

PATENT SPECIFICATION



Application Date: July 31, 1935. No. 21774/35.

456,025

(Patent of Addition to No. 290,375, dated Feb. 15, 1927.)

Complete Specification Left: July 30, 1936.

Complete Specification Accepted: Nov. 2, 1936.

PROVISIONAL SPECIFICATION

Improvements in or relating to Wheel-carrying Frame Structures
for Cycles and other Road Vehicles

We, THE VINCENT H.R.D. COMPANY LIMITED, a British Company, and PHILIP CONRAD VINCENT, a British Subject, both of the Company's address, The Great
5 North Road, Stevenage, Herts, do hereby declare the nature of this invention to be as follows:—

This invention consists of an improvement in or modification of the invention
10 claimed in the main Patent No. 290,375.

The invention of the main Patent is a frame structure (herein referred to as a wheel-carrying frame structure) for cycles,
15 particularly motor cycles, and other road vehicles, which comprises two triangular side frames permanently secured together at or near to two corresponding corners by a brace (herein referred to as a transverse
20 frame-connecting member) to which the appurtenant members of the side frames are also permanently secured (for example by welding or brazing) thus forming a rigid unitary structure. This structure
25 is pivotally connected and spring connected to the main frame of the vehicle at or near to the corners formed by the said transverse frame-connecting members respectively and is adapted to permit a
30 wheel or wheels to be mounted between the side frames at the other corner of the structure.

According to this invention the structure claimed in the main Patent is modified or improved by having at least some
35 of the individual members of the triangular side frames detachably but rigidly jointed to the appurtenant transverse frame-connecting member at a situation lying away from the longitudinal
40 axis of said frame-connecting member.

Preferably the detachable but rigid joints are formed each by a projection on the transverse frame-connecting member
45 to which projection the appurtenant side frame member is clamped.

Frame structures according to this invention have substantially the same rigidity as those in which the members of the triangular side frames are permanently
50 secured to the transverse frame-con-

necting members, joints between the side frame members and the transverse frame-connecting members situated away from the longitudinal axes of the latter members being better able to withstand side
55 thrusts tending to cause the joints to become loose than similar joints which are situated on said axes as in constructions known prior to the date of the main Patent.

It is not essential that all the members of the side frames shall be detachably but rigidly jointed to one or both of the transverse frame-connecting members as the case may be. If desired, some of said
60 members may be permanently secured to the transverse frame-connecting members as in the main Patent, and it will be appreciated that the detachable but rigid joints can be so arranged as to permit parts of the frame structure to be disconnected if desired, for example to facilitate storage.

The invention may be carried out in various ways. For example the frame
75 structure may comprise a transverse frame-connecting member to which one of the appurtenant members of one of the triangular side frames is permanently secured and which is provided with a
80 projection, for example a lug or a socket, to which the other appurtenant member of said side frame is clamped.

Thus one of those two members of each triangular side frame which are appurtenant
85 to one of the transverse frame-connecting members may be bent to provide a hook-like portion to the free end of which the other of said two side frame members is clamped, the frame members
90 having said hook-like portions being provided with integral projections to which the transverse frame-connecting member is permanently secured.

In another way of carrying out the invention, a transverse frame-connecting
95 member is provided which is integral with one of the appurtenant members of both of the triangular side frames and is formed by bending a tube or other frame
100

element, the other members of the side frames appurtenant to that frame-connecting member being clamped to those members respectively of the triangular side frames which are integral with the transverse frame-connecting member. In this construction, said frame element is preferably bent into U-shape so that the side limbs thereof lie in the same plane and constitute corresponding members of the triangular side frames.

In whatever way the invention is carried out it is essential that the detachable but rigid joints shall not be situated on the longitudinal axis of either of the transverse frame-connecting members.

These detachable but rigid joints may be formed in any convenient manner. For example the transverse frame-connecting member may be provided with a lug to which a member of one of the side frames is bolted. In this case the lug may be of rectangular cross section, and the side frame member be a circular tube which is

flattened at one end to receive the lug. Alternatively, a socket may be provided on the transverse frame-connecting member to receive the end of one of the side frame members, these two parts being clamped together in any convenient manner. For example a number of longitudinal slits may be provided in the end of the socket into which the side frame member is inserted, and a clamping device may be provided in the form of a spring band which encircles the joint and is drawn tightly therearound by means of a bolt and nut.

The invention is not restricted to the specific forms of joints just described as any other suitable constructions may be employed.

Dated this 31st day of July, 1935.

BOULT, WADE & TENNANT,
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E.C.1,

Chartered Patent Agents.

COMPLETE SPECIFICATION

Improvements in or relating to Wheel-carrying Frame Structures for Cycles and other Road Vehicles

We, THE VINCENT H.R.D. COMPANY LIMITED, a British Company, and PHILIP CONRAD VINCENT, a British Subject, both of the Company's address, The Great North Road, Stevenage, Herts, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention is an improvement in or a modification of the invention forming the subject of Patent No. 290,375.

The invention of the main Patent is a wheel-carrying frame structure for cycles, motor cycles and like vehicles, and which comprises two triangular side frames permanently secured together at or near to each of two corresponding corners by a transverse frame-connecting member to which the appurtenant members of the side frames are also permanently secured (for example by welding or brazing) thus forming a unitary structure. This structure is pivotally connected and spring connected to the main frame of the vehicle at or near to the corners formed by the said transverse frame-connecting members respectively and is adapted to permit a wheel or wheels to be mounted in the frame structure between the other corners of the side frames.

According to the present invention the aforesaid wheel-carrying structure is

modified or improved in that it has one or more of the individual members of the triangular side frames detachably but rigidly connected to the appurtenant transverse frame-connecting member at a situation lying away from the longitudinal axis of said frame-connecting member.

The detachable connections may be of any convenient form provided that they are sufficiently rigid to ensure that distortion of the transverse frame-connecting members can only occur by actually bending them. Thus there may be provided on the transverse frame-connecting member a projection which extends laterally of the axis of said frame-connecting member and to which the side frame member is attached.

Disconnectable joints between the side frame members and the transverse frame-connecting members lying away from the longitudinal axes of the latter members are better able to withstand side thrust tending to cause the joints to become loose than similar joints which are situated on said axes as in known constructions. Consequently frame structures according to this invention have substantially the same rigidity as those in which the members of the triangular side frames are permanently secured to the transverse frame-connecting members as in the main Patent.

It is not essential that all the members

of the side frames shall be detachably but rigidly connected to one or both of the transverse-frame-connecting members as the case may be. For example, the side

5 frame members corresponding to the chain stays and to the back stays of an ordinary pedal cycle may be so connected to the transverse frame-connecting members respectively, and the side frame
10 members corresponding to the seat pillar tube of a pedal cycle may be permanently secured at both ends, as in the main Patent, to the transverse frame-connecting members.

15 The invention may be carried out in various ways whereof examples will now be described with reference to the accompanying drawing in which:—

Figure 1 is a perspective view of a
20 wheel-carrying frame structure having one form of joint construction,

Figure 2 is a side elevation of one of the joints of Figure 1 drawn to a larger scale,

25 Figure 3 is a sectional elevation on the line 3—3 of Figure 2,

Figure 4 is a side elevation of a modified form of joint, and

30 Figure 5 is a sectional elevation on the line 5—5 of Figure 4.

Like reference numerals indicate like parts throughout.

Referring first to Figure 1, the wheel-carrying frame structure comprises two
35 triangular side frames arranged side by side to permit a wheel to be mounted between them. Each of the side frames comprises a bottom stay 11, a back stay 12 and a front stay 13. The stays 11, 12
40 of each frame are welded or brazed into socket lugs on a rear forked end member 14 in which the axle of a wheel can be mounted by any convenient means. The two side frames are connected together at
45 their apices by a transverse frame-connecting member 15 and at their front corners by a transverse frame-connecting member 16 which is adapted to be pivotally mounted on the main frame of the
50 vehicle. The frame-connecting member 15 is connected by helical springs 17 to the said main frame.

The frame-connecting member 15 has at each end a pair of sockets 18 which project downwardly and laterally from the axis of the member 15 and are arranged to receive the upper ends of the stays 12, 13 respectively. Similar sockets are formed on the frame-connecting member
60 16 to receive the front ends of the stays 11 and the lower ends of the stays 13 respectively. The joint between the upper end of the stay 13 and its socket 18 is shown more clearly in Figures 2 and 3
65 and it is to be understood that the other

joints are similarly formed. The socket 18 is slit as shown at 19 and provided with lugs 20 to receive a bolt 21 whereby the socket and the stay can be rigidly clamped together. 70

In the modified form of joint shown in Figures 4 and 5, the transverse frame-connecting member is provided with solid lugs 22, one only of which is shown in these Figures, instead of the sockets 18. 75 The stays are flattened at their ends and rigidly connected to the lugs 22 by bolts 23.

It is to be noted in the constructions shown on the drawing, that the points of 80 attachment of the side frame members to the transverse frame-connecting members lie away from the axes of the latter members. This is an essential feature of the invention for the reason hereinbefore explained. 85

The joint constructions described above may also be applied to the frame structures shown in Figures 2 and 3 of the main Patent. 90

The transverse frame-connecting members 15, 16 are preferably each constituted by a single part but either or both of them may comprise two or more parts provided said parts are connected together in such 95 a manner as to be inherently rigid. For example as shown in Figure 5 there may be a central tubular part 24 which is welded at each end to a cylindrical part 25 with which the lugs 22 are integral. 100 Such multi-part transverse frame-connecting members are within the scope of this invention.

The invention is not restricted to the specific constructional forms shown on the drawing as any other suitable joint 105 constructions may be employed. For example, the sockets 18 may be slit and be provided with a clamping device in the form of a spring band which encircles the joint and is adapted to be drawn tightly therearound by means of a bolt and nut. Further the invention is not concerned with the method of connecting the stays 11, 12 to the rear forked 110 end members 14. These connections may be of any suitable form permanent or otherwise.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:— 120

1. The improvement in or modification of the invention forming the subject of Patent No. 290,375, which consists in detachably but rigidly connecting one or more of the individual members of the triangular side frames of the wheel-carrying frame structure to the appurten- 130

ant transverse frame-connecting member at a situation lying away from the longitudinal axis of said frame-connecting member.

- 5 2. A wheel-carrying frame structure as claimed in claim 1, comprising a detachable but rigid connection formed by providing on the transverse frame-connecting member a projection which extends laterally of the axis of said frame-connecting member and to which the side frame member is attached.

- 10 3. A wheel-carrying frame structure as claimed in claim 2, wherein the said projection is in the form of a slit socket lug into which the side frame member is inserted, and means is provided for clamping the lug and the side frame member together.

- 15 4. A wheel-carrying frame structure as claimed in claim 2, wherein the said pro-

jection is in the form of a lug to which the side frame member is bolted.

5. A wheel-carrying frame structure as claimed in any of the preceding claims, 25 wherein one or each of the transverse frame-connecting members is formed by a plurality of parts connected together so as to be inherently rigid.

6. The wheel-carrying frame structure 30 for cycles, motor cycles or the like vehicles as shown in Figures 1, 2 and 3, or when modified by having the detachable but rigid connection shown in Figures 4 and 5 substituted for that 35 shown in Figures 2 and 3, of the accompanying drawing.

Dated this 30th day of July, 1936.

BOULT, WADE & TENNANT,
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Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

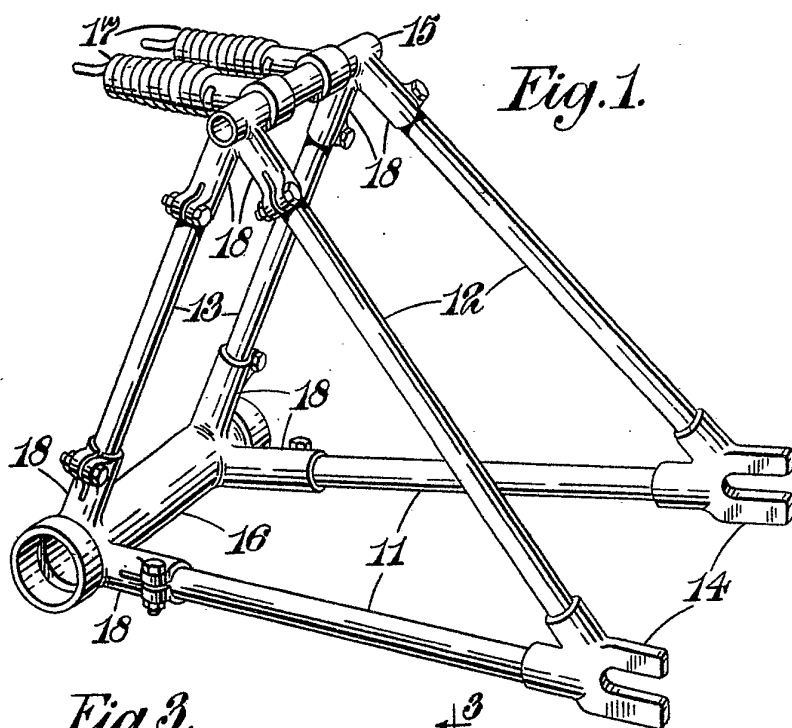


Fig. 1.

Fig. 3.

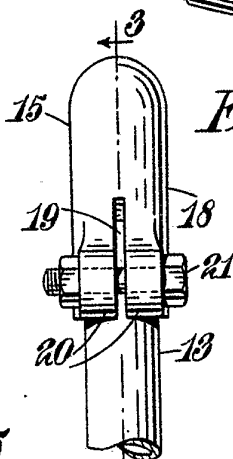
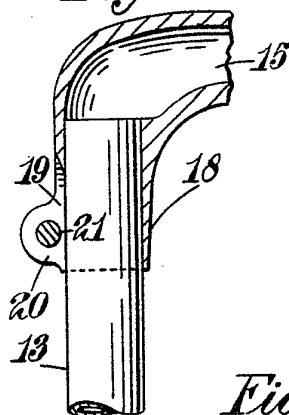


Fig. 2.

Fig. 5.

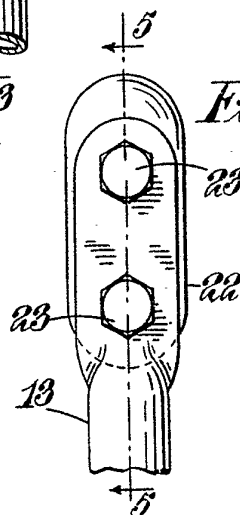
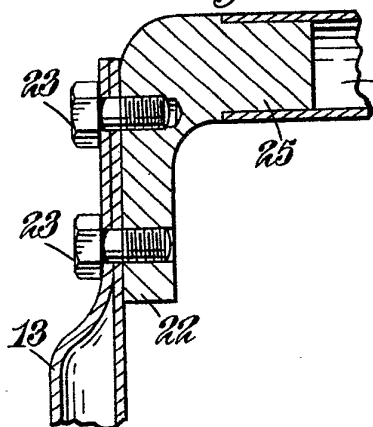


Fig. 4.