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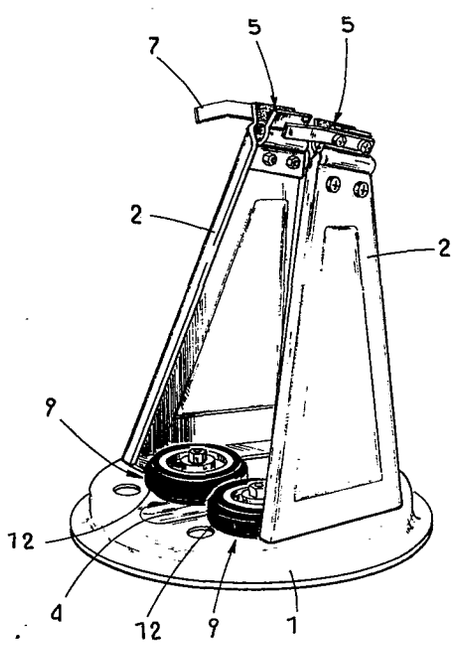
(54) A support with rollers for the stationary training of cyclists.

(57) The support comprises a platform 1 to which are fixed two arms 2 for sustaining the rear fork of a bicycle with the back wheel thereof raised with respect to the platform 1. To the latter are also fixed two rubber faced rollers, or cylinders, 9, that rotate idly around inter-parallel spindles 10, the position of which can be adjusted with respect to the platform 1, the said rollers 9 being designed to grip, one opposite the other, the sides of the rim of the back wheel of the bicycle in such a way as to brake the free rotation of the said wheel.



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A support with rollers for the stationary training of cyclists

As is known, the items of equipment for the stationary training of cyclists, commonly called rollers, that are known at the present time are considerably bulky and are fitted with braking systems by means of which there is a tendency to prevent the free rotation around the corresponding axes of the rollers that are carried in rotation, through friction, by the back wheel of the bicycle which, in turn, is moved by the pedal mechanism operated by the cyclist.

The system for braking the said rollers is controlled through operating levers that have to be manipulated by the cyclist in a precarious state of balance on the rollers and this often reflects negatively on the use of the said items of equipment since unless the cyclist is extremely experienced he or she can easily fall off.

When used with a certain frequency, the items of equipment on the market cause notable wear on the tyres of the bicycle because of the direct friction of these with the rollers that are carried in rotation by the back wheel of the bicycle.

The object of the invention is to overcome the aforementioned difficulties and, in particular, to make available a device on which cyclists can undergo stationary training, the construction of which is such as to eliminate the danger of the cyclist falling off, so that he or she does not have to worry about keeping his or her balance on the bicycle while training, and as to exclude the wear on the tyres.

With the invention, the problems outlined above are surmounted through a support with rollers for the stationary training of cyclists that comprises a base platform for resting the support stably on the ground, to which are secured two arms, located for example in a position symmetrical with respect to the centre of the platform, one facing the other and provided at the top with a housing that accepts, resting stably therein, one of the bifurcations of the rear horizontal fork of the bicycle, with the back wheel thereof kept raised with respect to the base platform.

In between the said arms are placed two rollers, or cylinders, that rotate idly around corresponding vertical axes, or spindles, secured to the base platform in a way whereby the position of one with respect to the other can be adjusted so as to bring them closer or farther apart.

The said rollers are either rubber clad or else are faced with a resilient material, and they are positioned in such a way as to grip, one opposite the other, the sides of the rim of the back wheel of the bicycle so as to brake, through friction, the rotation of this.

The major or minor power of adherence of the said rollers to the sides of the rim of the back wheel of the bicycle causes a major or minor braking action on the said wheel, with a consequential major or minor effort on the part of the cyclist to turn the pedals.

Because it furnishes a stable support for the bicycle, the item of equipment according to the invention makes it advantageously possible for the cyclist to pedal without worrying about keeping his or her balance on the bicycle, and this enables training to be made easier.

The braking of the back wheel of the bicycle is achieved through a direct action on the rim of the said wheel, while the weight of the bicycle plus cyclist is discharged directly on to the arms secured to the base platform. In this way, the tyre of the back wheel of the bicycle suffers no stress and thus is not subjected to any wear.

At the same time, the front wheel of the bicycle is able to rest directly on the ground and since it does not have to rotate or undergo any movement whatsoever, neither is the tyre thereon exposed to wear.

The extreme constructional simplicity of the support according to the invention makes it possible to make available an item of equipment of a minimum volume, that can easily be transported and can also effortlessly be taken apart and put together again in order to reduce the volume thereof during transportation.

The characteristics of the support with rollers forming the subject of the invention will now be outlined more fully in the description that follows of one preferred but not sole form of embodiment, with reference to the accompanying drawings, in which:

- Figure 1 shows the support in question in a perspective view, with certain parts in sectional form in order that others may be rendered more apparent;
- Figure 2 shows the support in question in a front view;
- Figure 3 shows the support in question in a lateral view;
- Figure 4 shows the support in question in a plan view.

With reference to the above listed figures, at 1 has been shown the base platform for the support in question which, in the case illustrated, is of circular section and is

made of stamped plate, though it can be produced in other forms and by different manufacturing processes.

To the base platform 1 are secured, by means of bolts 3, two arms 2 of trapezoidal shape that extend vertically, placed symmetrically with respect to the centre of the platform 1, and in the particular case illustrated, with respect to a groove 4 made in the middle of the platform 1, more about which will be said in the ensuing text.

The arms 2 are so arranged that they converge one towards the other, both vertically, starting from the platform 1, and horizontally (see Figure 4), and have at the top a housing 5 inside which can stably fit one of the bifurcations of the horizontal rear fork 6 of a bicycle.

Furthermore, each arm 2 is provided with a rod shaped member 7 whose task is to constitute an abutment element for the means for locking the back wheel 8 of the bicycle to the fork 6 (see Figures 1 and 2) so that there is no possibility of there being any sliding movement between the fork 6 and the support at the time when the bifurcations of the fork 6 are inserted in the housings 5.

The convergence in a vertical direction of the arms 2 enables there to be sufficient space between them for the gear mechanism of the bicycle to pass, while the convergence in a horizontal direction makes it possible for the housings 5 to be arranged in the best possible way for accepting the bifurcations of the fork 6.

At 9 have been shown two rollers, or cylinders, positioned in between the arms 2, and these are supported loosely by corresponding spindles 10, perpendicularly with respect to the supporting surface of the platform 1.

The spindles 10 are locked to the platform 1 by means of nuts that screw on to a threaded shank with which the lower part of the said spindles is provided; the said shank slides inside slots 11 machined in the platform 1 in a position symmetrical with respect to the groove 4, the extension direction of which is perpendicular with respect to the said groove.

The rollers 9 have the outer edge 12 thereof rubber clad or faced with a resilient material, and the axes of the spindles 10 lie in the same vertical plane as the axis of the hub of the back wheel resting on the support.

The height of the arms 2 is so calculated that, with the rear fork 6 of the bicycle resting in the housings 5, the rim 13 of the wheel 8 is placed in between the rollers 9 while the tyre thereon is housed freely in the groove 4 (see Figure 2).

As regards the use of the support in question, note should be taken of the following. The back wheel 8 of the bicycle is inserted in between the arms 2 causing the fork 6, whose bifurcations flank the wheel, to rest in the housings 5 and, contemporaneously, first the tyre and then the rim 13 of the wheel to be introduced in between the rollers 9. The outer edges 12 of the rollers 9 are thus made to grip, one opposite the other, the sides of the rim 13 and the friction created opposes the free rotation of the wheel 8 and brakes it.

The intensity of the said friction can be varied by adjusting, one with respect to the other, the position of the rollers 9: for example, by bringing the rollers closer together, after having first slackened the nuts that lock the spindles 10 to the platform 1 and then re-locked the

said spindles, the friction of the rollers 9 against the sides of the rim 13 is increased and, consequently, the force the cyclist has to apply to the pedals in order to turn the wheel 8 varies.

In accordance with what has been outlined earlier on, with the use of the support in question there is no wear on the tyre of the wheel 8 and since the rim remains free, neither is there any wear on this. Furthermore, special auxiliary braking systems for braking the wheel 8 are not needed because the latter is braked by the direct friction effect between the outer edge of the rollers 9 and the sides of the rim 13.

The placing of the bicycle on the support is instantaneous, extremely practical and ultra-simple.

The space taken up by the support is very limited indeed and if the necessity arises, it can easily be dismantled by removing the arms 2 from the platform 1, or it can also be utilized as a stand for the bicycle when not in use.

Obviously variants of a constructional nature may be envisaged : by way of an example, the housings 5 could be internally faced with an elastic material or felt so as to prevent the fork 6 of the bicycle from getting scratched, and be coupled to the arms 2 in such a way as to be adjustable in height to suit the varying dimensions of the rim of the back wheel of bicycles of different types.

Furthermore, the rollers 9 may be supported on spindles that are eccentric with respect to the threaded shank thereof that is locked to the platform 1: in this way by simply rotating the said spindles it is possible to bring the rollers towards or away from one another without resorting

to the machining of the slots 11 in the platform 1 but making more simply, holes through which the shank of the roller supporting spindles can pass.

Claims:

1. A support with rollers for the stationary training of cyclists, characterized by the fact that it comprises: a base platform 1 to which are secured two arms 2 that extend vertically, one opposite the other, and have in the upper extremity a housing 5 designed to accept resting stably therein one of the bifurcations of the horizontal fork 6 of a bicycle, to the said arms 2 being united a pair of rod shaped members 7 that are placed in proximity of the housings 5, extend towards the rear part of the support and are designed to abut with the means for locking the back wheel 8 of the bicycle to the said rear fork 6; the said housings 5 being situated, with respect to the base platform 1, at a level such as to maintain the back wheel of the bicycle raised from the base platform 1; and a pair of rollers 9 placed in between the said arms 2 and supported, in a loose fashion, by spindles 10 that are fixed to the base platform 1, parallel one with the other and perpendicular to the supporting surface of the said platform, the said rollers 9 being provided with an outer edge 12 clad in a resilient material, and the said spindles 10 for supporting the rollers 9 being placed in a vertical plane, crosswise with respect to the arms 2 secured to the base platform 1, in which lies the axis of the hub of the back wheel 8 of the bicycle resting stably on the support; the said rollers 9 being positioned, furthermore, in a way whereby to accept in between them the rim of the back wheel of the bicycle, and each to grip, with the outer edge thereof, the sides of the said rim.

2. A support according to Claim 1, wherein the base platform 1 is provided with a groove 4 that extends, between the rollers 9, along a directrix that passes in between the arms 2 secured to the said platform 1, the said slot

being designed to accept, housed freely therein, the part of the tyre of the back wheel 8 of the bicycle located underneath the rollers 9.

3. A support according to Claim 1, wherein the spindles 10 supporting the rollers 9 can be positioned, with respect to the base platform 1, in a way whereby they can be moved towards or away from one another, and the lower part thereof is provided with a threaded shank that slides inside a corresponding slot machined in the base platform 1 and is fastened stably to the said platform through locking means that screw on to the said threaded shank.

4. A support according to Claim 1, wherein the arms 2 secured to the base platform 1 extend vertically with a convergence of one towards the other, and horizontally in such a way as to converge towards the front part of the support and to have the housings 5 also converging towards the front part of the support.

FIG1

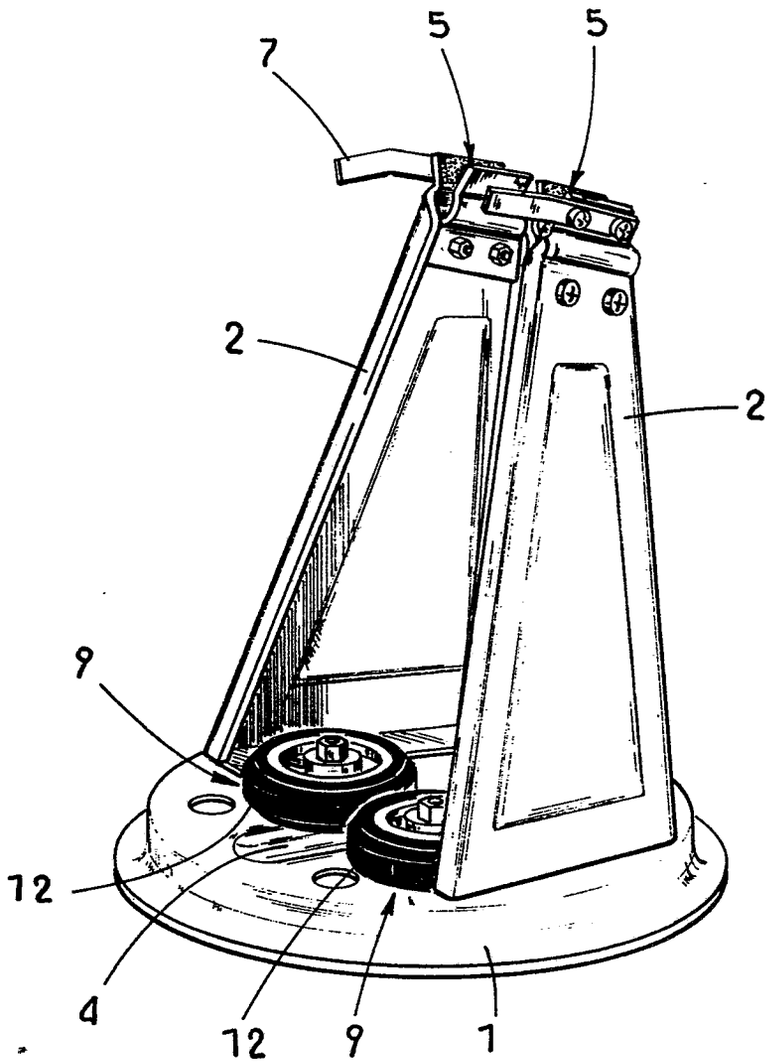
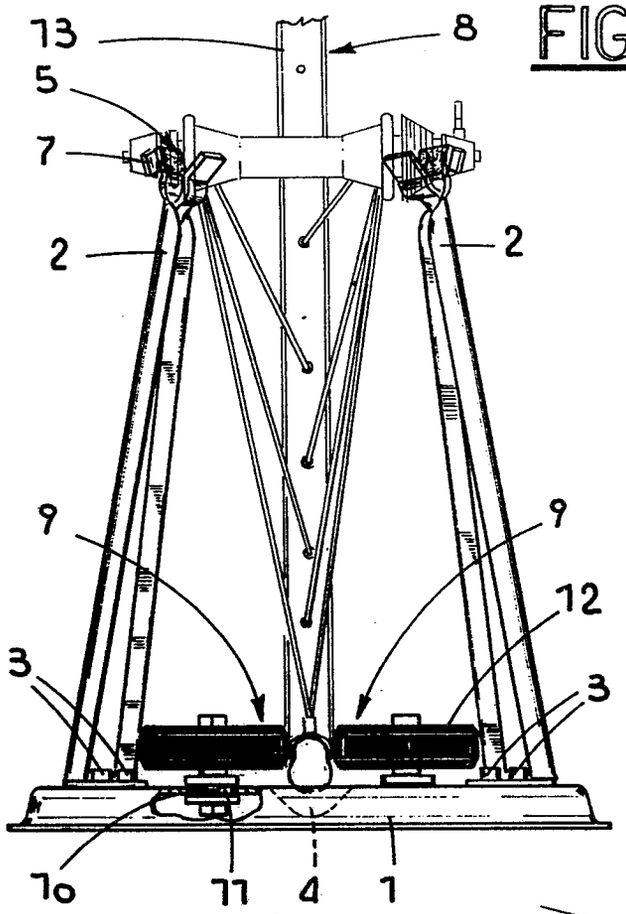


FIG2



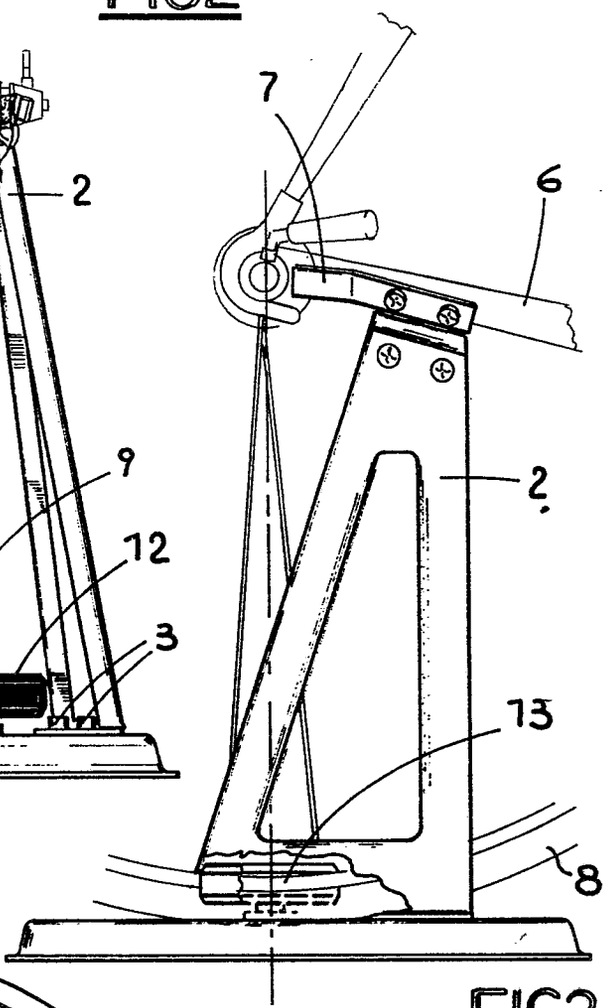


FIG3

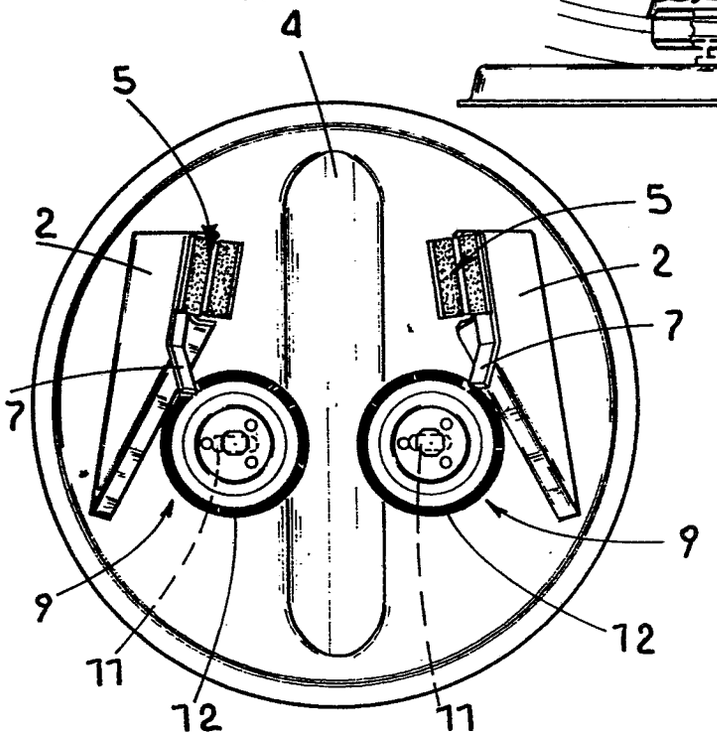


FIG4

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EUROPEAN SEARCH REPORT

Application number

EP 82 83 0054

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	DE-C- 917 688 (LANGHAEUSER) *Page 2, lines 28-57,79-95; figures 3,4*	1,3,4	A 63 B 69/16
A	US-A-2 972 478 (RAINES) *Column 2, lines 46-57; column 3, lines 45-65; figures 1,2,3*	1,3,4	
A	US-A-3 589 717 (ALEXANDER) *Column 1, lines 57-62; figure 1*	1	

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

A 63 B
B 62 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	23-06-1982	GERMANO A.G.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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