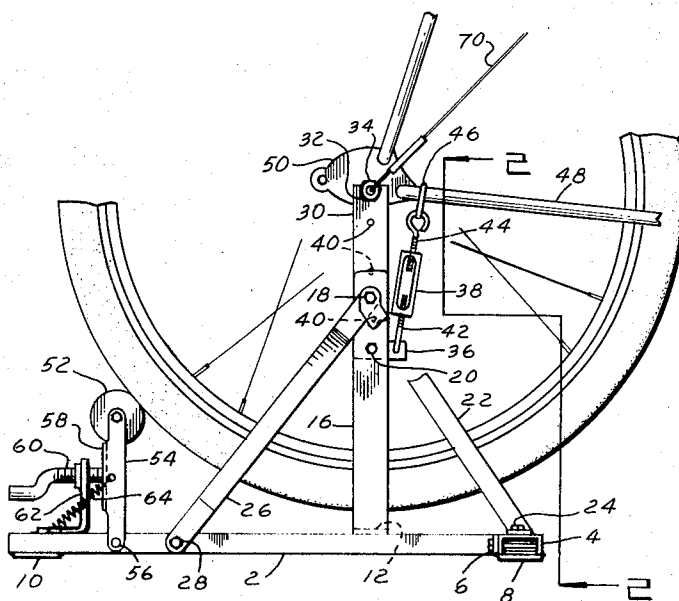


Fig. 1.

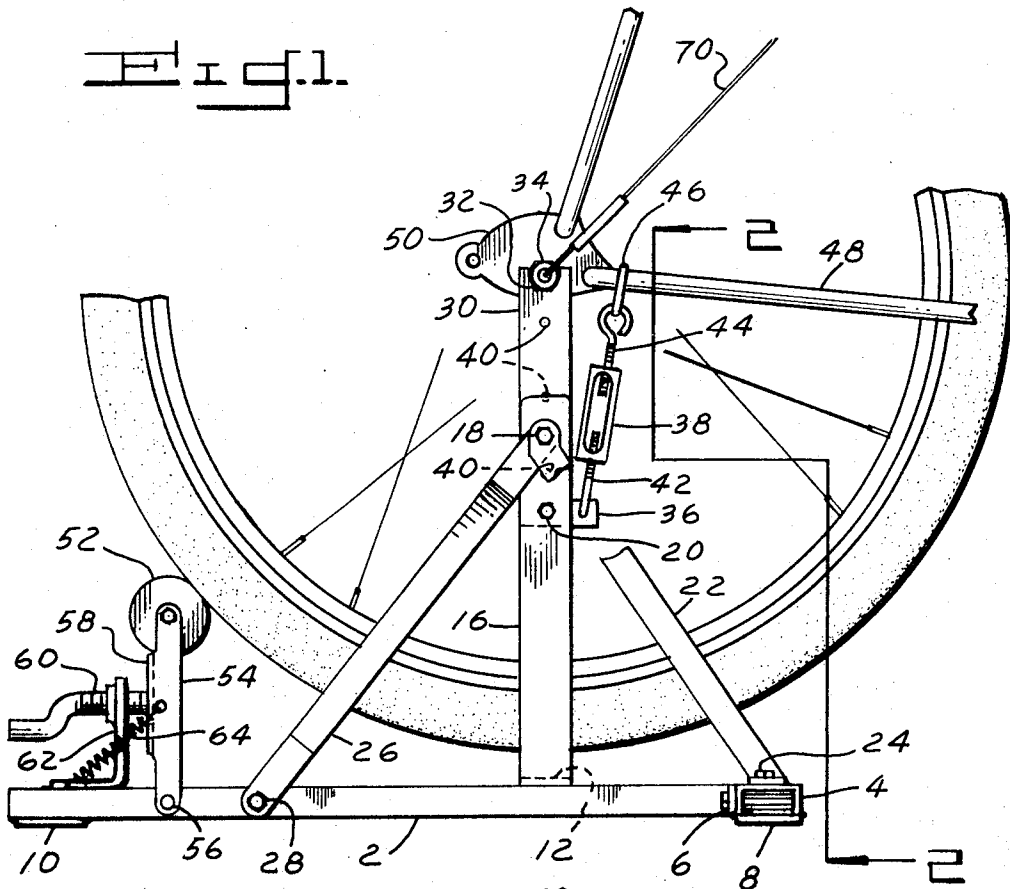


Fig. 2.

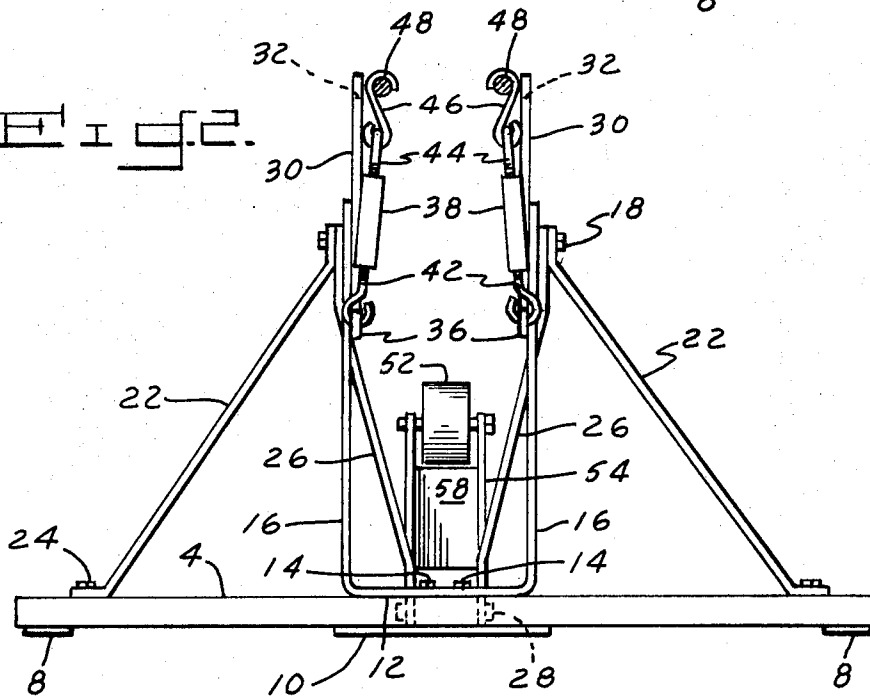


Fig. 3.

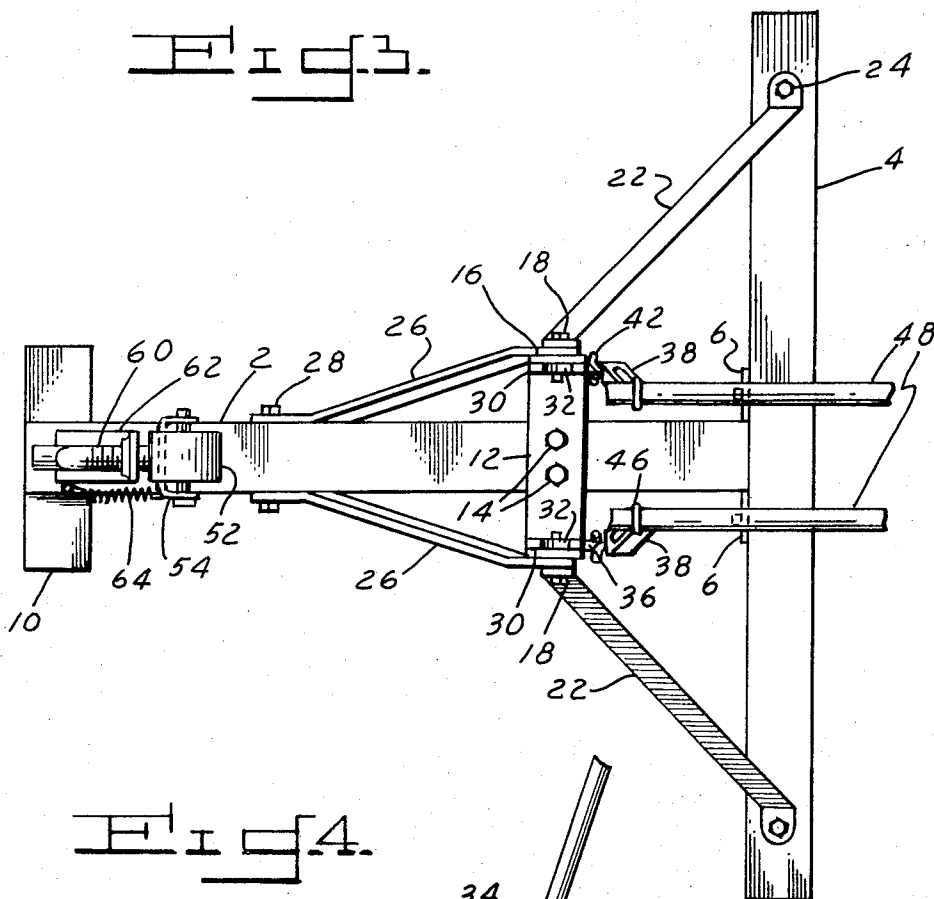
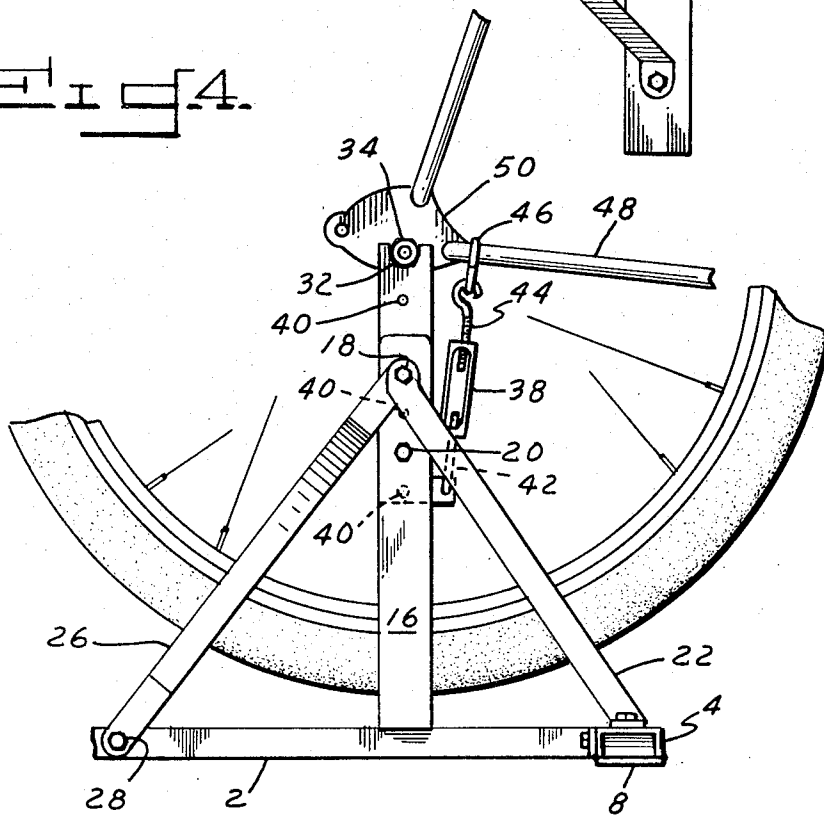


Fig. 4.



EXERCISE STAND FOR BICYCLES

BACKGROUND

This invention relates to an exercise stand for bicycles and to a particular construction thereof enabling use in connection with standard 20, 24 and 26 inches size bicycles of various frame designs.

Such stands for mounting the rear wheel of bicycles in an elevated position and for pedalling in a stationary attitude for exercise purposes are well known in the art and constructions of various types, adjustable and non-adjustable, have been proposed. However, insofar as is known such prior devices have been deficient in one respect or another. Some are of a relatively elaborate and cumbersome nature, being difficult to assemble and/or awkward to use. Many others lack versatility in being adapted for use with one or two models or bicycle frame styles only, and not usable for the wide range of bicycle frame designs as are now sold on the market.

Accordingly, it is an object of the present invention to provide a simple compact structure capable of erection without special tools and operable to support standard models of most if not all of the bicycles commercially available at the present time.

More specifically, the invention also includes provision for a stand having parts which can be packed in knock-down condition for shipment in a relatively compact package, and as above noted, parts which can be erected by a user with a wrench and/or pliers only, no special tools being required. Provision is also made for initial erection, or a later re-adjustment, to accommodate any of the three standard size bicycles. Once set up it is available for mounting or detaching a bicycle quickly without the use of any tools. The stand will also accommodate the vast majority of commercial models having single, or triple-speed gear drives. A truss construction is provided with a basic three-point stance insuring stability in operation and requiring a minimum of floor space when idle or when placed in storage. In addition, a unique axle and frame clamping support means enables the mounting of different size bicycles thereon without need for any significant adjustment once the vertical elevation has been changed. Thus many of the limitations characteristic of prior stands are overcome by the present invention.

SUMMARY OF THE INVENTION

The exercise stand of the present invention contemplates a T-shaped base having a triangular three-point floor contact and on the leg of which a U-shaped bracket is supported in spaced relation to the cross member. The arms of the bracket are supported by forwardly extending outwardly-angled braces connected to the outer ends of the cross member and by rearwardly extending, inwardly-angled braces connected to the sides of the leg. Bolted to the upper ends of the upstanding arms of the brackets and with means for extending therefrom at one of three selected elevations for standard size wheels are a pair of plate extensions notched at the top to seat the rear axle of a bicycle wheel in slightly raised condition and carrying clamping linkages to engage the frame. Rearwardly on the leg of the base is a lever having a roller for pressing against the tire of a wheel and provide the desired resistance to pedalling.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of an exercise stand according to the present invention, showing portions of a bicycle rear wheel and frame held in clamped relation thereon;

FIG. 2 is a view on line 2—2 of FIG. 1 with the wheel omitted;

FIG. 3 is a top plan view of the stand of FIGS. 1 and 2; and

FIG. 4 is a view similar to FIG. 1, the stand being adjusted to support the rear wheel of a smaller standard size.

DESCRIPTION OF A PREFERRED EMBODIMENT

In the drawings the stand is shown as having a T-shaped base comprising a rearwardly directed leg 2 and a front cross member 4. Members 2 and 4 may conveniently be formed from suitable lengths of channel iron. The fore-end of the leg is rigidly attached to the cross member as by flanged ears 6 provided by extending portions of the leg side walls which are bolted to the rear side wall of the cross member. Preferably, cross member 4 has at each end small plates or foot pieces as at 8 suitably fixed as by welding to the bottom edges thereof. At the outer end of the leg a short cross piece or rear foot plate 10 is fixed as by welding across the edges of the channel underside. The foot pieces 8 and 10 provide a three-point stance for the base and provide a stabilized support although a floor surface may be uneven. The foot pieces may also be provided with facing strips of rubber or plastic sheet material.

The leg of the base is typically about 18 to 20 inches in length, the front cross member about 24 inches. On the leg and spaced about 5 to 6 inches from the cross member is a connecting portion 12 of a U-shaped bracket, bolted to the leg as shown at 14. Spaced upright arms of the bracket at 16 are provided in the upper portions with vertically spaced matched openings in which tie bolts at 18 and 20 are fixed. The upper bolts 18 serve to secure the ends of angled supporting struts or braces for the uprights 16. Forwardly and outwardly angled braces 22 are bolted to the outer ends of the cross member 4 as at 24. Rearwardly and inwardly angled braces 26 are bolted to the opposite sides of the leg channel as at 28.

The tie bolts 18 and 20 are spaced two inches apart and anchor to each arm a plate 30 extending upwardly thereof. Plates 30 are formed with notches 32 in the upper edges to cradle axle nuts 34 at opposite ends of the conventional rear wheel hub assembly of a bicycle. At the lower end of each plate a forwardly extending ear 36 is provided, on which a releasable frame clamping means, operated by turnbuckle 38, is hooked as will be described.

Plates 30 are provided with sets of vertically spaced mounting holes 40 for alternatively erecting the stand to accommodate a 20, 24, or 26 inch bicycle. As in FIG. 1, the first and third holes from the bottom comprise one set of holes fitted over the bolts 18 and 20 to anchor plates 30 in position to receive a 26 inch wheel. As in FIG. 4 a second set comprises the second and fourth holes fitted over bolts 18 and 20 to anchor the plates for a 24 inch wheel. It will be clear that the fourth and fifth or top two holes 40 comprise a third set

engageable on bolts 18 and 20 for receiving a 20 inch bicycle.

Referring particularly to FIG. 2 the clamping linkages or plates 30 are shown as including a lower screw link 42 hooked in an opening of ear 36, the turnbuckle 38, an upper oppositely threaded screw link 44, and an S-hook 46 hooked to link 44. The outer ends of the S-hooks are adapted to engage the rear fork tubes 48 of a bicycle frame forwardly of the rear axle assembly, e.g. forwardly of axle plate 50 as in FIGS. 1 and 4.

It may be noted in considering FIGS. 1 and 4 that when the elevation of plates 30 is adjusted for different size bicycles the lower anchored end of the adjustable turnbuckle clamping linkage is moved vertically to the same extent as the notched portions 32. Accordingly, no extensive adjustment of the clamping linkage itself is required for different bicycle sizes.

As will be apparent to those familiar with conventional types of bicycle frame-work, the horizontal fork tubes of the rear frame in various commercial models are generally in the same positional relationship with respect to the axis of a rear wheel in all three standard sizes. Such dimensional differences as may exist are slight whether an axle frame plate as the plate 50 is used or not. Thus the stand as disclosed will receive any of the three conventional bicycle sizes of almost all bicycle makes without interference and with a minimum amount of adjustment. It may be noted further that plates 30 are oppositely spaced approximately 5 inches apart. With but minor variation this spacing accommodates the axle nuts of the vast majority of rear wheel assemblies. In other words, whether the stand is adjusted in height to support a 26 or 24 inch wheel as in FIGS. 1 and 4 to elevate the rear wheel as shown, or to elevate a 20 inch wheel, only slight adjustment, if any, of the turnbuckle linkages is needed.

As will be apparent a bicycle is mounted on the stand by lifting the rear wheel and simply dropping the axle nuts into place in notches 32, the S-hooks of the turnbuckle units being then slipped over the rear fork tube members and then tightened for a secure clamped condition.

To adjust pedal pressure for exercise purposes a pressure roll 52 is provided at the end of an upstanding lever 54 pivoted as at 56 on the outer end of leg 2. As shown a central web 58 between the legs of the lever 54 is engaged by the tip of an adjusting screw 60 threaded in the top of an L-shaped holder 62 bolted onto the leg. Spring 64 urges the lever rearwardly against the screw 60 which may be turned by its outer crank handle end to press the roll against a tire and adjust the degree of resistance to pedal pressure. Roll 52 is preferably of steel and rotating on ball bearings (not shown) so as to minimize tire wear. It will be apparent from the relative position in FIG. 1 that the lever may be advanced to the right as required for engaging a tire of a 24 or a 20 inch wheel mounted on the stand.

It will further be noted that, in resting the nuts of the

rear wheel axle in the supporting notches 32 and providing the clamping linkage shown, the stand will easily accommodate bicycles having gear assemblies for three-speed operation, the conventional actuator element thereof being extended from the axle stem as is diagrammatically indicated in FIG. 1 by the Bowden wire at 70.

As will be appreciated from the above the various parts of the stand frame work are all held together by nuts and bolts and thus can be shipped disassembled in a flat compact package. Initial erection will be seen as a relatively simple operation and without special tools. The mounting of any one of a wide variety of bicycles of different specific overall frame design may be quickly accomplished without tools. The clamping arrangement provides a sturdy, effective and versatile mechanism characterized by extreme simplicity.

What is claimed is:

1. A bicycle exercise stand comprising

a T-shaped base, the leg thereof extending rearwardly of the cross member and at the outer end provided with a short underlying cross-piece, the outer ends of the cross member having underlying foot pieces and together with said rear cross-piece providing a triangular three-point floor stance,

a U-shaped bracket mounted on said leg in spaced relation to the cross member and forwardly of the central portion of the leg, said bracket providing laterally opposed upright arms having forwardly and outwardly angled braces connecting the upper end of each arm with the adjacent end of said cross member and rearwardly and inwardly angled braces between the upper end of each arm and adjacent side of said leg,

the upper portions of said arms having a pair of matching vertically spaced bolt holes, and upright extension plates bolted to the arms, said plates being provided with sets of corresponding vertically spaced bolt holes for selective elevation of said plates and the support of bicycle wheels of different standard diameters in raised condition over said base,

said plates having notched portions in the upper edges thereof to cradle the nuts of a rear wheel axle therein and eared portions extending forwardly from the lower ends of said plates with turnbuckle operated linkage straps pivotally hung on said ears, the outer ends of said straps being provided with hooks releasably engageable over the rear fork tubes of a bicycle frame forwardly of the rear axle support section thereof, and

a presser roll device mounted adjacent the rear end of said leg having an upstanding lever pivoted on said leg, a roll at the outer free end of the lever swingable forwardly into engagement with the tire of a bicycle mounted on the stand, spring means urging said lever rearwardly, and manual adjusting means to advance said lever against said spring.

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