

[54] **BICYCLE CONVERSION STAND**

[76] Inventor: **Frank X. Hangler**, 3117 Connaught Ave., North Vancouver, B. C., Canada

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**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 190,611, Oct. 19, 1971, abandoned.

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

[51] **Int. Cl.**..... **A63b 69/16**

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

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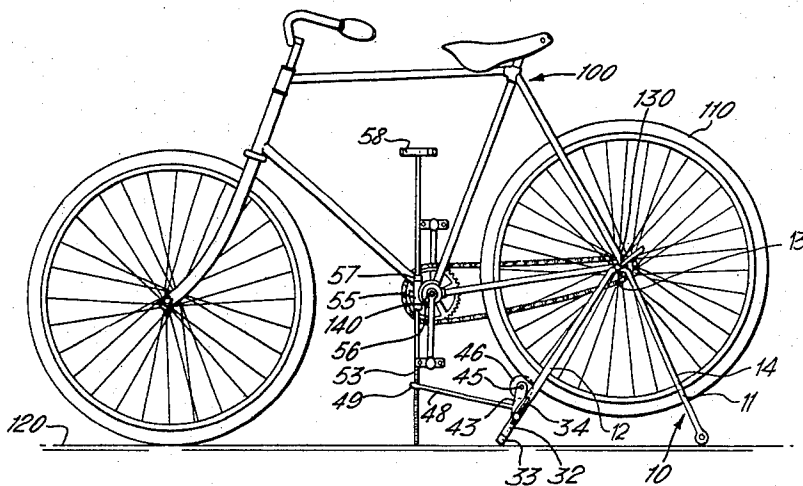
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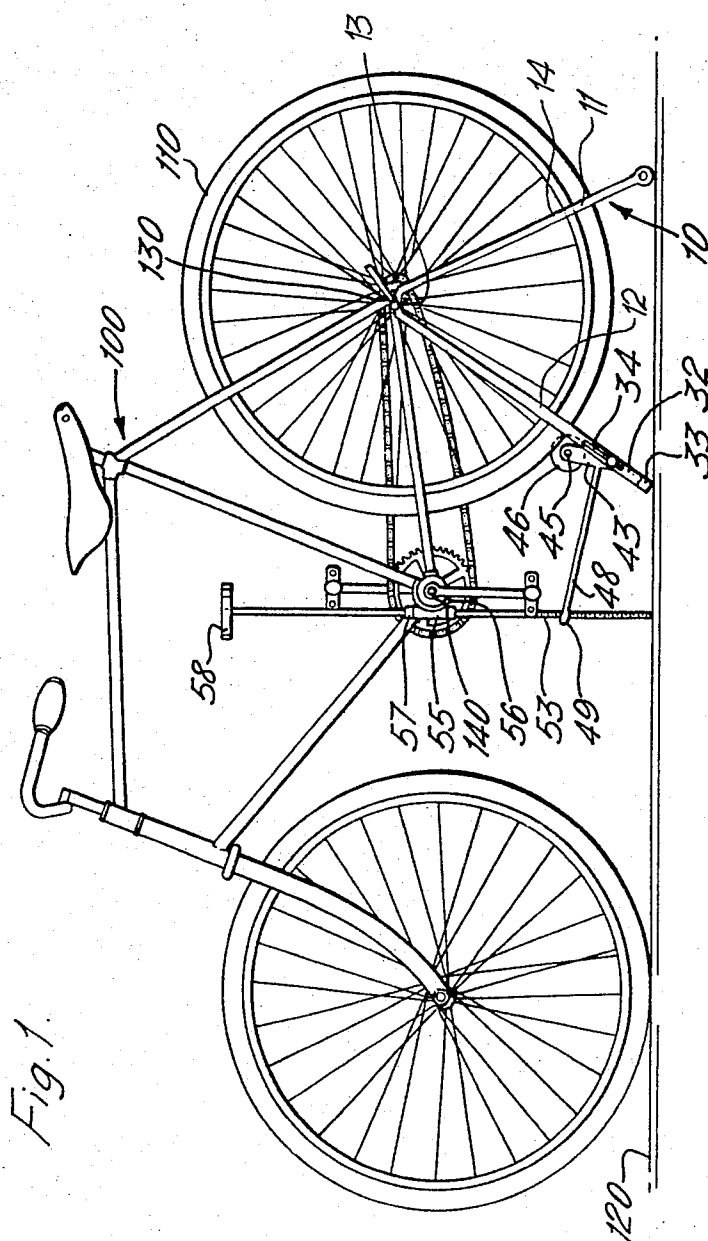
*Primary Examiner*—Richard C. Pinkham  
*Assistant Examiner*—R. T. Stouffer  
*Attorney, Agent, or Firm*—Stewart and Kolasch, Ltd.

[57] **ABSTRACT**

A support stand for a manually powered wheeled vehicle is provided comprising a support frame assembly including a pair of spaced apart members, each in up-standing relation, and a clamping arrangement for clamping the frame of the vehicle to the support frame. The clamping arrangement consists of a pair of spaced-apart coaxial sleeves mounted on respective ones of the members; a pair of T-head bolts slidably fitted within respective ones of the sleeves, with the heads directed towards one another, and a pair of wing nuts threaded onto respective ones of the bolts. Each bolt has its head and its associated wing nut so arranged that the associated sleeve extends between these two elements. The stand is also provided with a roller arrangement for exerting a controllable force against the driven wheel of the vehicle.

**11 Claims, 12 Drawing Figures**





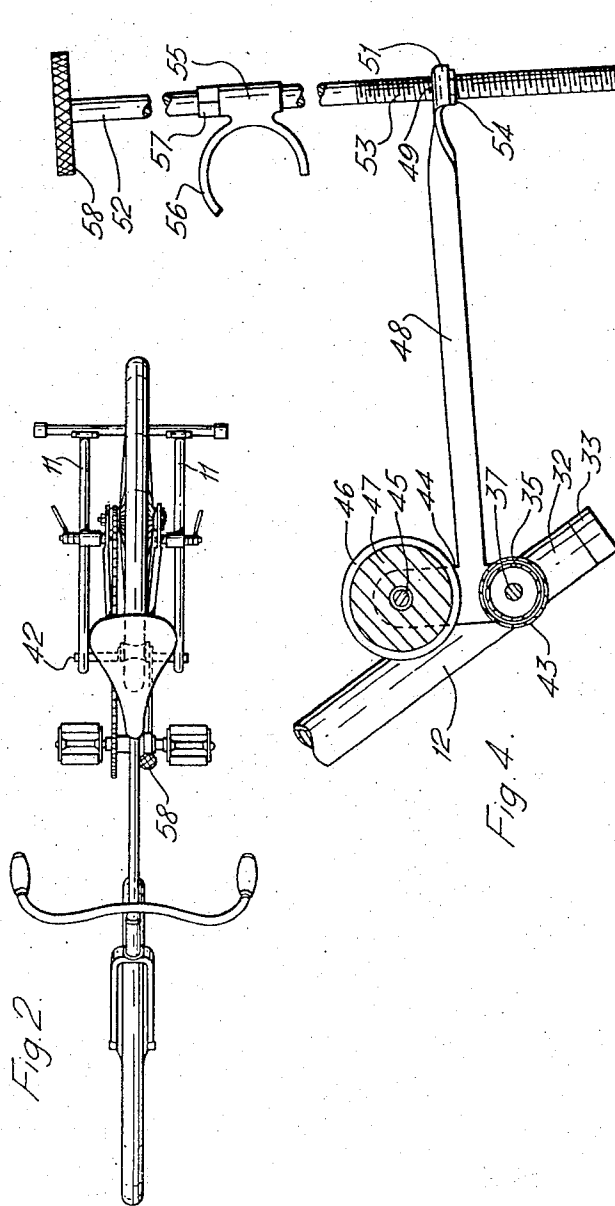
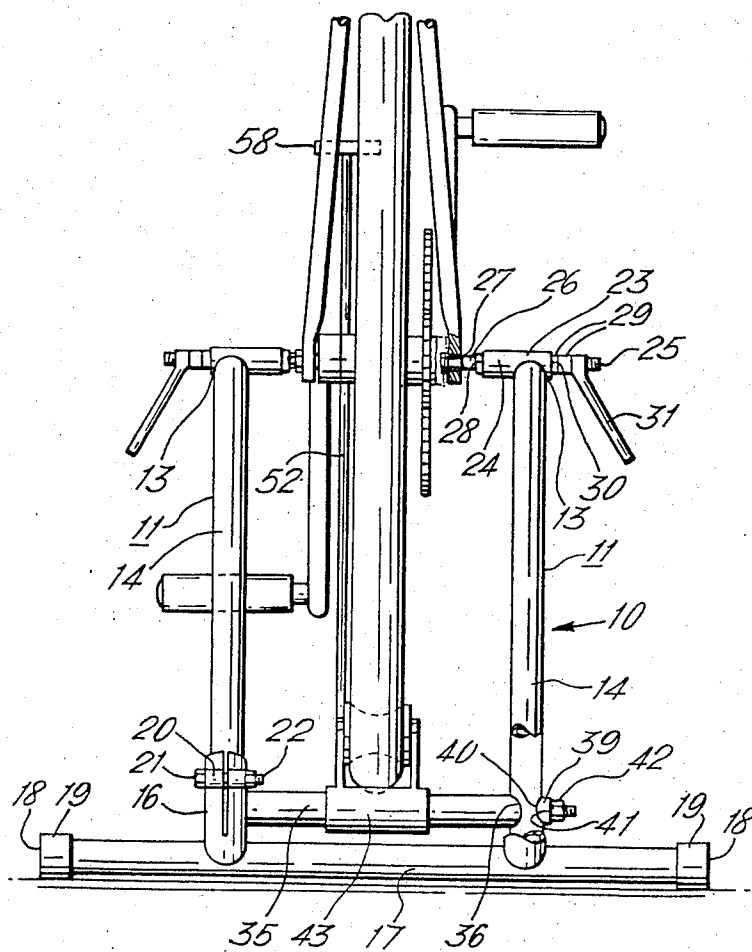


Fig. 3



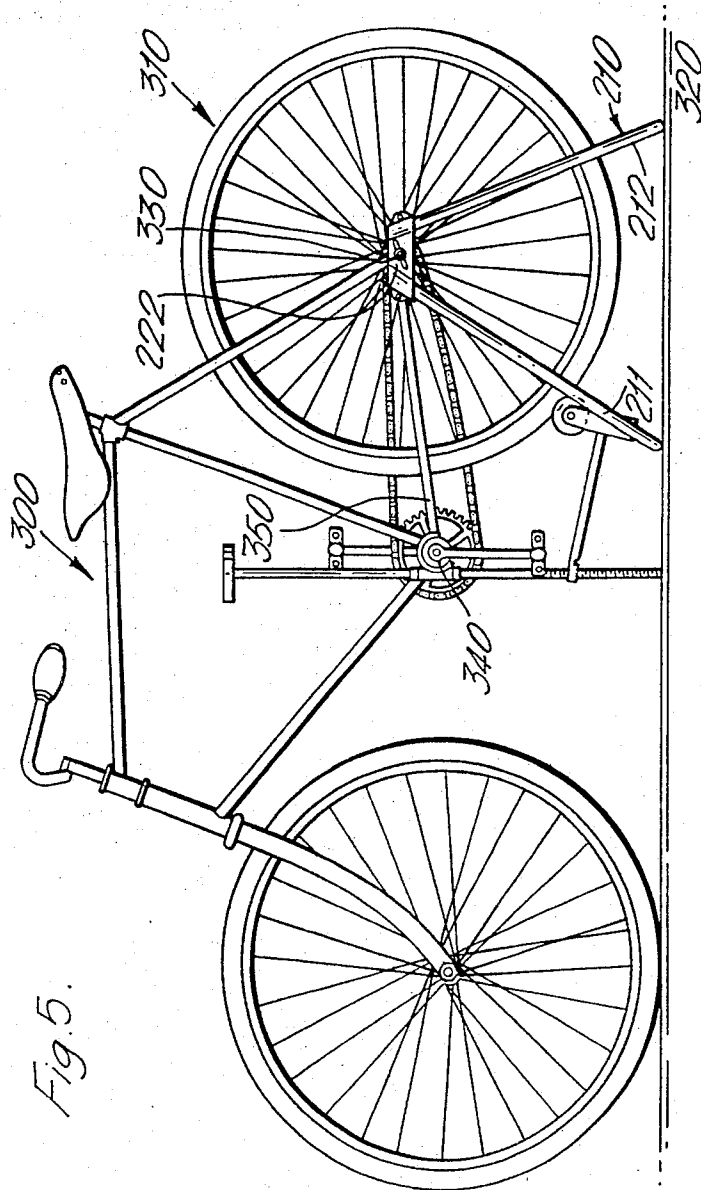


Fig. 5.

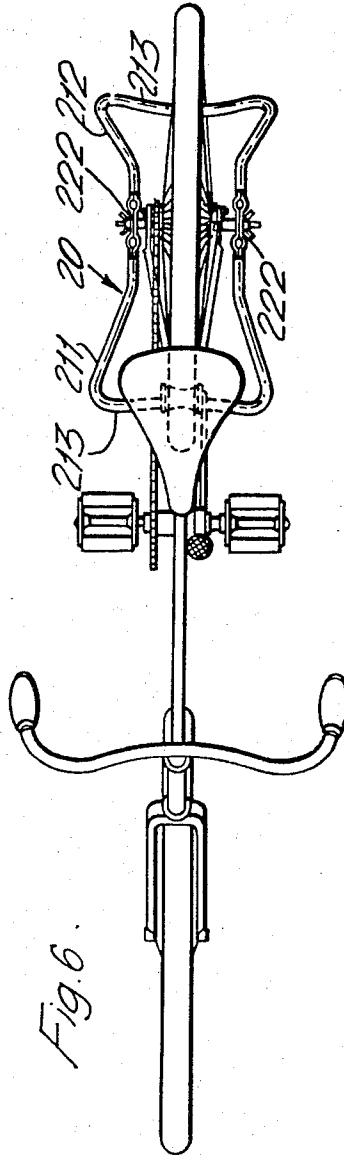
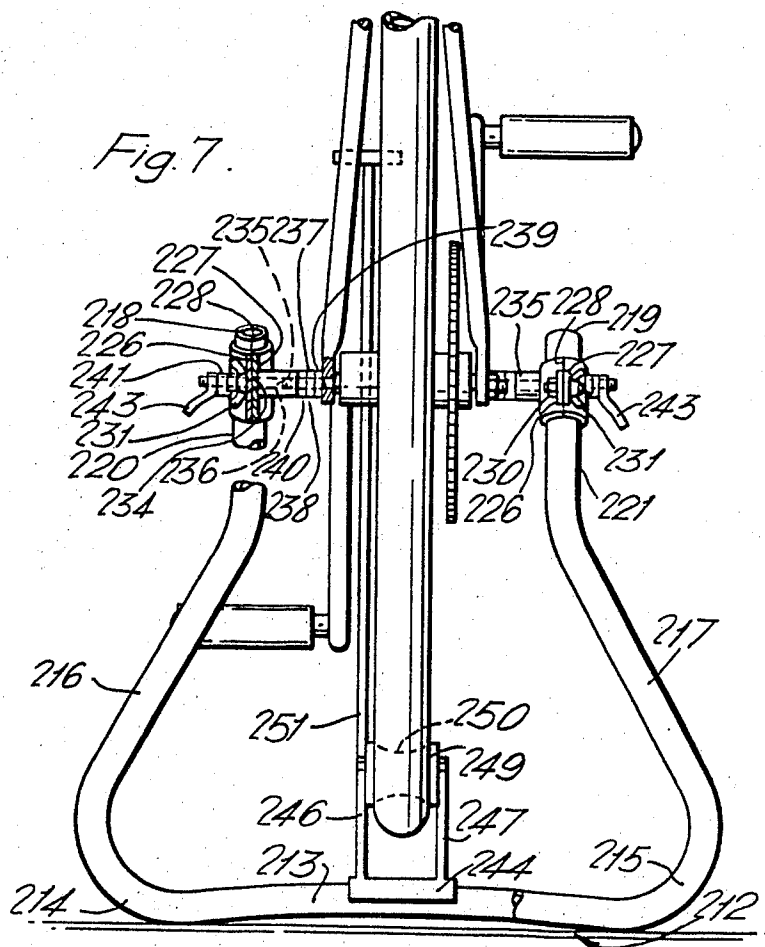
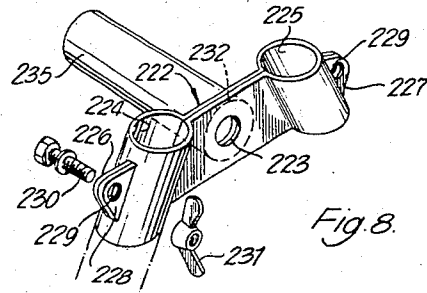
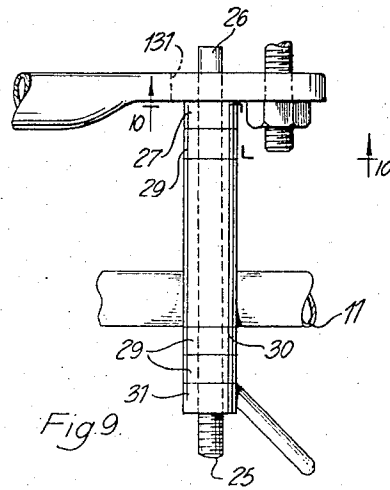
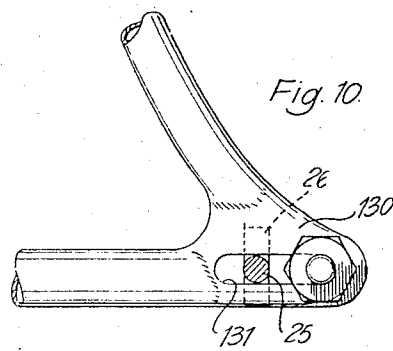
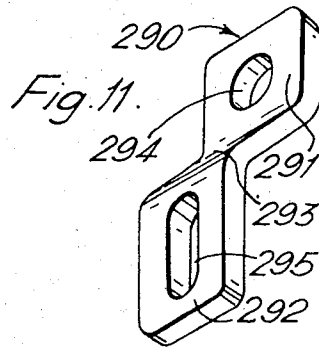
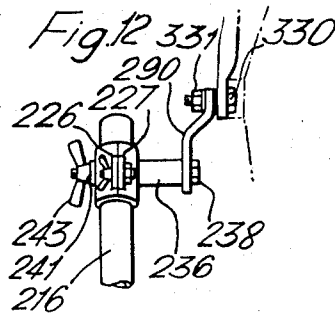


Fig. 6.







**BICYCLE CONVERSION STAND****RELATED APPLICATIONS**

This application is a continuation-in-part of United States patent application Ser. No. 190,611 filed Oct. 19, 1971, now abandoned.

**BACKGROUND OF THE INVENTION****1. Field of the Invention**

This invention relates to supporting stands. More particularly, it relates to such stands for supporting manually propelled wheeled vehicles, e.g. bicycles or tricycles.

**2. Description of the Prior Art**

There is currently a need for support stands for manually propelled wheeled vehicles. It may be desired to operate the wheeled vehicle with no movement of the wheeled vehicle. This would be for exercise purposes where inclement weather prohibits the actual, outdoor operation of the wheeled vehicle. In addition, stands which are light-weight and easily portable are desirable for the display of the wheeled vehicle.

Various proposals for such support stands have been made in the past. These stands generally include an arrangement for securing the rear wheel axle studs of the vehicle to the support stand. Various threaded adapters, sleeves and the like are generally provided for this purpose. These arrangements are generally undesirable in that they require an excessive amount of time and effort to set up and dismount and/or that they require special adapters that must be mounted on the axle studs of the vehicle. The adapters that are commonly used for this purpose project axially outwardly from the ends of the axle studs and are therefore subject to damage and can be the possible cause of damage if left on the vehicle when in normal use.

**SUMMARY OF THE INVENTION****AIMS OF THE INVENTION**

It is an object of the present invention to provide a support stand for manually powered vehicles wherein the stand may be clamped directly to the frame of the vehicle in a simple and efficient manner.

**STATEMENT OF THE INVENTION**

According to a broad aspect of the present invention, there is provided a stand for a manually powered vehicle comprising: (a) a support frame assembly including a pair of spaced-apart members, each in upstanding relation and a pair of abutment means mounted on respective ones of said members to provide respective first clamping faces in transversely spaced-apart face-to-face relation; (b) a pair of clamping means slidably mounted on respective ones of said members for sliding movement towards and away from one another in a direction transversely of said support frame, each said clamping means including a second clamping face disposed in face-to-face relation with a respective one of said first clamping faces; and (c) a pair of actuating means drivingly engaging respective ones of said clamping means and each engaging said frame for adjusting said clamping means transversely with respect to said frame for clamping respective portions of a frame of a manually powered vehicle between respective ones of said first clamping faces and the associated second clamping faces.

In one embodiment of the present invention, the stand includes a pair of spaced-apart, arch-shaped, upright frame members and a transverse ground-engaging anti-sway member connected to respective ones of the base ends of each arch-shaped frame member. A clamping arrangement is provided at the apex of each arch-shaped upright member, to clamp the stand to the frame of a cycle. The remaining base end of each arch-shaped upright frame member is provided with a ground-engaging foot. Spaced upwardly from said feet, extending between and interconnecting the arch-shaped members is a transverse brace on which is mounted a roller support and roller assembly for creating resistance to the pedalling action of an operator whereby the person on the cycle is given the sensation of actually riding the same. The resistance is adjustable in two ways, the first by adjustment of the transverse shaft along the length of each arch-shaped frame member and the second by a manually operable linkage connected to the roller support for pivoting the roller support and the roller about the brace, thereby increasing or decreasing the pressure of the roller on the driven wheel. The stand is composed of the above-noted parts assembled such as to permit the stand to be easily disassembled into a knocked-down unit for transporting the same.

In another embodiment of the present invention, the stand includes a pair of longitudinally spaced-apart frame members, each including a transverse, ground-engaging foot portion and a pair of transversely spaced-apart legs at respective ends of the foot portion and extending upwardly therefrom. The legs of each member converge towards one another over a portion of their lengths and terminate remote from the foot portion in substantially parallel terminal portions adjacent the free ends of the legs. Each frame member is preferably formed from a single piece of suitable rigid metal tubing, suitably bent. The legs of each frame member have their upper ends connected to respective ones of the legs of the other frame member by means of respective ones of a pair of transversely spaced-apart, longitudinally extending, clamping bars. Each clamping bar has a central flat section, and a pair of split clamps at its respective opposite ends. The split clamps are clamped onto the terminal portions of respective ones of the legs of the frame members so as to rigidly interconnect the frame members. Each of the clamp bars is provided with a clamping arrangement to clamp the stand to the frame of a cycle.

As is well known, the axle of the rear, driven wheel of a bicycle is provided with two axially extending threaded studs which extend through slots in respective ones of two gusset plates on the bicycle frame and which are secured to the gusset plates by respective axle nuts. The slots in the gusset plates provide for adjustment of the drive chain by movement of the axle. Some bicycles incorporate a chain tightener for adjusting the position of the axle with respect to the slots. Although not common, it is also known to provide a plurality of spaced-apart adjustment holes in the gusset plates rather than adjustment slots. The present invention takes advantage of this gusset plate arrangement which is common to virtually all bicycles, and provides a pair of clamping arrangements which clamp the support stand to the gusset plates adjacent the axle of the cycle. The clamping arrangements include a pair of abutment means mounted on the support frame assembly.

bly of the stand so as to provide respective ones of two clamping faces in transversely spaced-apart face-to-face relation, a pair of clamping means slidably mounted on the support frame assembly for sliding movement towards and away from one another in a direction transversely of the support frame and providing a second pair of clamping faces disposed in face-to-face relation with respective ones of the clamping faces provided by the abutment means and actuating means drivingly engaging respective ones of the clamping means and the support frame assembly for adjusting the clamping means transversely with respect to the support frame for clamping respective portions of the gusset plates of a cycle between respective ones of the clamping faces provided by the abutment means and the clamping faces provided by the clamping means.

In a preferred embodiment, the abutment means are a pair of sleeves mounted on the support frame, the clamping means are a pair of bolts and the actuating means are wing nuts threaded onto respective ones of the two bolts.

It is further preferred that the bolts be T-head bolts, i.e. that their heads have a rectangular configuration, so that the bolt heads may pass through the slots in the gusset plates in one orientation and then can be rotated to engage behind the gusset plates in another orientation.

In yet another preferred feature, the abutment means are adjustable transversely of the frame so that various different widths of cycle frames may be accepted by the support stand. Where the abutment means are sleeves, the adjustment may be by means of spacing washers. The innermost one of the spacing washers is preferably made from nylon or some analogous material so as to prevent damage to the gusset plates.

It is evident that the whole assembly can be mounted on and dismounted from a cycle very quickly. The stand may be itself disassembled whereby the whole can be folded into a very shallow box. The frame members will nest one with the other and the remaining parts can readily be fitted within the same box.

It is therefore evident, from the above general description, that the present invention, in its broad aspects, permits any type of cycle to be converted to an exercising cycle. The design concept allows conversion of virtually all types of multi-speed bicycles, provided with diverse types of gear-changing mechanisms. By the use of the present invention, it is possible to convert not only complex geared, 10-speed bicycles, but also simple, direct drive bicycles, to exercising cycles.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings,

FIG. 1 is a side elevational view of the stand of one embodiment of this invention, mounted on a bicycle;

FIG. 2 is a top plan view of the embodiment shown in FIG. 1;

FIG. 3 is a rear elevational view of the embodiment shown in FIGS. 1 and 2;

FIG. 4 is a central cross-sectional view of the roller mounting and adjustment arrangement of this embodiment;

FIG. 5 is a side elevational view of the stand of a second embodiment of this invention, mounted on a bicycle;

FIG. 6 is a top plan view of the embodiment shown in FIG. 5;

FIG. 7 is a rear elevational view of the embodiment shown in FIGS. 5 and 6;

FIG. 8 is a perspective view of the clamping bar used in this invention;

FIG. 9 is a plan view showing the gusset plate of a bicycle clamped to a stand in accordance with the present invention;

FIG. 10 is an elevational view along line 10-10 of FIG. 9;

FIG. 11 is a perspective view of an adapter plate for use in conjunction with the apparatus of the present invention; and

FIG. 12 is a partial end view showing the stand of the present invention used in conjunction with the adapter plate of FIG. 11.

### DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

As seen in FIG. 1, the support stand 10 of one embodiment of the present invention supports a bicycle 100 in a standing position, with the rear, or driven, wheel 110 elevated off the ground 120. The stand is secured to the frame of the bicycle 100 to provide a rigid support for the bicycle.

The embodiment of the invention shown is a demountable, knock-down type although other variants are also envisaged. The stand 10 includes a pair of spaced-apart, arch-shaped, upright tubular frame members 11, each including a fore leg 12, an apex 13 and an aft leg 14. Each aft leg 14, at its base 15, is adapted to be inserted into a split sleeve 16 integral with, and upstanding from, a transverse, tubular anti-sway member 17. The pair of sleeves 16 are spaced-apart along the length of the tubular member 17. At each lateral end 18 of the tubular member 17 is an anti-skid collar 19, formed, for example, of fiber reinforced rubber tubing. Each sleeve 16 is provided with a pair of lugs 20 having aligned bores through which a bolt 21 is passed. A nut 22 is threaded onto each bolt 21 whereby tightening of the nuts 22 on the bolts 21 causes the split sleeves 16 to be reduced in diameter, thereby gripping the bases 15 of the aft legs 14.

At the apex 13 of each tubular frame member 11 is fixedly secured, as by welding or brazing, a cylindrical sleeve 23 having one end flush with the outer face of the associated member 11 and a portion 24 projecting inwardly from the inner face of the associated member 11. A threaded bolt 25 is passed through each such sleeve 23, the head 26 of each bolt 25 is of a T-shaped configuration. A nylon (or other analogous material) washer 27 is disposed between the head 26 of each bolt 25 and the inner face 28 of the associated sleeve 23. A plurality of spacing washers 29 are shown as placed on each bolt 25 intermediate the outer face 30 of the sleeve 23 and a wing nut 31 threaded to the bolt 25. A further plurality of washers 29 are shown as placed intermediate the inner faces 28 of sleeves 23 and nylon washer 27 to provide a spacing between washers 27 conforming to the width of the bicycle frame to thereby provide a clamping arrangement which is adjustable transversely of the support stand so as to accommodate any width of bicycle frame.

The clamping arrangement thus consists of a pair of first clamping faces in transversely spaced-apart face-to-face relation, provided by the inwardly directed faces of the nylon washers (or, in the absence of these washers, the inner faces 28 of sleeves 23), a second pair

of clamping faces, each disposed in face-to-face relation with a respective one of the first clamping faces and provided by a face of a respective one of the bolt heads, and a pair of clamp actuating wing nuts which are threaded onto respective ones of the bolts so as to draw the bolt heads towards the nylon washers when rotated on the bolts.

The base 32 of each fore leg 12 is provided with an anti-skid foot 33, formed of nylon or hard rubber or analogous material. Spaced slightly above foot 33 in base 32 is a longitudinal slot 34 passing through both diametrically opposed walls of the tubular leg 12. A transverse tubular brace 35 extends between tubular legs 12. Each end of the brace 35 is concave in shape at 36 to mate with the cylindrical side walls of the tubular legs 12 and brace 35 is secured in position by a rod 37 passing through brace 35 and slots 34. A washer 39 with a concave face 40 to mate with the cylindrical side wall of a tubular leg 12 is disposed about each end of rod 37 and a nut 42 is threaded onto a thread on each end of rod 37 to assure that the brace 35 is held in position.

Disposed around brace 35 in a freely rotatable manner is tubular sleeve 43 having secured thereto in fixed relation (as by welding or brazing) a pair of spaced-apart upstanding ears 44. A shaft 45 extends between ears 44 and has a roller 46 journaled thereto for rotation thereabout. Roller 46 has a wheel contact surface 47 in the form of a double converging frusto-conical surface of revolution, in order to engage more effectively the driven wheel 110 of the bicycle 100.

A lever arm 48 has one end welded or brazed or otherwise firmly secured to one ear 44 and its opposite end 49 twisted through 90° and provided with an aperture 50 and a pair of depending flanges 51. Extending through aperture 50 is an elongated actuator rod 52 having a threaded end 53 engaging a nut 54 which fits non-rotatably between flanges 51. A bushing 55 is rotatably and slidably mounted on rod 52 and has secured thereto (as by welding or brazing) a spring clip 56 of semi-circular shape. The upper limit of vertical movement of bushing 55 on rod 52 is set by enlargement 57. At the upper end of rod 52 is a knurled knob 58. Spring clip 56 is adapted to snap onto the pedal shaft housing 140 of the bicycle 100.

The stand 10 may be assembled and mounted on a bicycle in the following manner. The upright tubular legs 11 are first assembled on the transverse tubular anti-sway member 17 by insertion of the bases 15 of the legs 14 into the split sleeves 16 and the bolts 21 are tightened. The space between the sleeves 23 is adjusted to the frame width of the bicycle 100 by the use of the spacing washers 29. The spacing washers 29 may be placed at the wing nut end of bolt 25 if required. The T-head 26 of the bolt 25 is placed through a slot 131 in the frame gusset plate 130 of the bicycle 100 near the rear wheel axle and is turned to hold the head behind plate 130 (see FIGS. 9 and 10). Then the wing nuts 31 are securely tightened on bolts 25 to clamp the gusset plates between the washers 27 and T-heads 26 of the bolts 25. If for some reason the T-head 26 will not fit through the slot, the head 26 of each bolt 25 may be hooked over the edge of the gusset plate 130 or any flat portion of the framing of the bicycle near the rear axle.

The roller 46 is adjusted to the diameter of the rear wheel 110 by loosening the end nuts 42 and moving the

tubular brace 35 and rod 37 along the slot 34 until the roller 46 makes contact with the tire of the rear wheel 110. The end nuts 42 are tightened and all further adjustment is done by means of the knurled knob 58 on the vertical threaded actuator rod 52. The open split spring clip 56 on the rod 52 is snapped over the pedal shaft housing 140 inside the left pedal.

Thus, the support stand may be rigidly clamped to a bicycle frame, with the roller engaging the wheel with an adjustable force.

In the embodiment of the present invention as seen in FIGS. 5 through 8, the support stand 210 supports a bicycle 300 in a standing position with the rear, or driven, wheel 310 elevated off the ground. The stand is secured to the bicycle 300 to provide a rigid support therefor.

The support stand of this embodiment of the invention includes two frame members 211 and 212, each in the form of a bent loop of hollow, structurally rigid tubing material of, for example, aluminum or steel material.

Each frame member includes a transverse, ground-engaging foot portion 213 which is bent through approximately 90° to 120° at ends 214 and 215 to provide two upwardly extending and converging legs 216 and 217 respectively. Legs 216 and 217 are bent adjacent their free ends 218 and 219 respectively to provide a pair of parallel terminal portions 220 and 221 respectively.

Members 211 and 212 are interconnected by means of a pair of transversely spaced-apart clamping bars 222, each having a flat central portion 223 and a pair of split clamps 224 and 225 at the respective opposite ends thereof. The arrangement is such that each clamping bar 222 has its clamp 224 engaged with the terminal portion of a leg of one of the frame members 211, 212 and its clamp 225 engaged with the terminal portion of a leg of the other of the frame members 211, 212.

Each split clamp 224, 225 is provided with a pair of lugs 226, 227, one disposed on each side of the split 228 and provided with co-operating apertures 229 therein. A bolt 230 extends through the apertures 229 of each pair of lugs 226, 227 and has a wing nut 231 threaded thereon whereby tightening of the wing nut 231 on bolt 230 will draw the lugs 226, 227 together and thereby tighten the split clamp on the associated leg.

Each of clamping bars 222 is provided with an aperture 233 extending therethrough at approximately the mid-point of the central portion 223. A sleeve 235 is secured to the inside face 234 of the central flat portion 223 with its bore 236 co-axial with the aperture 233.

The function of the sleeve 235 is the same as that provided by the sleeve 23 in the embodiment of the present invention described with reference to FIGS. 1 through 4 and, as was the case in that embodiment, a T-head bolt 237, a wing nut 243, a nylon washer 239 and a plurality of spacing washers 241 co-operate with each of sleeves 235 to provide a clamp for rigidly clamping the frame of a bicycle to the support stand.

A partial sleeve 244 is fitted on the transverse ground-engaging foot portion 213 of the forward frame member 211 in a freely rotatable manner. Sleeve 244 extends only partially about portion 213 of member 211 so as to enable its placement thereon. A pair of spaced apart upstanding ears 246, 247 are secured to the sleeve 244 as by welding or brazing. A shaft 248 ex-

tends between the ears and has a roller 249 journaled thereon. A lever arm 251 secured to ear 246 and an actuator rod 255 engageable with the lever arm 251 are also provided. The ears 246, 247, shaft 248, roller 249, lever arm 251 and actuator rod 255 correspond in all essential respects to ears 43, 44, shaft 45, roller 46, lever arm 48 and actuator rod 52 as described with reference to the embodiment of the present invention shown in FIGS. 1 through 4. A full description of these elements and their interrelation is found beginning on page 9, line 21 and, accordingly, these elements will not be further described with reference to the present embodiment.

The stand 210 may be assembled and mounted on a bicycle 300 in the following manner: The frame members 211 and 212 are assembled by means of engagement between the terminal portions 218, 219 of their legs 216, 217 and the split clamps 224, 225 of the longitudinally extending clamping bars 222. Respective ones of the terminal portions 218, 219 of the forward frame member are connected to the adjacent terminal portions 218, 219 of the aft frame member 212 in this manner. The bolts 230 of the split clamps 224, 225 are tightened to fix the frame members 211, 212 together to form a rigid stand 210. The bicycle 300 is then clamped to the stand 210 by the use of the bolts 237 and the roller actuating arrangement is secured to the frame of the bicycle, all as previously described with reference to the embodiment of the present invention shown in FIGS. 1 through 4.

In this embodiment of the present invention, main adjustment of the roller to the wheel is provided as follows: The distance between the face of the roller and the tire of the wheel is adjusted to virtually zero by adjusting the distance between the face of the roller and the sleeves 235 by sliding adjustment of the split clamps 224, 225 and therefore the clamping bars 222 along the terminal portions of the leg members to which they are clamped. This is achieved by first loosening the bolts holding the clamps to the legs, sliding the clamping bars and retightening the bolts.

Fine adjustment of the pressure of the roller on the driven wheel is provided by the manually operated linkage as previously described with reference to the embodiment of the present invention shown in FIGS. 1 through 4.

FIG. 11 illustrates the construction of a special adapter plate 290 for use on cycles having unconventional gusset plates, for example, those gusset plates having a plurality of adjustment holes rather than an adjustment slot. The adapter plate 290 includes a piece of suitable metal, e.g. steel, having an upper portion 291, a lower portion 292, offset from and connected to the upper portion by an intermediate portion 293. Upper portion 291 is provided with an aperture 294 and the lower portion 292 is provided with a longitudinally extending slot 295.

As shown in FIG. 12, the adapter plate is connected to the bicycle frame by means of a bolt 330 extending through aperture 294 and one of the adjustment holes in the gusset plate. The support stand is clamped to the lower portion 292 in the same way that it is clamped to the gusset plate 130 as shown in FIGS. 9 and 10.

It is also possible to secure the adapter plate 290 to the bicycle frame by means of the axle studs and nuts.

As can be seen most readily from FIG. 12, the adapter plate is so constructed that it does not project

laterally outwardly from the bicycle frame a distance any further than the projection of the axle stud and thus, it is highly unlikely that this adapter plate could be damaged or cause damage during normal use of the bicycle.

It is to be understood that the adapter plate 290 will only have to be used in those very unusual circumstances when the gusset plate 130 of the bicycle does not include an adjustment slot 131.

It is therefore evident, from the above description, that the present invention permits any type of cycle to be converted to an exercising cycle. The clamping arrangement provides for the conversion of virtually all types of multispeed bicycles regardless of the type of gearchanging mechanism provided for the bicycle and regardless of the width of the bicycle frame.

I claim:

1. A stand for a manually powered vehicle comprising:

- a. a support frame assembly including a pair of spaced apart members, each in upstanding relation, and a pair of abutment means including respective transversely extending elongated hollow sleeves mounted on respective ones of said members and projecting towards one another from said members to provide respective first clamping faces in transversely spaced apart, face-to-face relation;
- b. a pair of clamping members extending along and within respective ones of said sleeves for sliding movement towards and away from one another in a direction transversely of said support frame, each said clamping member including an elongated stem terminating in an enlarged head portion having a substantially uninterrupted planar surface, and, on a surface opposite to said planar surface, and facing said stem, a second clamping face disposed in face-to-face relation with a respective one of said first clamping faces;
- c. a pair of actuating means drivingly engaging respective ones of said stems of said clamping members, each said actuating means engaging said frame for adjusting said clamping members transversely with respect to said frame, for clamping respective portions of a frame of a manually powered vehicle directly between respective ones of said first clamping faces and the associated said second clamping faces; and
- d. a roller supporting means pivotally mounted on said support frame, and a roller mounted on said roller supporting means, for movement of said roller into and out of engagement with a driven wheel of a manually powered vehicle whose frame is clamped to said stand, said movement being in response to pivotal movement of said roller supporting means with respect to said support frame.

2. A stand as claimed in claim 1 wherein each of said clamping members is a bolt, and wherein each of said actuating means is threadably engaged with a respective one of said bolts.

3. A stand as claimed in claim 2 wherein each of said actuating means is a wing nut, and wherein said sleeves, said bolts and said wing nuts are so arranged that the enlarged head portion of said bolts and the respective wing nut associated therewith are disposed on opposite ends of the associated one of said sleeves.

4. A stand as claimed in claim 2 wherein the enlarged head portion of each said bolt is a T-head.

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5. A stand as claimed in claim 1 wherein each of said abutment means further includes a resilient annular member disposed coaxially with respect to a respective one of said sleeves, each of said clamping means extending through a respective one of said sleeves and through an associated one of said resilient annular members.

6. A stand as claimed in claim 5 and further including a plurality of substantially incompressible annular members disposed coaxially with respect to each of said sleeves whereby selected members of said plurality of annular members may be interposed between each of said sleeves and said resilient annular member associated therewith, thereby selectively to vary the spacing of said first clamping faces.

7. A stand as claimed in claim 1, wherein said roller supporting means are mounted on a pivotal mounting on said support frame for pivotal movement with respect thereto in a plane substantially parallel to said clamping faces.

8. A stand as claimed in claim 7 further including a first adjustment means for adjusting the spacing between said pivotal mounting of said roller support means on said support frame and said clamping members.

9. A stand as claimed in claim 8 further including a second adjustment means engageable with said roller supporting means and also engageable with a portion of the manually powered vehicle when it is supported by said stand, selectively to control the pivotal movement of said roller supporting means with respect to said support frame, and thereby selectively to control a force exerted by said roller on said driven wheel.

10. A stand for a manually powered vehicle comprising:

a. a support frame assembly including a pair of spaced apart members, each in upstanding relation, and a pair of abutment means including respective transversely extending sleeves mounted on respective ones of said members and projecting towards one another from said members to provide respective first clamping faces in transversely spaced apart, face-to-face relation;

b. a pair of clamping members extending along and within respective ones of said sleeves for sliding movement towards and away from one another in a direction transversely of said support frame, each said clamping member including an elongated stem

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portion terminating in an enlarged head portion having a substantially uninterrupted planar surface, and, on a surface opposite to said planar surface, and facing said stem, a second clamping face disposed in face-to-face relation with a respective one of said first clamping faces;

c. a pair of actuating means drivingly engaging respective ones of said stems of said clamping members, each said actuating means engaging said frame for adjusting said clamping members transversely with respect to said frame, for clamping respective portions of a frame of a manually powered vehicle directly between respective ones of said first clamping faces and the associated said second clamping faces;

d. a roller supporting means mounted on a pivotal mounting on said frame for pivotal movement with respect thereto in a plane substantially parallel to said clamping faces, and a roller mounted on said roller supporting means, for movement of said roller into and out of engagement with the driven wheel of a manually powered vehicle whose frame is clamped to said stand, said movement being in response to pivotal movement of said roller supporting means with respect to said support frame;

e. a first adjustment means for adjusting the spacing between said pivotal mounting of said roller support means on said support frame and said clamping members; and

f. second adjustment means engageable with said roller supporting means and also engageable with a portion of said manually powered vehicle when it is supported by said stand, selectively to control the pivotal movement of said roller supporting means with respect to said support frame, and thereby selectively to control the force inserted by said roller on said driven wheel, said second adjustment means including a lever having one end fixedly mounted on said roller supporting means and another end spaced from said one end in driven engagement with an adjustment rod.

11. A stand as claimed in claim 10 wherein said adjustment rod is connectable to a portion of a manually powered vehicle when it is supported by said stand, and wherein said adjustment rod is threadedly engaged with said lever.

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