



HU000024109T2

(19) **HU****MAGYARORSZÁG**
Szellemi Tulajdon Nemzeti Hivatala(11) Lajstromszám: **E 024 109**(13) **T2**

EURÓPAI SZABADALOM

SZÖVEGÉNEK FORDÍTÁSA

(21) Magyar ügyszám: **E 12 159043**(22) A bejelentés napja: **2012. 03. 12.**(51) Int. Cl.: **B62H 3/02** (2006.01)**B62H 5/00** (2006.01)**B62M 6/80** (2006.01)

(96) Az európai bejelentés bejelentési száma:

EP 20120159043

(97) Az európai bejelentés közzétételi adatai:

EP 2497702 A1 **2012. 09. 12.**

(97) Az európai szabadalom megadásának meghirdetési adatai:

EP 2497702 B1 **2014. 10. 08.**

(30) Elsőbbségi adatok:

3272011 **2011. 03. 10.** **AT**

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Kerékpár és tartószerkezet

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.

The invention relates to a bicycle having a frame, a handlebar and a coupling which is formed for fixing and locking on a fixed retainer arranged according to the preamble of claim 1.

Bicycles are usually not secured by bicycle locks in rental stations or the like, but by a coupling attached to the bicycle in a respectively arranged retainer. The retainer is usually provided with locking elements which are released by authorised users so that they can remove the bicycle. The connection between the locking element and the retainer is substantially rigid, i.e. the bicycle is fixed in a predetermined position. It is disadvantageous in this respect that all forces that act on the parked bicycle need to be absorbed by said bicycle. That is why it is possible that even relatively low forces which are exerted on the bicycle remote from the fastening point lead to high torques at the fastening point, which may easily cause damage.

In order to reduce this likelihood of damage, the coupling is often arranged in the middle region of the bicycle, e.g. on the down tube, in order to decrease the potential lever arm. This is far from optimal from the standpoint of the user, but it is still accepted for the above reasons.

A coupling which comprises a joint is known from WO 2009/129623 A, so that limited mobility of the bicycle in relation to the retainer is possible. It is problematic in this respect that there is a limit stop principally at the end of the movement range, against which the bicycle strikes during a respectively large movement, wherein this again leads to the likelihood of damage. Since the movement before the limit stop occurs without any significant resistance, the likelihood of damage is even greater than in the solution as described above. Furthermore, such a coupling usually does not ensure the proper positioning of the bicycles, which impairs operation when several retainers are arranged adjacent to one another at a relatively small distance from each other, as is usually the case in rental stations.

A coupling with similar disadvantages is known from GB 2 455 551 A. Furthermore, DE 295 06 166 U shows a ball-and-socket connection for pushing bicycles, but which is not suitable for securely fixing a bicycle to a fixed structure.

RO 102 236 A shows a coupling for a bicycle trailer with elastic properties.

WO 2010/106238 A discloses a retainer for a bicycle with a protection device against unauthorised removal.

WO 2010/058127 A1, which is regarded as the closest prior art, shows a bicycle with a coupling and a retainer.

It is the object of the invention to avoid these disadvantages and to provide a solution which offers a distinctly lower susceptibility to damage, even when improper interventions are made.

It is provided in accordance with the invention according to claim 1 that the coupling is formed as a partially spherically shaped engaging body attached resiliently to the frame or the handlebar.

The relevant aspect of the invention is that the desired position of the bicycles is fixed in normal operation by the spring. A resilient resistance is applied to acting forces, which resistance pretensions the bicycle in the direction of the normal position and increases with rising deflection. The likelihood of damage can thus be decreased considerably when improper manipulation is carried out. The fixing of the coupling to the frame is preferred, because the position of the bicycle is then independent of the position of the handlebar.

It is especially advantageous if the engaging body is attached to a front region of the bicycle, preferably above a front wheel. The parking and removal of a bicycle can thus be arranged in a simple and user-friendly manner, while still achieving high tolerance against damage.

An especially advantageous embodiment of the invention provides that the coupling, i.e. the engaging body, is fastened by way of a coil spring. This is a simple solution and provides a progressively rising resistance in the form of a restoring torque against twisting of the bicycle against the retainer in all directions.

It is also provided in accordance with the invention that the engaging body comprises at least one flattened portion. As a result, the rotational mobility of the engaging body can be limited in the locking position in a purposeful manner. It is achieved in this manner that only the target position of the bicycle with respect to the retainer is free from torque. Any deflection beyond this position is only possible via a deformation of the spring.

The bicycle can be arranged especially as an electric bicycle. In this case it is provided in an especially preferred manner that contacts for power supply are attached to the engaging body, preferably laterally opposite of one another. Charging of the power source of the bicycle can thus occur in the locking position. A front flattened portion can be used as an alternative to the lateral arrangement of the contacts. This offers the advantage that charging is ensured even in the

case of strong twisting of the bicycle about its longitudinal axis as long as the charging contacts on the retainer are provided with a respectively large configuration.

The invention further relates to a retainer for at least one bicycle of the type described above. A receptacle for a coupling is provided in accordance with the invention for each bicycle, which receptacle is arranged as a pan with locking elements.

It is provided in a first embodiment which is not claimed that the receptacle allows a movement of the engaging body with several degrees of freedom. This increases the freedom of movement in addition to the possibilities of the deformation of the spring, wherein predetermined frictional forces in the pan can be set against the movement of the engaging body in a purposeful manner.

It is alternatively provided in a second and claimed embodiment that the receptacle comprises a contact surface for a flattened portion of the engaging body. As a result, the twisting of the partly spherical engaging body is limited or excluded when it is locked in the pan. The spherical configuration of the engaging body allows said body to be introduced into the receptacle at different angles without impairing secure locking.

The present invention will be explained below in closer detail by reference to the embodiment shown in the drawings, wherein:

Fig. 1 schematically shows a bicycle with a coupling in accordance with the invention, and

Fig. 2 shows the relevant components of coupling and retainer.

The bicycle of Fig. 1 comprises a frame 1 in conventional diamond configuration, wherein any other configuration such as a ladies' bicycle is possible. A coupling 6 is attached to the head 2, which carries the handlebar 3 plus fork 4 and front wheel 5. The coupling 6 consists of a coil spring 7, which is fixedly fastened at one end to the head tube 2 and carries an engaging body 8 at its free end.

Fig. 2 shows the configuration of the coupling in a more detailed view. The engaging body is substantially spherical, i.e. it has a spherical surface 9 which forms the majority of the circumference. A flattened portion 10 is provided on the side opposite of the coil spring.

The retainer indicated in general with reference numeral 11 comprises an insertion opening 12 which expands outwardly for the insertion of the insertion

body 8 into a receiving space 13a of a receptacle 13. Depressions 14 are used to securely hold the engaging body 8 in a locking position.

A locking element 15 is movably arranged and pretensioned by a spring 15 in order to enable the insertion of the engaging body 8. The locking element 15 can be locked in a position by locking bars (not shown) which are triggered by a control device (also not shown) in which the extraction of the engaging body 8 is prevented, so that the bicycle is secured against unauthorised removal. A contact surface 16 supports the flattened portion 10 in the locking position, so that the engaging body 8 is fixed in a non-twistable fashion.

A contact 17 for power supply is attached laterally to the engaging body 8, which contact is used for charging the battery of the bicycle. A respective charging contact 18 is provided on the retainer 11. The second contact can be arranged invisibly opposite, but also on the flattened portion 10, wherein in this case the respective charging contact lies on the stop surface 16.

The present invention allows attaching the bicycle securely to a retainer 11 and to protect it from unauthorised removal.

SZABADALMI IGÉNYPONTOK

- 1.kerékpár kerettel (1), kormányal (3) és csatolószerkezettel, amely ki van alakítva rögzített tartószerkezeten (11) történő rögzítéshez és záráshoz, hogy jogosulatlan elvétel ellen védje, azzal jellemezve, hogy a csatolószerkezet részben gömbszerűen kialakított kapcsolódási testként (8) van kialakítva, amely rugósan a kereten (1) vagy a kormányon (3) van rögzítve és legalább egy lapultsággal (10) rendelkezik, úgy hogy a kerékpár tervezett helyzete a tartószerkezetre vonatkoztatva nyomtérmentes.
- 2.Az 1. igénypont szerinti kerékpár, azzal jellemezve, hogy a csatolószerkezet a kerékpár előlő részén, előnyösen első kerék (5) felett van elhelyezve.
3. Az 1. igénypont szerinti kerékpár, azzal jellemezve, hogy a csatolószerkezet egy kormánycsövön (2) van elhelyezve.
4. Az 1-3. igénypontok bármelyike szerinti kerékpár, azzal jellemezve, hogy a kapcsolódási test (8) csavarrugón (7) keresztül van rögzítve.
5. Az 1-4. igénypontok bármelyike szerinti kerékpár, azzal jellemezve, hogy a kapcsolódási testen (8) előnyösen oldalvást egymással szembenfekvő kapcsolatok (17) vannak az áramellátáshoz elhelyezve.
- 6.Tartószerkezet legalább egy, az 1-5. igénypontok bármelyike szerinti kerékpár számára, ahol befogadórész (13) a kapcsolódási test (8) számára van betervezve, amely csészeként legalább egy zárelemmel (15) van kialakítva, azzal jellemezve, hogy a befogadórész (13) felfekvési felülettel (16) rendelkezik a kapcsolódási test (8) lapultsága (10) számára.
- 7.A 6. igénypont szerinti tartószerkezet, azzal jellemezve, hogy a befogadórész (13) töltőérintkezőkkel (18) rendelkezik elektromos energia átvitelére.

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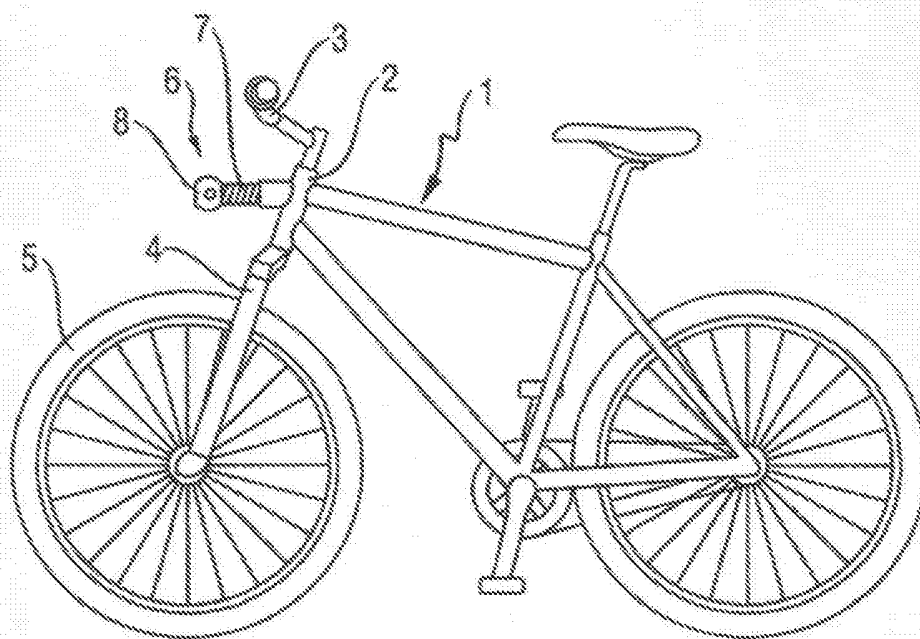


Fig. 1

