

Bicycle Rack and Assembly

Field

- 5 The invention relates to a bicycle rack and assembly.

Background

10 As society is moving towards being greener and being more sustainable, some authorities have been extremely pro-active in implementing new regulations for bicycle parking in commercial buildings. One type of these new regulations is making it compulsory to have bicycle parking lots within the building, with minimum number of lots that is required.

15 However, the issue is that most commercially available bicycle parking systems are quite standard, and they take up a lot of space.

Thus, it is desirable to have a bicycle rack and assembly which addresses at least one disadvantage of the existing art and/or to provide the public with a useful choice.

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Summary

In a first aspect, the invention provides a bicycle rack, comprising a parking portion configured to hold a wheel of a bicycle, a support member spaced from the parking portion, and a weight bearing portion arranged to be supported by the support member and the parking portion.

25 Accordingly, the bicycle rack of the described embodiment may provide great convenience to a cyclist to park their bike as they just need to push the wheel of the bicycle into the parking portion, which secures the bike without taking further steps to deploy a kickstand. Further, the weight bearing portion may be used for various purposes. For example, if the weight bearing portion includes a seat, this allows people to sit down and take a rest. On the other hand, the weight bearing portion may include a storage compartment for storing things. As such, the described embodiment may

provide an easy-to-use bicycle rack that can also serve as a bench, yet not compromising the functionality of either. Moreover, the parking portion configured to secure the bicycle may also serve as a support for the weight bearing portion, which minimizes the footprint of the bicycle rack. This is advantageous particularly due to the compact and multifunctional configuration of the bicycle rack and assembly.

In one embodiment, the support member may comprise a further parking portion configured to hold a further bicycle's wheel.

Specifically, the parking portion and the further parking portion may have a U-shaped slot adapted to wedge the respective wheel of the bicycles.

Preferably, the weight bearing portion may include a seat or bench.

In still a further embodiment, the weight bearing portion may include a storage compartment.

In a second aspect, the invention provides a bicycle rack assembly, comprising a plurality of parking portions spaced from each other. Each of the parking portions is configured to hold a respective wheel of a bicycle. The bicycle rack assembly further comprises a plurality of weight bearing portions, each of which is supported by adjacent parking portions.

Accordingly, the bicycle rack assembly may be modularly expanded with additional parking portions and weight bearing portions.

In one embodiment, the plurality of weight bearing portions may include at least one seat or bench. Alternatively or additionally, the plurality of weight bearing portions may include at least one storage compartment.

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Brief Description of Drawings

It will be convenient to describe further the present invention with respect to the accompanying drawings that illustrate possible arrangements of the invention. Other

arrangements of the invention are possible, and consequently the particularity of the accompanying drawings is not to be understood as superseding the generality of the preceding description of the invention.

- 5 Figure 1 shows a perspective view of a bicycle rack according to one embodiment of the present invention;
Figures 2(A) and 2(B) respectively show top view and front views of the bicycle rack of Figure 1;
Figure 3 is a photograph of the bicycle rack of Figure 1 in use; and
10 Figure 4 shows a perspective view of a bicycle rack assembly comprising the bicycle rack of Figure 1.

Similar reference characters denote corresponding features consistently throughout the attached drawings.

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Detailed Description

- Figures 1 to 3 illustrate a bicycle rack 10 according to a preferred embodiment and the bicycle rack 10 comprises a first parking portion 2 configured to hold a wheel 55 of a
20 bicycle 100, a support member 22 that is spaced from the parking portion 2, and a weight bearing portion 1 arranged to be supported by the support member 22 and the first parking portion 2.

- Referring to Figure 1, the parking portion 2 comprises a U-shaped slot 2a formed by
25 first, second, third and fourth vertical poles 31,32,33,34, and a U-shaped stopping member 40. The vertical poles 31,32,33,34 are arranged in a rectangular array with two top crossbars 36,38 connecting respective top sections of the first and second vertical poles 31,32, and the respective top sections of the third and fourth vertical poles 33,34. The parking portion 2 also comprises two bottom crossbars 35,37 connecting
30 respective bottom sections of the first and second vertical poles 31,32, and the respective bottom sections of the third and fourth vertical poles 33,34. With such an arrangement, distance between the first and the second vertical poles 31,32 is at a same distance as between the third and fourth vertical poles 33,34, and a distance

between the first and third vertical pole 31,33 is at a same distance as between the second and fourth vertical poles 32,34.

In this embodiment, longitudinal axis of each crossbar 35,36,37,38 are substantially
 5 parallel to each other, and is substantially perpendicular to longitudinal axis of each vertical pole 31,32,33,34.

The U-shaped stopping member 40 is attached to the respective top portions of the first and third vertical poles 31,33. The parking portion 2 further comprises an end crossbar
 10 39 attached to the bottom portions of the first and third vertical poles 31,33.

With the configuration as described, distance between the second and fourth vertical poles 32,34 creates an opening to the U-shaped slot 2a for receiving the wheel 55 of the bicycle 100. The U-shaped stopping member 40 and the end crossbar 39 the
 15 cooperates to define a depth for which the wheel 55 is received within the U-shaped slot 2a. Height of the parking portion 2 as defined by the two top crossbars, the vertical poles 31,32,33,34, and the U-shaped stopping member 40 is adapted to enable the parking portion 2 to receive and hold most (if not all) wheels of bicycles without a need to deploy a kickstand of the bicycle.

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In this embodiment, the support member 22 comprises a second parking portion 22 at the other end of the weight bearing portion 1 and including a further U-shaped slot 22a having a same structure and configuration as the first parking portion 2, and thus, no further elaboration is needed, except to mention that the second parking portion 22
 25 includes vertical legs 43,44 which are analogous to the third and fourth vertical poles 33,34 of the first parking portion 2. The second parking portion 22 is configured to hold another bicycle's wheel so as to secure a further bicycle. The second parking portion 22 is arranged parallelly to and spaced from the first parking portion 2. The bicycle rack 10 includes a first diagonal bar 41 arranged to couple a top portion of the vertical leg 44
 30 of the second parking portion 22 to the bottom portion of vertical pole 34, and a second diagonal bar 42 arranged to connect a bottom portion of the vertical leg 43 of the second parking portion 22 to the top portion of the vertical pole 33.

The first and second diagonal bars 41,42 further strengthens the structure of the bicycle rack 10 and ensure a strong and steady bicycle rack 10 as a whole.

5 In this embodiment, the weight bearing portion 1 includes a bench 1a and has a substantially rectangular shape.

Furthermore, the bench 1a is seamlessly integrated to the first and second parking portions 2,22. Particularly, the bench 1a is attached to top parts of the third and fourth vertical poles 33,34, and the vertical legs 43,44 at corners 6,7,8,9 of the bench 1a. As
10 such, the bench 1a is supported by the third and fourth vertical poles 33,34 and the vertical legs 43,44 and thus, the first and second parking portions 2,22.

Use of the bicycle rack 10 is described next.

15 Referring to Figure 3, to park the bicycle 100, a cyclist just need to push the wheel 55 of the bicycle into the U-shaped slot 22a of the second parking portion 22, which wedges the bicycle's wheel 55 in place, such that the bicycle 100 is secured even without taking further steps to deploy a kickstand. Moreover, after parking the bicycle, the cyclist can take a rest on the bench 1a.

20 Regardless of whether there is a bicycle parked in either of the first and second parking portions 2 or 22, the bench 1a may also be used by users with zero discomfort to the users.

25 For greater safety and security, the bicycle rack 10 can be easily secured to the ground or a wall to prevent theft. Particularly, the bicycle rack 10 may be secured to the ground or the wall by cementing, bolting or any other suitable methods. On the other hand, the bicycle rack 10 can work as a standalone device without a need to secure the rack 10.

30 Furthermore, the bicycle rack 10 is strong and steady such that when only one bicycle 100 is parked in either the first or second parking portions 2,22, the bicycle rack 10 would not topple over even if the bicycle rack 10 is not secured to any surface.

Because the first and second parking portions 2,22 are configured to secure the bicycle 100 also serve as supports for the bench 1a, this minimizes footprint of the bicycle rack 10, which is advantageous, particularly in a place having limited space where both resting place for people and parking place for bicycles are needed. As a result, the bicycle rack 10 is compact and multifunctional.

Instead of the bench 1a, the weight bearing portion 1 may include other functionalities. For example, the weight bearing portion 1 may include a storage compartment, wherein people may store their personal things such as a helmet, clothes and the like.

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Instead of a rectangular shape, the weight bearing portion 1 may have other shapes such as ellipse, arcuate, trapezoidal and so forth. Accordingly, the first and second parking portions 2,22 are arranged at proper positions with respect to the shape of the weight bearing portion 1 so as to provide steady support to the weight bearing portion 1.

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In the described embodiment, the support member 22 includes the second parking portion 22 but this may not be the case since the bicycle rack 10 may only be provided with the first parking portion 2 (or vice versa). Indeed, the support member 22 may simply be legs to support the bench 1a or generally the load bearing member 1.

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The bicycle rack 10 is versatile since the bicycle rack 10 may be modularly expanded by adding additional weight bearing portions 1 and more parking portions 2,22 and this is illustrated in Figure 4.

Figure 4 illustrates a bicycle rack assembly 500 which comprises the bicycle rack 10 of Figure 1 and further expanded to include a further bicycle rack 200. The further bicycle rack 200 has similar structural features and configuration as the bicycle rack 10 and the further bicycle rack 200 includes a second bench 201 supported by a third parking portion 202 and the second parking portion 22 of the bicycle rack 10. In other words, the second parking portion 22 provides the necessary support for the two adjacent benches 1a,201. In this configuration, the bicycle rack assembly 500 may hold up to three bicycles, and provides two benches 1a,201. Accordingly, it can be appreciated that further bicycle rack 10 modules may be added to expand the capacity of the bicycle assembly 500.

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It is envisaged that size of the parking portion 2, in particular the size (eg. width) of the U-shaped slot 2a may be configurable or adjustable to allow the parking portion 2 to receive or fit different wheel sizes of the bicycle 100. The second parking portion 22
5 may also be configurable in the same manner.

Having now fully described the invention, it should be apparent to one of ordinary skill in the art that many modifications can be made hereto without departing from the scope as claimed.

Claims

1. A bicycle rack, comprising:
 - a parking portion configured to hold a wheel of a bicycle;
 - 5 a support member spaced from the parking portion; and
 - a weight bearing portion arranged to be supported by the support member and the parking portion.
2. The bicycle rack according to claim 1, wherein the support member comprises a
10 further parking portion configured to hold a further bicycle's wheel.
3. The bicycle rack according to claim 1, wherein the parking portion has a U-shaped slot adapted to wedge the wheel of the bicycle.
- 15 4. The bicycle rack according to claim 2, wherein the further parking portion has a further U-shaped slot adapted to wedge the further bicycle's wheel.
5. The bicycle rack according to any preceding claims, wherein the weight bearing portion includes a seat or bench.
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6. The bicycle rack according to any of claims 1 to 5, wherein the weight bearing portion includes a storage compartment.
7. A bicycle rack assembly, comprising:
 - 25 a plurality of parking portions spaced from each other; each of the parking portions configured to hold a respective wheel of a bicycle; and
 - a plurality of weight bearing portions, each of which is supported by adjacent parking portions.
- 30 8. A bicycle rack assembly according to claim 7, wherein the plurality of weight bearing portions include at least one seat or bench.
9. A bicycle rack assembly, according to claim 7 or 8, wherein the plurality of weight bearing portions include at least one storage compartment.