(19) DANMARK

(10) **DK/EP 3140180 T3**

(12) Oversættelse af europæisk patentskrift

Patent- og Varemærkestyrelsen

(51) Int.Cl.: ***B 62 H 5/00 (2006.01)*** ***B 62 H 5/14 (2006.01)***

(45) Oversættelsen bekendtgjort den: **2020-06-15**

(80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2020-03-18**

(86) Europæisk ansøgning nr.: **15732045.8**

(86) Europæisk indleveringsdag: **2015-05-06**

(87) Den europæiske ansøgnings publiceringsdag: **2017-03-15**

(86) International ansøgning nr.: **IB2015053301**

(87) Internationalt publikationsnr.: **WO2015170263**

(30) Prioritet: **2014-05-06 IT MI20140160**

(84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

(73) Patenthaver: **Caldiroli, Matteo Diego, Via Giacomo Watt 9, 20143 Milano, Italien**

(72) Opfinder: **Caldiroli, Matteo Diego, Via Giacomo Watt 9, 20143 Milano, Italien**

(74) Fuldmægtig i Danmark: **Marks & Clerk (Luxembourg) LLP, 44 rue de la Vallée, B.P. 1775, L-1017 Luxembourg, Luxembourg**

(54) Benævnelse: **TYVERISIKRINGSANORDNING INTEGRERET I EN CYKELS STEL**

(56) Fremdragne publikationer:
EP-A1- 0 614 798
DE-A1- 19 523 558
DE-A1-102004 009 607
DE-C1- 19 528 569
DE-U1-202013 006 253
NL-C2- 1 029 700
US-A1- 2014 000 322
US-B1- 6 505 846

DESCRIPTION

[0001] The present invention regards the sector of bicycle frames with an antitheft device.

[0002] In greater detail, the present invention relates to an antitheft device comprised in a frame for bicycles, constructionally integrated in the frame thereof.

[0003] In order to prevent unattended bicycles from being stolen, it is customary to secure them to unmovable structures (bicycle racks, vertical road traffic signs, lamp posts, railings, etc.) using metal chains or flexible metal cables, provided with locking means (padlocks, etc.). In the absence of adequate structures, such antitheft chains or cables are also used to secure together a number of bicycles, or else to block their rear wheels.

[0004] In order to be constantly available for possible use, the above antitheft chains or cables are normally carried on the bicycles themselves on which they are to be applied to prevent them from being stolen, directly secured to the frame of said bicycles or else kept inside purposely designed containers applied on the bicycles (bags, cases, etc.).

[0005] Use of the above antitheft chains or cables presents some major drawbacks, chiefly deriving from the aforementioned need to be carried on the bicycles themselves on which they are to be applied to prevent them from being stolen.

[0006] In the case where the antitheft chains or cables are carried directly on the frame of the bicycles, they may, in fact, hinder regular pedalling, potentially nullifying the physiological benefits normally deriving from this activity.

[0007] In the case where the antitheft chains or cables are carried inside purposely designed containers (bags, cases, etc.), they may instead require purchase of said containers, with consequent inevitable increase of the overall costs of bicycles, as well as a consequent negative alteration of the aesthetic characteristics thereof. The document DE 10 2004 009607 A1 discloses a bicycle frame comprising and anti-theft device according to the preamble of claim 1.

[0008] Hence, a purpose of the present invention is to overcome the drawbacks described above.

[0009] The purpose of the present invention is achieved by an antitheft device comprised in a frame for bicycles, constructionally integrated in the frame thereof, according to the main Claim 1.

[0010] Further characteristics of the present invention are moreover specified in the dependent claims.

[0011] The present invention affords the following important advantages:

- it makes it possible to provide an antitheft device for bicycles, constructionally integrated in the frame thereof;
- it makes it possible to provide an antitheft device for bicycles that does not hinder the normal pedalling activity;
- it makes it possible to provide an antitheft device for bicycles that does not alter the aesthetic characteristics thereof; and
- it makes it possible to provide an antitheft device for bicycles that does not require purchase of purposely designed containers.

[0012] The present invention is described in what follows with reference to one embodiment thereof represented in the attached plates of drawings, which are provided by way of non-limiting example and in which:

- Figures 1 and 2 show, respectively in lateral plan view and in top plan view, the structural conformation of an antitheft device for bicycles, according to the invention;
- Figures 3 and 4 show, respectively in lateral plan view and in top plan view, an antitheft device for bicycles, according to the invention, in its resting condition; and
- Figures 5 and 6 show, respectively in lateral plan view and in top plan view, an antitheft device for bicycles, according to the invention, in use.

[0013] With reference to the attached Figures 1 and 2, an antitheft device 1 for bicycles B, according to the invention, is substantially made up of:

- a pair of flexible cables 2, fixed with respect to the frame T of a bicycle B, which are designed to enable anchorage of said bicycle B to unmovable structures S, such as bicycle racks, vertical road traffic signs, road lamps, railings, etc.;
- a means 7, designed to enable reversible blocking of said flexible cables 2 around said unmovable structures S; and
- a chip 10, contained within the frame T of the bicycle B, designed to enable identification and satellite location thereof.

[0014] The flexible cables 2 of the antitheft device 1 are made of high-strength metal materials (preferably steel) and have a cross section of approximately 8 mm, in such a way as to prevent, or render in any case extremely problematical, tampering therewith by cutting them.

[0015] The flexible cables 2 have rear ends 3 irreversibly connected to the seat stays T1 of the frame T of the bicycle B, by means of welding processes or by purposely provided coupling joints (not illustrated).

[0016] The flexible cables 2 constitute a front prolongation of the seat stays T1 of the frame T and, when they are not in use, they can be blocked around the down tube T2 of said frame T, with the purposely provided means 7, in such a way as to constitute an element 5, comprised in the structure of the frame T itself and designed to complete the profile thereof, as may be noted from the attached Figures 1, 2, 3, and 4.

[0017] The flexible cables 2 can thus be carried as an element 5, forming part of the frame T itself, without requiring purchase of purposely designed containers that can be applied on the bicycle B.

[0018] The flexible cables 2 have a protective coating 6, made of rubber or flexible plastic, having the same colouring, decorations, or surface finish as those present on the frame T of the bicycle B in such a way as to render said element 5 perfectly integrated with the aesthetic and/or chromatic characteristics of said frame T and of the bicycle B itself.

[0019] The means 7 for blocking together the flexible cables 2 of the antitheft device 1 has a structure of an anti-tamper and anti-drill type and is made up of a pair of terminals 8, 9, of the male/female type, which can be coupled together, irreversibly connected to the free front ends 4 of the aforementioned flexible cables 2 using welding processes or purposely provided coupling joints (not illustrated).

[0020] The above terminals 8, 9 comprise a release mechanism (not illustrated), of the encoded-key type or else of the numeric-combination type, designed to enable temporary uncoupling thereof in the various conditions of use. The encoded key, or the numeric combination, for activating said release mechanism corresponds uniquely to the antitheft device 1 integrated in the frame T of the bicycle B.

[0021] The chip 10 of the antitheft device 1 is constructionally inserted within the frame T of the bicycle B, during assembly thereof, and is designed to contain, in an adequately encoded form:

- the serial number of the frame T of the bicycle B;
- the key code of the encoded key for actuation of the mechanism for releasing the terminals 8, 9 of the means 7 for blocking the flexible cables 2 of the antitheft device 1; and
- the numeric combination for activation of the mechanism for releasing the terminals 8, 9 of the means 7 for blocking the flexible cables 2 of the antitheft device 1.

[0022] Operation of an antitheft device 1 for bicycles B, according to the invention, can be summarized as follows.

[0023] When the bicycle B is moving, the flexible cables 2 of the antitheft device 1 can be

stably blocked around the down tube T2 of the frame T thereof, by mutual coupling of the terminals 8, 9 of the means 7, which are fixed with respect to the flexible cables, in such a way as to constitute an element 5, which is comprised in the structure of the frame T itself and is designed to complete the profile thereof, as may be noted from the attached Figures 1, 2, 3, and 4.

[0024] The element 5 is set between the seat stays T1 and the down tube T2 of said frame T, as well as underneath the top tube T3 thereof, and consequently does not interfere in any way with the regular pedalling activity performed by the rider of the bicycle B.

[0025] The element 5 moreover has the same colouring, decorations, and surface finish as those present on the frame T of the bicycle B, and consequently does not alter in any way the aesthetic and/or chromatic characteristics of said frame T and of the bicycle B itself.

[0026] When the bicycle B is parked, the flexible cables 2 of the antitheft device 1 can be released from the down tube T2 of the frame T of the bicycle B, by temporary uncoupling of the terminals 8, 9 of the means 7, and be blocked, by recoupling said terminals 8, 9, around an unmovable structure S, such as a bicycle rack, a vertical road traffic sign, a lamp post, etc., as may be noted from the attached Figures 5 and 6. Temporary uncoupling of the terminals 8, 9 of the means 7 for blocking the flexible cables 2 is rendered possible by the mechanism for release thereof, which can be activated exclusively by a purposely provided encoded key or else by a purposely provided numeric combination.

[0027] The flexible cables 2 are structurally fixed with respect to the seat stays T1 of the frame T of the bicycle B, and are moreover made of high-strength metal materials, and consequently enable a secure anchorage of the bicycle B to the aforementioned structure S.

[0028] The flexible cables 2 can obviously be used also for anchoring together a number of bicycles B, or else for blocking the respective rear wheels.

[0029] In the case where a thief were to manage (with extreme difficulty) to cut the flexible cables 2 of the antitheft device 1, he would find himself with a bicycle B that is irremediably damaged, and therefore is practically of no value in so far as said flexible cables 2 are structurally fixed with respect to the seat stays T1 of the frame T of the bicycle B and consequently cannot be replaced or repaired.

[0030] In the case where a thief were to manage (once more with extreme difficulty) to hamper with the means 7 for blocking the flexible cables 2 of the antitheft device 1, he would instead find himself with a bicycle B markedly limited in its use, and in any case of practically no value in so far as it is without the encoded key for actuation of the mechanism for releasing the terminals 8, 9 of said means 7, it being possible to reproduce said key exclusively by means of the key code that only the owner of the bicycle B possesses, or else in so far as it is without the numeric combination for activation of the mechanism for releasing said terminals 8, 9 of said means 7, which is also possessed just by the owner of the bicycle B.

[0031] What has been described above, which is evident to a possible thief, represents an important deterrent for theft of a bicycle B comprising an antitheft device 1 constructionally integrated in the frame T thereof.

[0032] In the case where a possible thief were in any case to steal a bicycle B comprising an antitheft device 1, the purposely provided chip 10 of said antitheft device 1 would enable identification and satellite location thereof (by means of systems already used in the automotive field) and consequent retrieval by the police.

[0033] Identification and location of the specific bicycle B stolen will be obtained through detection of the serial number of the frame T thereof, transmitted by the chip 10 to the relevant satellite detection system.

[0034] The above chip 10 may contain, if need be, also the key code of the encoded key for activation of the mechanism for releasing the terminals 8, 9 of the means 7 for blocking the flexible cables 2 of the antitheft device 1, or else the numeric combination for activation of said release mechanism.

[0035] Retrieval of the above information, which can be carried out exclusively by authorized staff, who are in possession of apparatuses designed to access correctly said chip 10, will enable authorized duplication of the aforementioned encoded key in the case where the original key is not functioning properly or has been mislaid, or authorized actuation of the mechanism for releasing the terminals 8, 9 of the means 7 for blocking the flexible cables 2 of the antitheft device 1, in the case where the original numeric combination has been forgotten or has got lost.

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE102004009607A1 [0007]

TYVERISIKRINGSANORDNING INTEGRERET I EN CYKELS STEL

PATENTKRAV

1. Cykelstel (T), der omfatter en tyverisikringsanordning (1), der er integreret i cyklens (B) stel (T), hvor tyverisikringsanordningen (1) omfatter:

- et par fleksible kabler (2), der er fastgjort i forhold til en cykel B's stel T, og
- et middel (7) til blokering af de fleksible kabler (2),

hvor de fleksible kabler (2) og blokeringsmidlet (7) er designet til at samvirke om at frembringe forankring af cyklen (B) til en ikke-bevægelig struktur (S), når cyklen er parkeret, og hvor de fleksible kabler (2) kan blokeres omkring et underrør (T2) af stellet (T) med blokeringsmidlet (7) på en sådan måde, at de udgør et element (5), der indgår i strukturen af cyklens (B) stel (T), når cyklen er i bevægelse,

hvor elementet (5) af cyklens (B) stel (T) er designet til at fuldende stellets (T) profil,

kendetegnet ved, at bagenderne (3) af de fleksible kabler (2) er irreversibelt forbundet med cyklens (B) stels (T) sadelrør (T1) ved svejsning eller mekaniske koblingsled, og ved, at de fleksible kabler (2) udgør en frontforlængelse af cyklens (B) stels (T) sadelrør (T1).

2. Cykelstel ifølge krav 1, kendetegnet ved, at de fleksible kabler (2) er fremstillet af metalmaterialer af høj styrke.

3. Cykelstel ifølge krav 1, kendetegnet ved, at de fleksible kabler (2) omfatter en beskyttelsescoating (6) med den samme farve, og/eller dekorationer, og/eller overfladefinish som de, der er til stede på cyklens (B) stel (T).

4. Cykelstel ifølge krav 1, kendetegnet ved, at midlet (7) til blokering af de fleksible kabler (2) omfatter et par terminaler (8, 9) af typen med reversibel gensidig kobling.

5. Cykelstel ifølge krav 4, kendetegnet ved, at midlets (7) terminaler (8, 9) omfatter en frigørelsesmekanisme, der er designet til at muliggøre midlertidig frakobling deraf.

6. Cykelstel ifølge krav 5, kendetegnet ved, at mekanismen til frigørelse af terminalerne (8, 9) er designet til at blive aktiveret ved hjælp af en kodet nøgle eller ellers ved hjælp af en numerisk kombination.

7. Cykelstel ifølge krav 4, kendetegnet ved, at midlets (7) terminaler (8, 9) er irreversibelt forbundet med de frie frontender (4) af de fleksible kabler (2), ved svejsning eller mekaniske koblingsled.

8. Cykelstel ifølge krav 4, kendetegnet ved, at midlets (7) terminaler (8, 9) muliggør reversibel blokering af de fleksible kabler (2) omkring ikke-aftagelige strukturer (S), såsom cykelstativer, vejskilte, lygtepæle og lignende.

9. Cykelstel ifølge krav 4, kendetegnet ved, at midlets (7) terminaler (8, 9) muliggør reversibel blokering af de fleksible kabler (2) omkring underrøret (T2) af cyklens (B) stel (T) og efterfølgende dannelse af elementet (5) af stellet (T) mellem sadelrør (T1) og stellets (T) underrør (T2), under det øvre rør (T3) deraf.

10. Cykelstel ifølge krav 1, kendetegnet ved, at det omfatter en chip (10), der er designet til at muliggøre identifikation og satellitlokalisering af cyklen (B).

11. Cykelstel ifølge krav 10, kendetegnet ved, at chippen (10) er indeholdt i cyklens (B) stel (T).

12. Cykelstel ifølge krav 10, kendetegnet ved, at chippen (10) er designet til at indeholde serienummeret på cyklens (B) stel (T).

13. Cykelstel ifølge krav 10, kendetegnet ved, at chippen (10) er designet til at indeholde nøglekoden til en kodet nøgle af typen designet til at muliggøre aktivering af mekanismen til frigørelse af midlets (7) terminaler (8, 9) til blokering af de fleksible kabler (2).

14. Cykelstel ifølge krav 10, kendetegnet ved, at chippen (10) er designet til at indeholde en numerisk kombination, af typen designet til at muliggøre aktivering af mekanismen til frigørelse af midlets (7) terminaler (8, 9) til blokering af de fleksible kabler (2).

15. Cykel (B), kendetegnet ved, at den omfatter et cykelstel (T) ifølge krav 1.

DRAWINGS

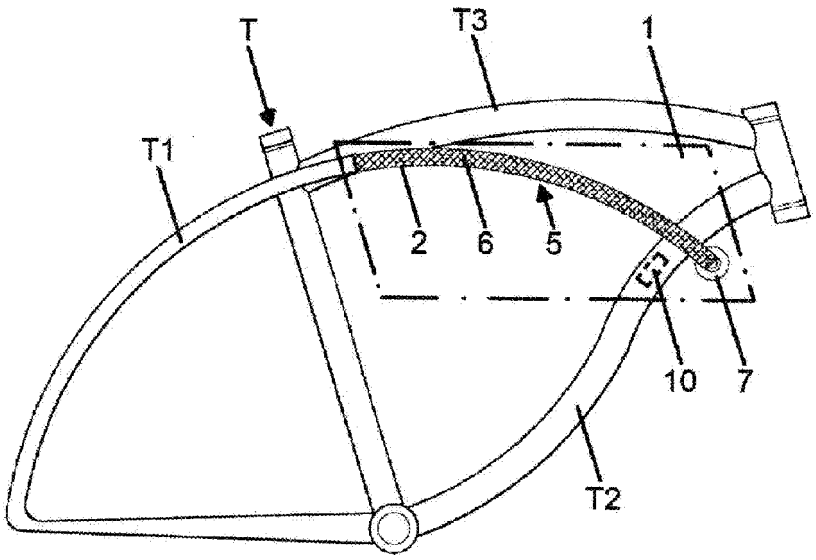

FIG. 1

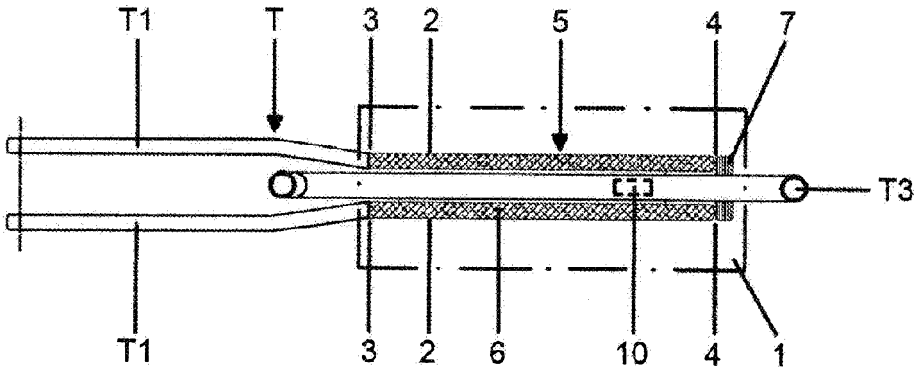

FIG. 2

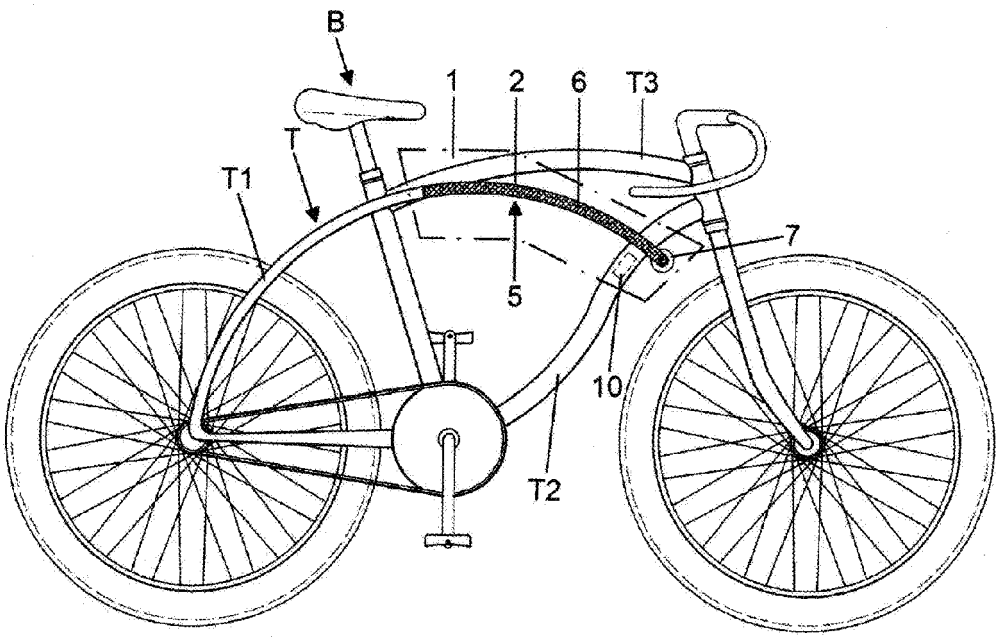

FIG. 3

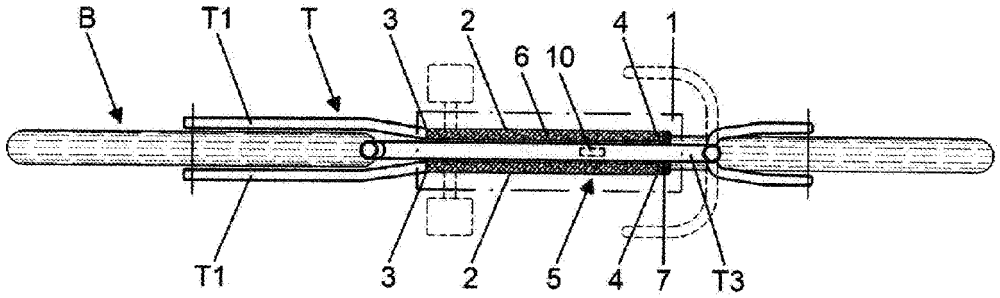

FIG. 4

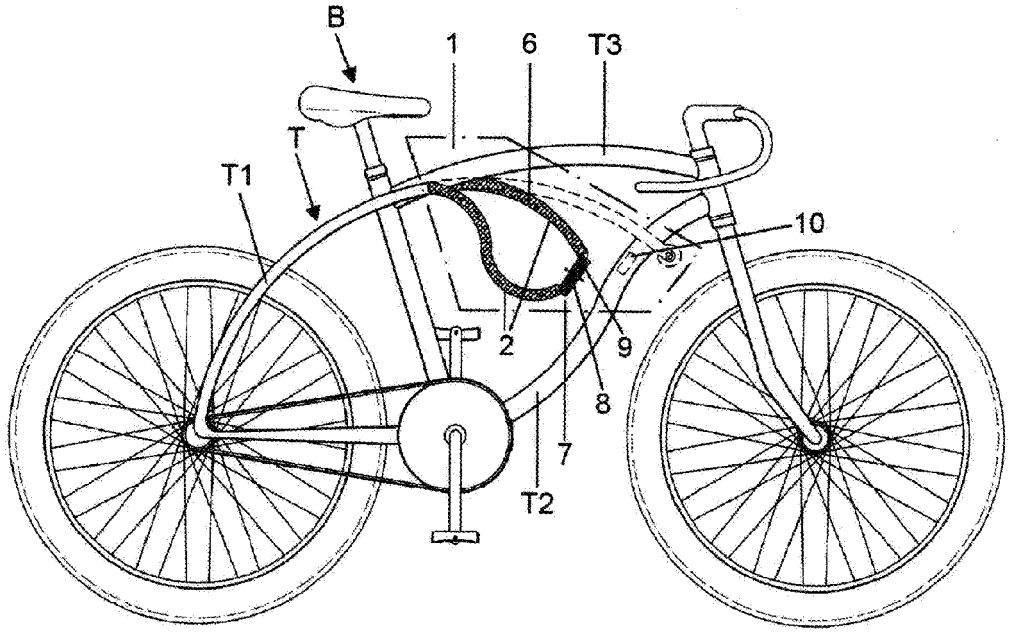

FIG. 5

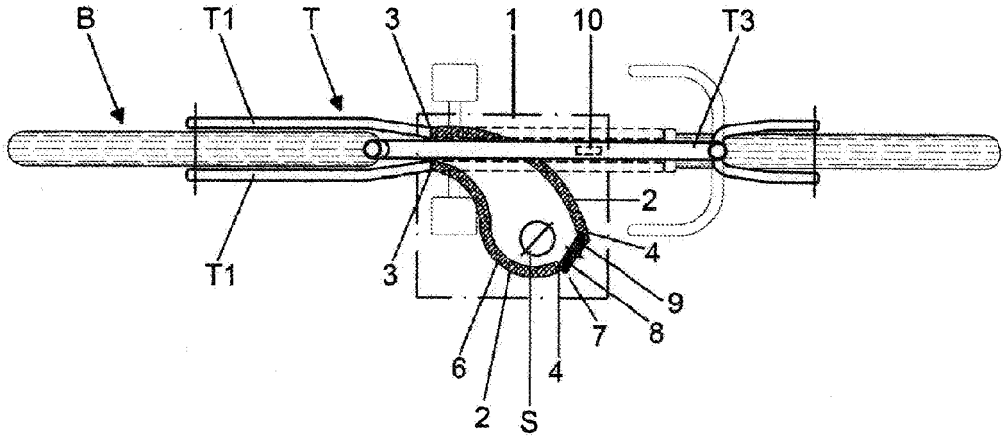

FIG. 6