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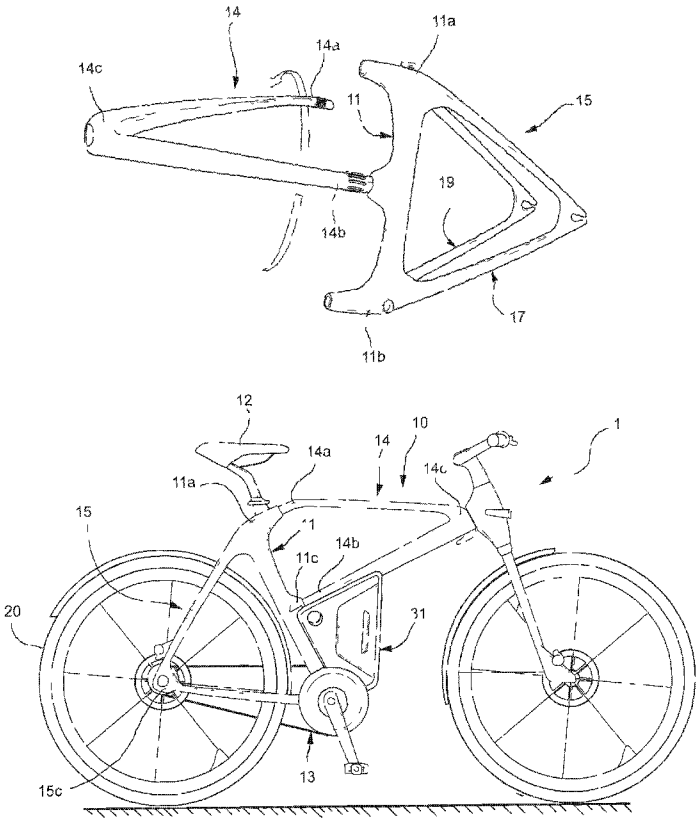
(54) **Title:** A FRAME FOR CYCLES



(57) Abstract: Frame (10) for cycles (1) comprising: a seat tube (11), at the top end (Ha) of which a saddle (12) is intended to be connected, and a front structure (14) which, viewed laterally, has a general V-shaped form, with end portions (14a, 14b) connected to the seat tube (11), and with an angular portion (14c). One end of the front structure (14) is connected to a central or middle portion (1Ie) of the seat tube (11) and the other end (14a) can be selectively connected to one end (l la) or to the other end (l ib) of the seat tube (11) so as to allow the formation, selectively, of a frame with a so-called "man's" or "woman's" configuration. A propulsion unit (31) such as an electric motor can be connected to the bottom end portion (1Ib) of said seat tube (11).

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Declarations under Rule 4.17:

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A frame for cycles

The present invention relates to frames for cycles.

The term "cycle" in the present description and in the claims which follow is not intended to be limited to bicycles alone, but is applicable generally to cycles of different types, such as, for example, power-assisted bicycles, motorcycles, etc .

The present invention relates specifically to a frame for cycles comprising in a manner known per se:

a seat tube, at the top end of which a saddle is intended to be connected, and

a front structure having, viewed laterally, a general V-shaped form, with end portions connected to the seat tube and with an angular portion.

In the constructional solutions at present still widely used a frame for cycles is designed in the form of a composite structure comprising a certain - and in some cases fairly large - number of tubular components which are connected together, usually by means of welding. The associated production processes are somewhat complex and costly, in view of the large number of parts to be interconnected and the number of operations required.

One object of the present invention is therefore to provide a frame for cycles of the type described above, having a simplified structure able to allow a corresponding simplification of the production processes, the cost of which is therefore reduced.

A further object of the invention is to propose a frame for cycles which, using the same frame parts, allows the formation of both a so-called "man's" version of the frame, i.e. with a tube or similar component which extends in an approximately horizontal manner between the region where the front wheel fork is attached and the region where the seat tube supports the saddle, and a so-called "woman's" version, where the frame forms an upwardly directed opening between the two abovementioned regions.

Further characteristic features and advantages of the invention will become clear from the detailed description which follows, provided purely by way of a non-limiting example, with reference to the accompanying drawings, in which:

Figure 1 is a side elevation view of a bicycle provided with a frame according to the present invention;

Figure 2 is a perspective view which shows part of the frame for bicycle according to Figure 1;

Figure 3 is another side elevation view which shows a bicycle, the frame of which comprises the same parts as the frame according to Figures 1 and 2, assembled together in a different configuration; and

Figure 4 is a side elevation view, similar to that shown in Figure 1, of a power-assisted bicycle, provided with a frame according to the present invention.

In Figure 1, 1 denotes in its entirety a bicycle comprising a frame 10 according to the present invention.

The frame 10 comprises a seat tube 11 which is operationally arranged so as to be vertical or near vertical (i.e. with an inclination, relative to the vertical, up to a maximum angle

of about 30°).

The seat tube 11 has a top end 11a which supports a saddle 12. A pedal unit 13, of the type known per se, is connected to the bottom end lib of the seat tube 11.

The frame 10 also comprises a front structure and a rear structure, which are denoted by 14 and 15. These structures, viewed laterally, have a general V-shaped form, with the corresponding ends 14a, 14b and 15a, 15b, respectively, connected to the seat tube 11, and the corresponding angular ends 14c and 15c situated on opposite sides of the seat tube 11.

The structures 14 and 15 of the frame 10 are generally different from each other.

In the embodiment shown in the drawings (see in particular Figure 2), the rear structure 15 comprises a pair of V-shaped parts 17, 19, with the respective angular ends transversely spaced from each other. The corresponding arms or prongs of these V-shaped parts define between them a space sufficient to receive the rear wheel of the bicycle denoted by 20 in Figures 1, 3 and 4.

In the embodiment shown by way of example, the rear structure 15 is formed as one piece with the seat tube 11. This constructional form is, however, not definitive in nature, the structure 15 being able to be designed separately and therefore connected to the seat tube 11 using techniques known per se.

In the frame 10 according to the invention, the end 14b of

the front structure 14 is connected to the central or middle portion lie of the seat tube 11.

The other end 14a of this structure 14 can be selectively connected to one end 11a or the other end lib of the seat tube 11, as can be seen from a comparison of Figures 1 and 3.

In the configuration according to Figure I_7 the upper arm or prong of the structure 14 extends, lying approximately horizontally, between the top portion 11a of the seat tube 11 and the steering tube or sleeve 21. This results in a frame 10, the configuration of which is particularly suitable for the formation of so-called "men's" bicycles. An accessory device, such as that denoted by 30 in Figure 1, for example an object or tool carrying container, may be connected to the seat tube 11 in the zone situated between the middle portion lie and the bottom end portion lib. As shown in Figure 4, in this zone, a propulsion servoassistance unit 31, including for example an electric motor and at least one associated electric power supply battery, may be interconnected to the seat tube 11, and optionally to the arm or prong of the front structure 14.

If the front structure 14 is interconnected to the seat tube 11 in an arrangement which is rotated through 180° with respect to the arrangement according to Figure 1, about a directional axis passing through the angular zone 14c and through the end 14b of this structure, a frame 10 having the configuration shown in Figure 3 is obtained.

In this configuration the end 14a of the front structure 14 is interconnected to the bottom end portion lib of the seat

tube 11, in the vicinity of the pedal unit 13. The end 14b of said structure 14 instead remains connected to the middle portion lie of the seat tube.

This results in a frame, the configuration of which is particularly suitable for the formation of so-called "women's" bicycles .

In this case, an accessory device 30, such as a container for tools or other objects, etc., may be connected to the top portion of the seat tube 11.

Obviously, without modifying the principle of the invention, the embodiments and the constructional details may be widely varied with respect to that described and illustrated, purely by way of a non-limiting example, without thereby departing from the scope of the invention, as defined in the accompanying claims.

CLAIMS

1. Frame (10) for cycles (1), comprising

a seat tube (11), at the top end (lla) of which a saddle (12) is intended to be connected, and

a front structure (14) which, viewed laterally, has a general V-shaped form, with end portions (14a, 14b) connected to the seat tube (11), and with an angular portion (14c);

the frame (10) being characterized in that one end of the front structure (14) is connected to a central or middle portion (lie) of the seat tube (11) and the other end (14a) can be selectively connected to one end (Ha) or to the other end (lib) of the seat tube (11) so as to allow the formation, selectively, of a frame with a so-called "man's" or "woman's" configuration.

2. A frame for cycles according to Claim 1, in which power assistance means (31) can be connected to the bottom end portion (lib) of said seat tube (11).

FIG.1

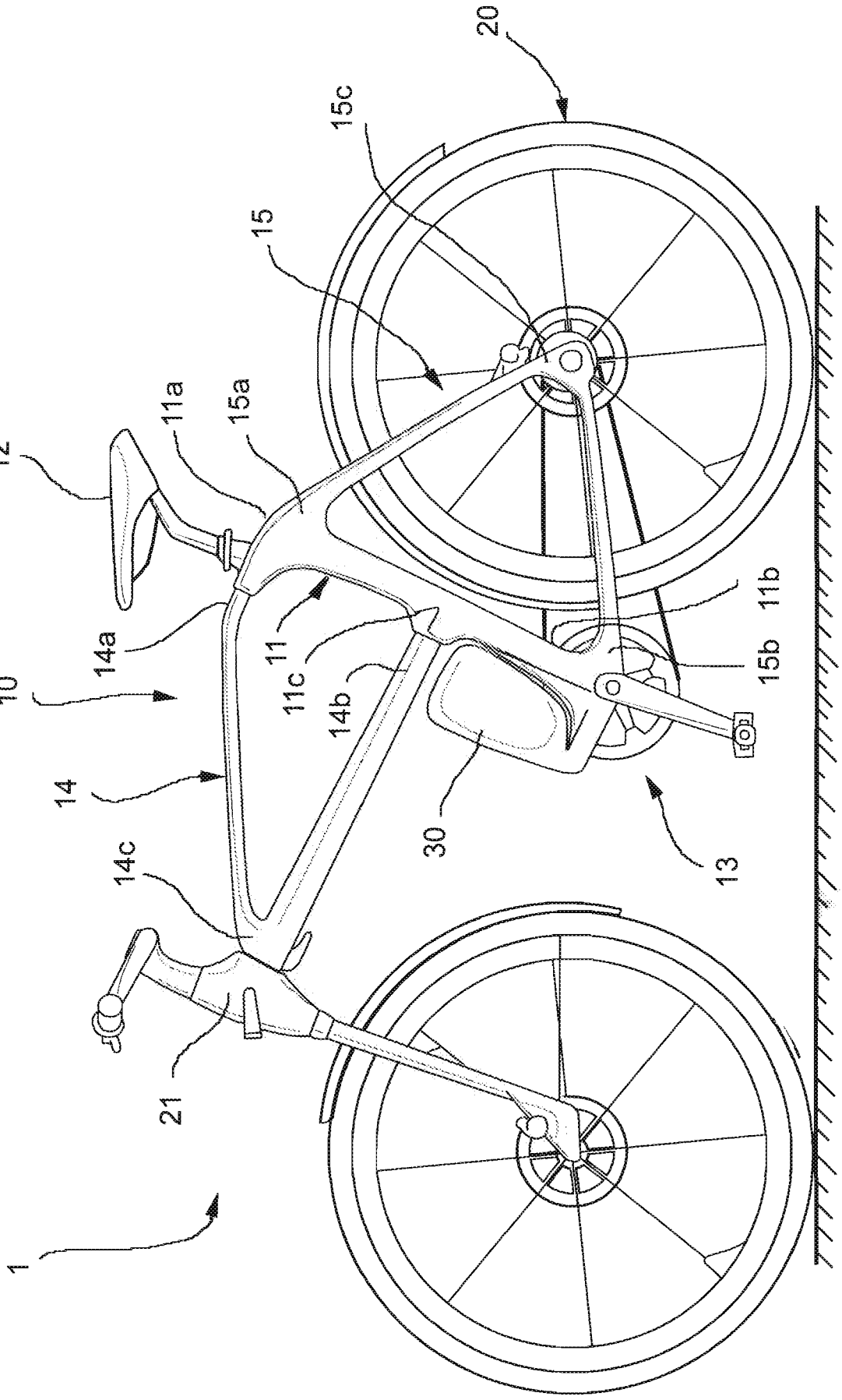


FIG.2

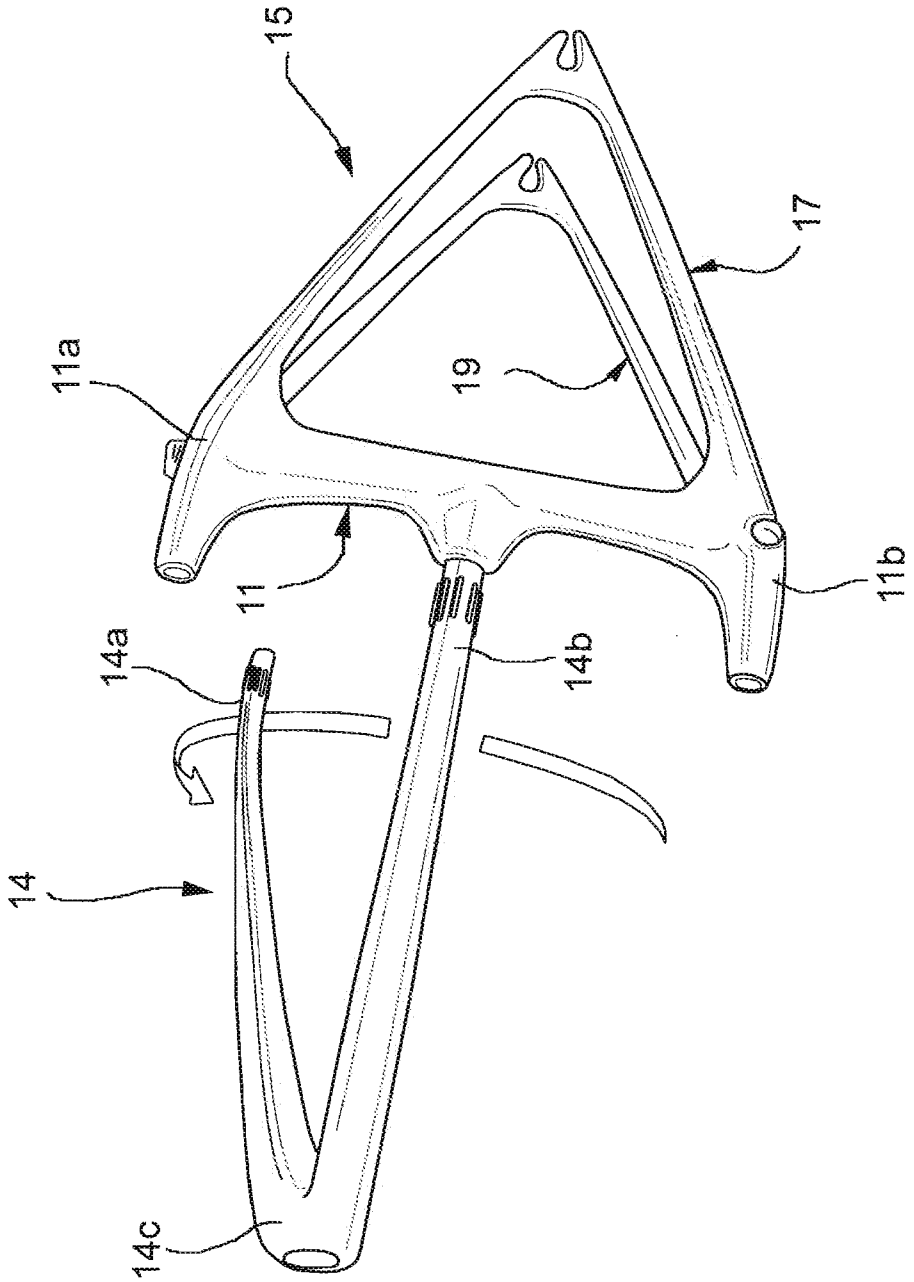


FIG.3

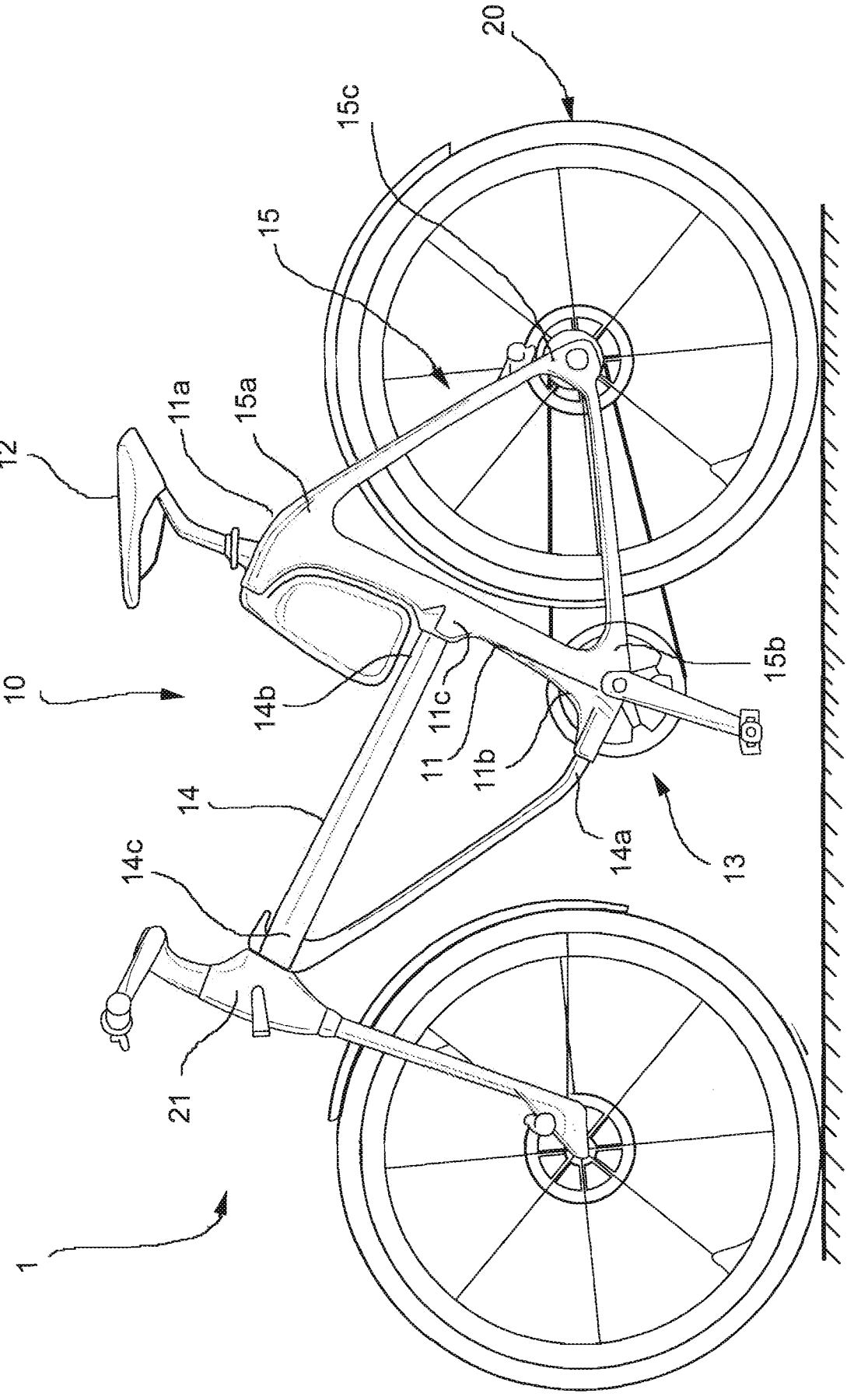
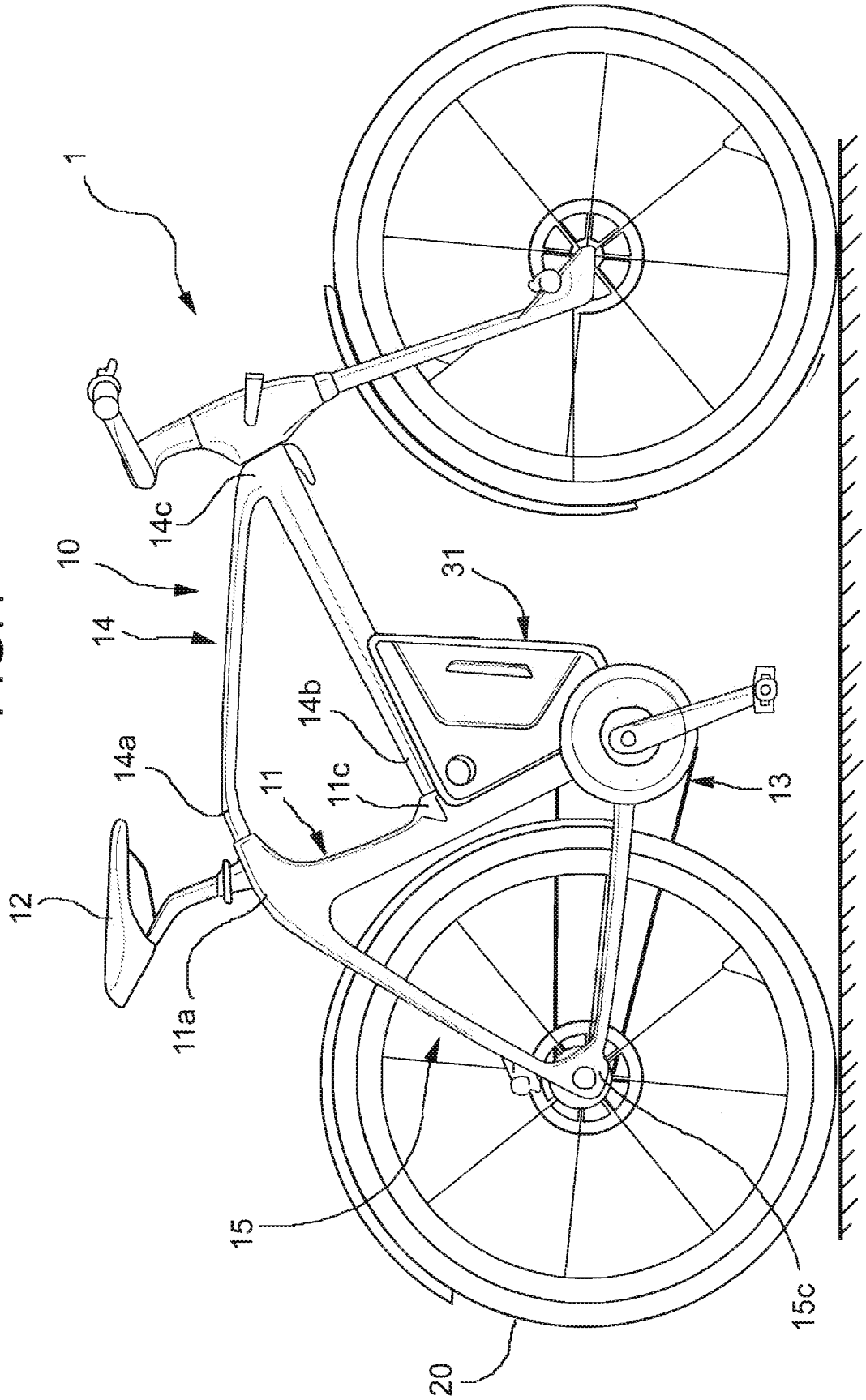


FIG.4



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. B62K13/08 B62K13/00 B62M7/04

According to International Patent Classification (IPC) orto both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B62K B62M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO **BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	US 2 227 252 A (CATALDO GIAMBRA) 31 December 1940 (1940-12-31) figures 1-3	1
A	FR 615 499 A (G. WEISS) 8 January 1927 (1927-01-08) figures 1,2	1
A	BE 508 685 A (A. KREIDLER) 15 February 1952 (1952-02-15) figure 1	2

D Further documents are listed in the continuation of Box C

[X] See patent family annex

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/	Authorized officer
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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2227252 A	31-12-1940	NONE	
FR 615499 A	08-01-1927	NONE	
BE 508685 A		NONE	