

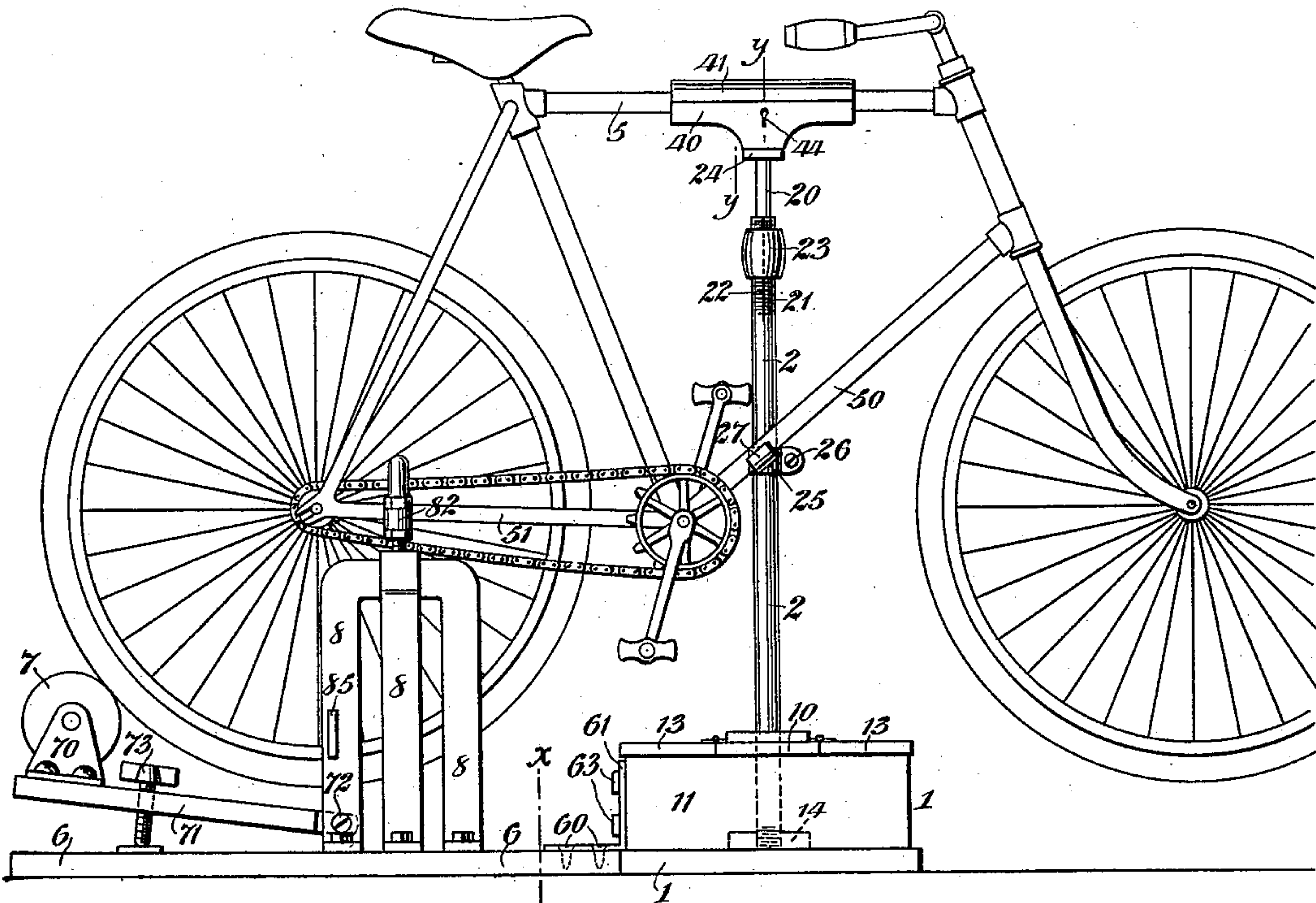
(No Model.)

S. H. LAW.  
BICYCLE TRAINER.

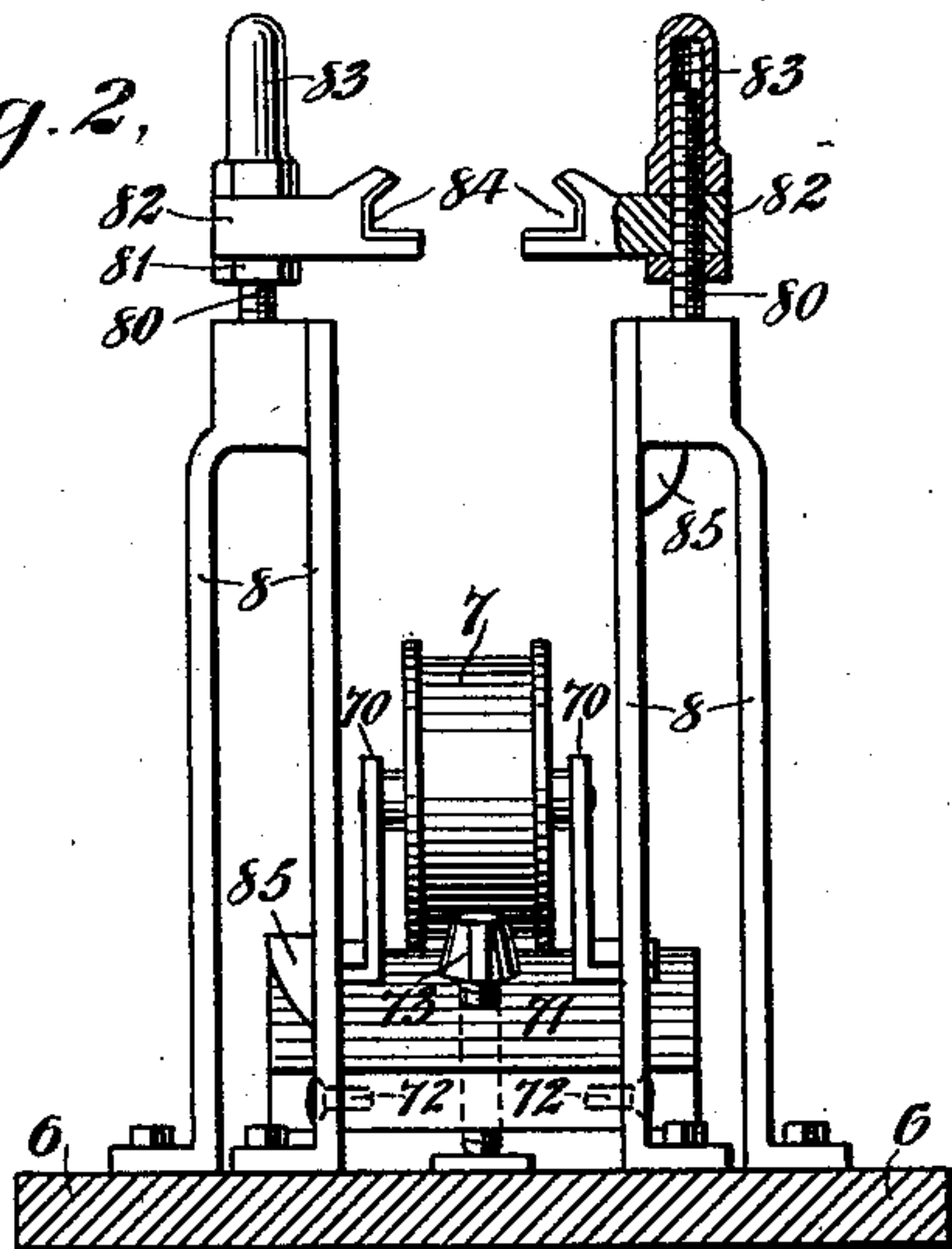
No. 592,093.

Patented Oct. 19, 1897.

*Fig. 1,*



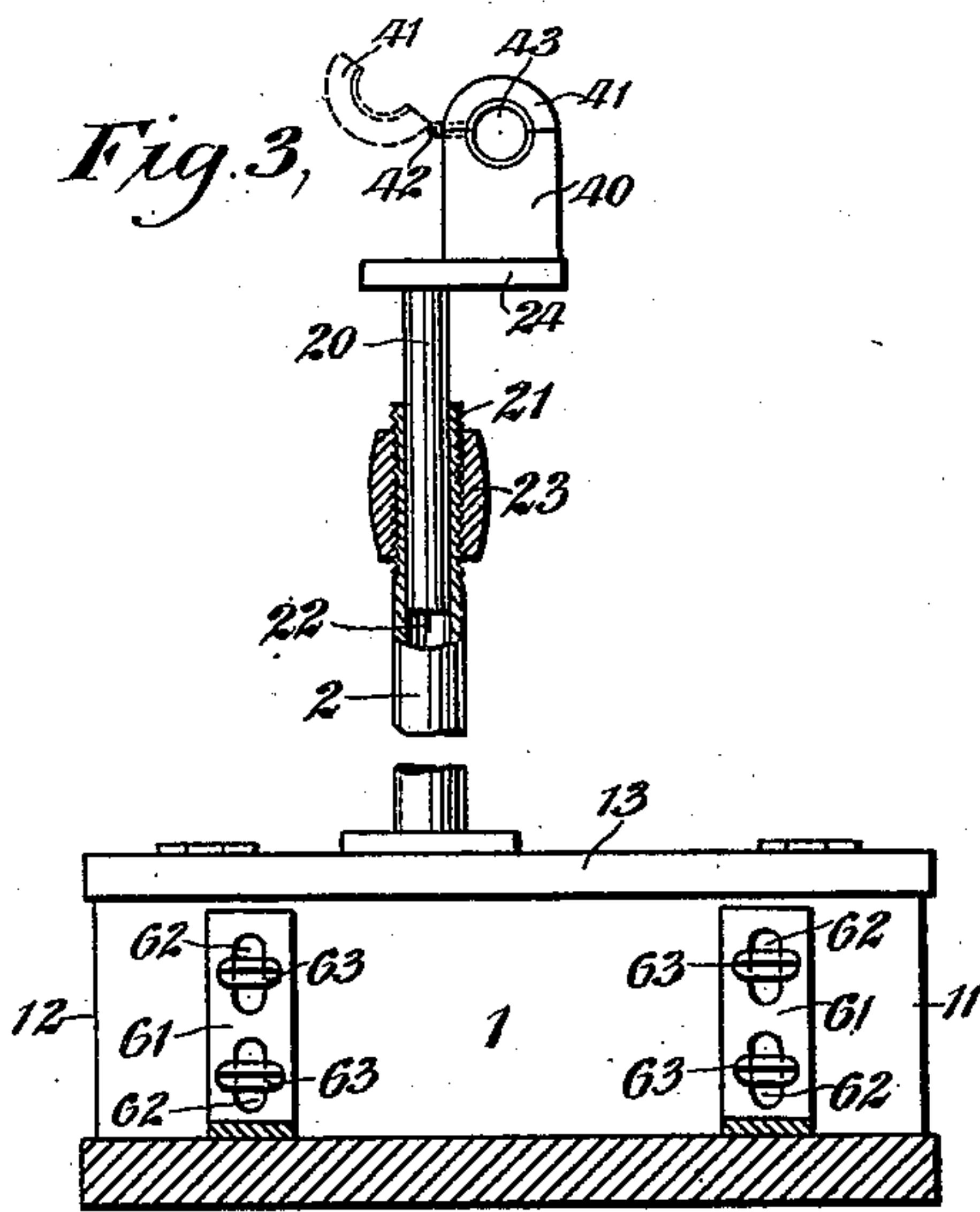
*Fig. 2,*



WITNESSES:

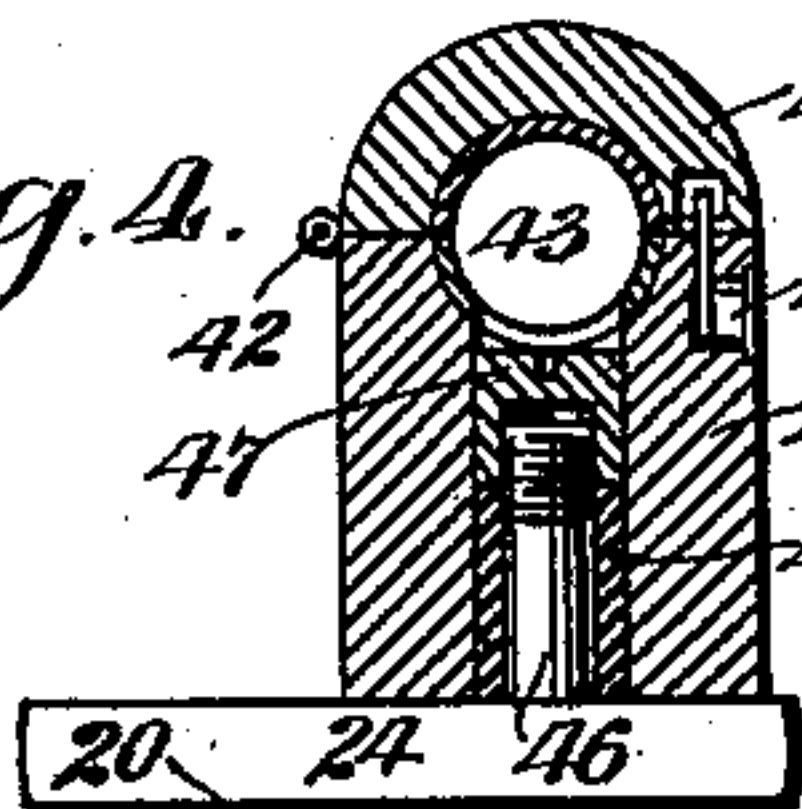
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*Fig. 3,*



INVENTOR

*Fig. 4,*



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# UNITED STATES PATENT OFFICE.

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## BICYCLE-TRAINER.

SPECIFICATION forming part of Letters Patent No. 592,093, dated October 19, 1897.

Application filed April 17, 1896. Serial No. 587,949. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL H. LAW, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Bicycle-Stands and Home Trainers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in bicycle-stands which comprise an upright post, a base in which the post is fixed, a clamp attached to the post and adapted to embrace a part of the frame of a bicycle, and means for fastening the clamp at different elevations, and to improvements in home training apparatus which comprises a base and a bearing-roller and other supports mounted thereon.

The invention consists of a bicycle-stand and of a home trainer composed of a stand or other forward support and the supplementary apparatus herein described and claimed.

On the accompanying sheet of drawings, Figure 1 is a side elevation of the trainer, including the improved stand, with a bicycle mounted upon it; Fig. 2, a front elevation of the part of the trainer behind the line *x x*, Fig. 1; Fig. 3, a rear elevation of the base and upper part of the stand and vertical section of a part of the post; and Fig. 4, a vertical cross-section of the clamp of the stand in the plane *y y*, Fig. 1.

Similar reference-numerals designate like parts in the different views.

The bicycle-stand herein described is intended to be used alone, as well as in connection with the apparatus which constitutes the other part of the home trainer. When the stand is made as a part of the home trainer, it is detachable from the other apparatus. It is consequently useful in two capacities—namely, that of a stand and that of one of the component parts of a home trainer.

The base of the stand is a box 1. The top of this box is made in three sections, the middle section 10 being permanently fastened to the sides 11 and 12 of the box, and the sections 13 being lids hinged to the middle sec-

tion. This box is intended to contain tools and extra parts of a bicycle, for example. The main part 2 of the post passes through the section 10 of the top of the box, and is screwed into a nut or plate 14 on the bottom of the box. The post is nearer to the side 12 of the box or base than to the other side 11, as shown in Fig. 3, the distance of the axis of the post from a vertical plane parallel to and midway between those sides being a little greater than the sum of half the diameter of the post and half the diameter of the lower forward tube of a bicycle-frame. The main part of the post is tubular, and in it is a rod 20, which is adapted to slide therein and which projects from the top of the tube and forms the upper part of the post. The length of the rod is such that it is adapted to extend several inches into the tube and to project therefrom above the top of the frame of a bicycle standing on the floor.

On the tube 2 is a screw-thread 21, and in the sides of the tube are slots 22, extending downward from the top of the tube. A spherical nut 23, engaging with the screw-thread 21, is adapted to compress the sections of the tube between the slots 22 against the rod 20, and to thus fasten the rod in the tube at any desired elevation. On the rod 20 is a short arm 24, which is riveted or otherwise tightly fastened to the rod, and on this arm a clamp is mounted. This clamp is composed of a lower part 40 and an upper part 41, hinged to the lower part by hinges 42. In each part of the clamp is a semicylindrical recess which extends from one end thereof to the other, and which is lined with felt or other soft material, and the parts of the clamp are arranged in such relations to each other that when the part 41 is closed on the part 40 those recesses form a cylindrical opening 43. This opening is of the proper size to tightly receive the top tube of a bicycle-frame. The clamp contains a lock 44, whereby the top 41 may be locked to the lower part. In the lower part, midway between its ends, is a hole which extends from the opening 43 to the bottom of the clamp, and which contains a bushing 45, and on the arm 24 is an upright pin 46, which extends through the bushing 45 and on the upper end of which is a screw-cap 47. The cap 47 is



adapted to be turned by a screw-driver when the clamp is open, and may be made tight against the bushing 45, so that the clamp will not easily turn on the pin 46, or may be left  
 5 loose enough to allow the clamp to turn freely; but when the clamp is closed and locked then obviously the cap 47 cannot be reached. The pin 46 is located on one side of the prolonged axis of the rod 20, the distance between that axis and the axis of the  
 10 pin being equal to the distance of the axis of the post from the vertical plane above mentioned—that is to say, a little greater than the sum of half the diameter of the tubular part  
 15 of the post and half the diameter of the lower forward tube of a bicycle—and the base of the pin 46 is tightly fixed in the arm 24. On the tubular part 2 of the post is a band 25, which is adapted to be fastened to the post in different  
 20 places by means of a set-screw 26, and on this band is a pivoted hook 27, lined like the clamp with soft material. This hook is of the proper size and shape to snugly half-encircle the lower forward tube of a bicycle-frame, and it is so arranged that the axis of  
 25 that tube and the axis of the top tube of the bicycle-frame, when those tubes rest respectively in the hook 27 and the clamp at the top of the post, are in a vertical plane. It  
 30 will now be understood that when the parts of the stand are in the respective positions in which they appear in Figs. 1 and 3 the axis of the opening 43 is then in the vertical plane that is parallel to and midway between  
 35 the sides 11 and 12 of the base 1.

A bicycle is supported by the stand with the top tube 5 and the lower forward tube 50 of the frame of the machine resting respectively in the clamp and in the hook 27, as represented in Fig. 1. If the hook is fastened in a  
 40 proper position on the post, the machine may be easily mounted on the stand by first raising the machine and securing the tube 5 in the clamp, then lowering, or raising and lowering, the machine together with the clamp  
 45 and rod 20 and causing the tube 50 to settle in the hook 27, and then fastening the rod 20 in the tube 2 by turning the nut 23. The machine, it will be observed, is held very stably  
 50 in an upright position, bearing upon the stand at points directly over the center of the base, and elevated so that there is no pressure on the tires, and besides it may be easily and quickly raised and lowered, and turned from  
 55 one position to another on the post as an axis, to enable its parts to be conveniently cleaned, oiled, and adjusted, and can only be detached from the stand when the clamp is unlocked. The hook 27 is intended rather to help hold  
 60 the machine steady on the stand than to bear any of the weight of the machine, and it may be inverted and arranged to bear against the top of the tube 50, instead of passing under the tube, as indicated in Fig. 1.

65 In constructing the home trainer another stand might be substituted for that above described, or the forward support of the trainer

might be a device that would not be serviceable alone in the capacity of a stand; but this stand is preferred to any of the other  
 70 supports above suggested. The trainer comprises a base 6 and a bearing-roller 7 and supports 8, mounted on the base, the supports 8 being provided with bearing-blocks adapted to engage the frame of a bicycle, and with  
 75 fastening devices by which the blocks are held in their proper positions. On the front part of the base 6 brackets 60 are fastened, whose upright parts 61, containing oblong openings 62, are adapted to rest against the rear face  
 80 of the box 1, or base of the stand, and that base is provided with buttons 63, adapted to enter the openings 62 and engage with the brackets 60, as appears by Figs. 1 and 3. The supports 8 are bolted to the base 6 in the relative  
 85 positions indicated by Figs. 1 and 2. In the top of each of the supports is a stationary screw 80, and on each of these screws are a nut 81, a bearing-block 82, and a screw cap or nut 83. Each block 82 contains a recess 84, which  
 90 is lined with felt or similar material. On the sides of the supports 8 are steps 85. The bearing-roller 7 is journaled between brackets 70 on an arm 71, which extends between and is pivoted at 72 to the supports 8, and in the arm  
 95 71 is a set-screw 73, by means of which the roller may be adjusted at a proper elevation.

A bicycle is mounted and secured on the trainer by inserting its rear wheel between the supports 8 and mounting the machine on  
 100 the stand as above described, and then adjusting the bearing-blocks 82 and the roller 7. The blocks 82 are so arranged on the screws 80 that they engage the frame of the machine in the recesses 84, each block bearing against  
 105 one of the tubes 51, that extend from the crank-hanger to the hub of the rear wheel, and the blocks are then clamped on the screws by turning the nuts 81 and the caps 83 against them. The roller 7 is then raised  
 110 and made to press against the tire of the wheel by turning the set-screw 73.

The machine is held firmly by the trainer, and is not liable to be injured in any way when it is mounted and operated by a rider.  
 115 The power required to operate it may be increased or diminished at will merely by adjusting the bearing-roller.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bicycle-stand comprising a base, a post on the base, a clamp mounted on the post and containing a recess conforming to the top tube of a bicycle-frame, the recess being located on one side of the axis of the post, a device on the post adapted to engage the lower forward tube of a bicycle-frame and means for varying the relative positions of said device and said clamp, substantially as shown and  
 120 described.

2. A bicycle-stand comprising a base, a post on the base, a clamp mounted on the post and containing a recess conforming to the top



tube of a bicycle-frame, the recess being located on one side of the axis of the post, a pivoted hook on the post adapted to engage the lower forward tube of a bicycle-frame, and means for securing the clamp at different elevations, substantially as described.

3. A bicycle-stand comprising a base consisting of a box 1, a post supported thereby and located on one side of a vertical plane midway between and parallel to the sides 11 and 12 of the box, the upper part of said post being adapted to turn on its axis, a clamp mounted on the post and containing a recess to receive the top tube of a bicycle-frame, said recess being located on one side of the post and parallel with a line intersecting the axis of the post, whereby the bicycle may be fastened by its top tube in the clamp and suspended in a vertical position over the center of the base, to swing from one position to another by turning the upper part of the post on its axis, substantially as shown and described.

4. A bicycle-support comprising a stand provided with a clamp, adapted and arranged to clamp the top tube of a bicycle-frame, in combination with standards arranged to allow the rear wheel of a bicycle to pass between them and provided with bearing-blocks, containing recesses 84 and adapted and arranged to receive the rear lower braces of the bicycle in the recesses 84, the bearing-blocks extending both under and over the braces, substantially as shown and described.

5. A bicycle-stand comprising a base, a post on the base, a clamp mounted on the post, and a fastening within the clamp whereby the clamp is secured on its support, the fastening being inaccessible when the clamp is closed, substantially as described.

6. A bicycle-stand comprising a base, a clamp containing a bushing 45, a pin projecting from a support on the post and passing through the bushing, and a screw-cap 47 on the pin adapted to press the bushing against the support of the pin, substantially as described.

7. A bicycle-stand comprising a base, a post on the base, a clamp supported by the post

and composed of a part 40 and a hinged part 41 and containing a lock 44, and means for fastening the clamp at different elevations, substantially as described.

8. A bicycle-support comprising a base, a post supported thereby, and a clamp carried by said post and containing a recess arranged to clamp the top tube of a bicycle-frame, in combination with standards arranged to allow the rear wheel of the bicycle to pass between them, bearing-blocks carried by said standards and containing recesses 84 and adapted to receive the rear lower braces of a bicycle in the recesses 84, the bearing-blocks extending both under and over the braces, and a bearing-roller arranged to contact with the rear wheel, substantially as shown and described.

9. A bicycle-support comprising a base, standards secured thereto and arranged to allow the rear wheel of a bicycle to pass between them, and adjustable bearing-blocks on said standards containing recesses 84 and arranged to receive the rear lower braces of the frame in the recesses 84, the bearing-blocks extending both under and over the braces, substantially as shown and described.

10. A bicycle-support comprising a base, standards 8 secured on the base, screws 80 fixed in the standards, a nut 81 and bearing-block 82 and nut or screw-cap 83 on each of the screws, and a bearing-roller arranged to make contact with the rear wheel of a bicycle behind the standards, substantially as described.

11. A bicycle-support comprising the base 6, the standards 8 secured on the base, the screws 80 fixed in the standards, the nuts 81 and bearing-blocks 82 and nuts or screw-caps 83 on the screws 80, the arm 71 pivotally connected to the base close to the front end of the arm, the bearing-roller 7 mounted on the rear part of the arm 71, and a set-screw 73 extending from the arm 71 to the base 6, substantially as described.

SAMUEL H. LAW.

In presence of—

S. G. METCALF,

D. A. CARPENTER.