M. M. PETERS.

UNDERFRAME OR CHASSIS FOR CYCLE SIDE CARS AND THE LIKE.

APPLICATION FILED OCT. 7, 1920.

1,424,588. Patented Aug. 1, 1922.

Fig. 1.

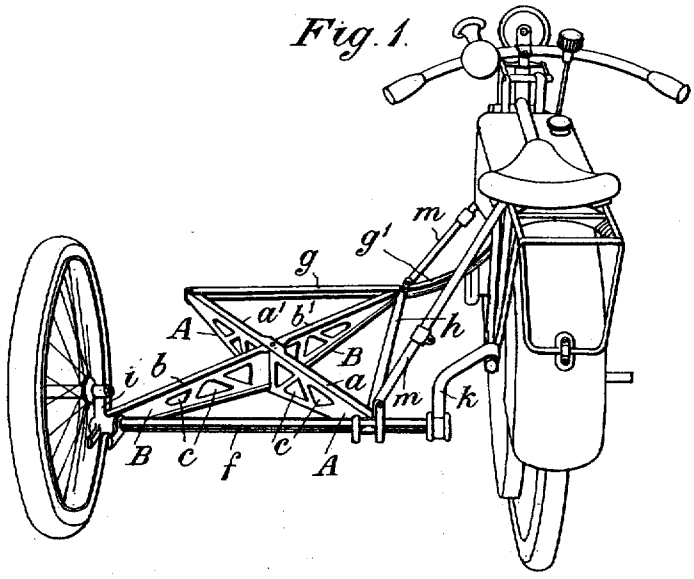


Fig. 4.

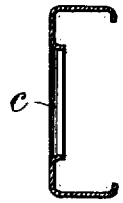


Fig. 2.

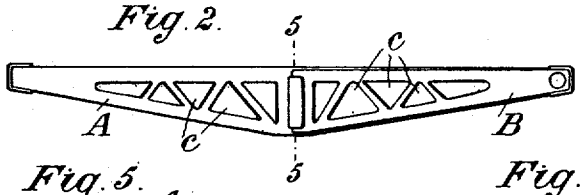


Fig. 5.

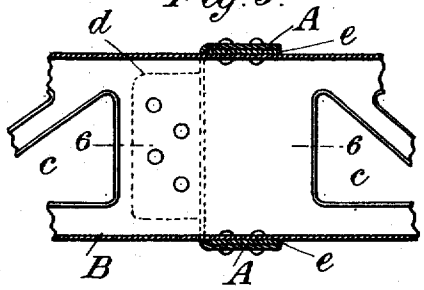


Fig. 6.

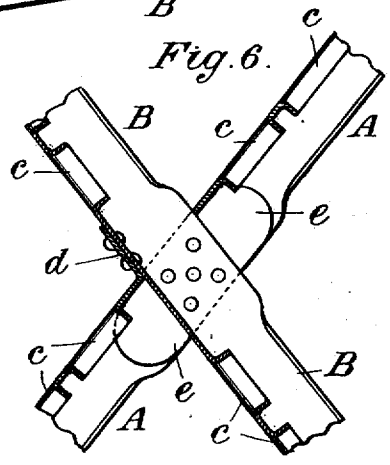
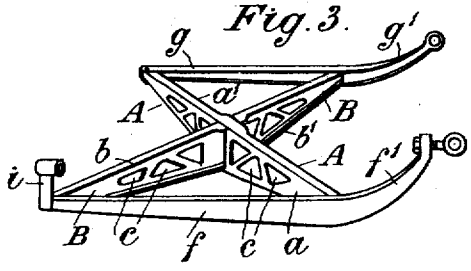


Fig. 3.



Inventor,—

Maurice Marcel Peters

UNITED STATES PATENT OFFICE.

MAURICE MARCEL PETERS, OF COVENTRY, ENGLAND.

UNDERFRAME OR CHASSIS FOR CYCLE SIDE CARS AND THE LIKE.

1,424,588. Specification of Letters Patent. **Patented Aug. 1, 1922.**

Application filed October 7, 1920. Serial No. 415,357.

To all whom it may concern:

Be it known that I, MAURICE MARCEL PETERS, uncertain of my nationality, residing at 1 Avondale Road, Earlsdon, Coventry, in the county of Warwick, England, have invented certain new and useful Improvements in Underframes or Chassis for Cycle Side Cars and the like, of which the following is a specification.

My invention relates to the under-frames or chassis for the side cars to be attached to cycles, motor cycles and similar vehicles and has for its object to provide an under-frame or chassis suitable for the support of practically any type of commercial or pleasure side car body and possessing maximum rigidity and ability to withstand unequal distribution of load without undue stress or strain on any part of the chassis. Further, the unsupported corner of the frame which has hitherto been a weak point in side car chassis construction being equally as capable of bearing a load as the other portions of the said frame.

According to my invention the under-frame or chassis comprises essentially four arms or branches preferably of girder-like construction and tapering from their outer corners to their plane of intersection or contact, two of the said arms having at their corners or on adjacent extensions means for connecting the said corners to the frame of the cycle, motor cycle or the like and one of the other arms or branches having means for the attachment thereto or adjacent thereto of the supporting wheel of the side car frame the remaining arm or branch constituting a cantilever.

The said four arms or branches are preferably constituted by two continuous bars arranged to cross or intersect one another after the manner of the diagonals of a rectangle or quadrilateral the point of intersection being preferably at or about the middle of their length so that the four arms or branches are equal or approximately equal in length, but I do not limit myself to arms of equal length as the arms may slightly vary without departing from the principle of construction constituting my invention.

Each of the said arms has a maximum depth at or about its point of contact or intersection with the other arms, the depth of the arms gradually tapering to a minimum at or about their outer ends.

Where the four arms or branches are constituted by two continuous members which is the preferred construction of the chassis one of the said members passes through the other as is hereinafter more particularly described.

The diagonally arranged members are preferably made from sheet steel by stamping operations, but may be otherwise obtained as by casting, or they may be of other metal or material capable of resisting bending, shearing and twisting strains, as for example wood.

The outer corners of the arms or branches may be stayed or braced apart at each end by transverse bars, rods or tubes, extensions of which at one side may constitute the parts for connection or attachment to the cycle, motor cycle or the like, and if desired longitudinal stay or tie bars may also be provided at one or both sides of the frame or chassis.

I will further describe my invention with reference to the accompanying drawing which illustrates the preferred methods of constructing the under-frame or chassis constituting my invention, but I wish it to be understood that the main girder-like members, instead of being in the form of two continuous girder-like bars made from stamped plates or sheets, may be constructed from bars, rods, or tubes built up into a girder-like form.

Figure 1 of the drawing is a perspective rear view of the under-frame or chassis and its connections attached to a motor cycle.

Figure 2 is a side elevation of the chassis without the attachments by which it is connected to the cycle, motor cycle or the like.

Figure 3 is a similar view to Figure 1 of a slightly modified construction of frame or chassis unattached and without the road wheel which supports or is mounted at one of its outer corners.

Figures 4, 5 and 6, which are drawn to a larger scale than Figures 1, 2 and 3 illustrate details of construction hereinafter particularly referred to.

The same letters of reference indicate the same or corresponding parts in the several Figures of the drawing.

a, a^1 b, b^1 are the four girder-like arms or branches, the construction and arrangement of which constitute the principal feature of my invention, the said arms or branches being constituted by the continuous bars A and B, the bar B passing through the bar A. Each bar preferably has through the whole or greater part of its length a trough or

channel figure in cross section, the inner side of the channel being preferably arranged to face the vehicle to which the frame is to be attached. The vertical webs of the channel section girder-like bars are preferably perforated or gapped to reduce the weight of the frame, the gaps or perforations being such as are represented at *c*, *c*, *c* or being of other suitable shape or disposition for attaining the lightening without material reduction in strength of the bars.

The longitudinal edges of the top and bottom webs of the girder bars are preferably inwardly turned or flanged as is represented in the cross section of a bar shown in Figure 4, the edges of the gaps or perforations *c* being also preferably inwardly turned as shown in the said figure, great strength and rigidity being thereby obtained.

In order to permit the passage of the member B through the member A the latter member has a somewhat greater depth at the part to be intersected than the depth of the member B at the same part, as is best seen in Figure 5 which is a sectional view of the intersecting parts on the plane of the line 5—5, Figure 2. A gap is made in the vertical web of the member A by piercing or stamping therefrom the flap-like part *d* and bending the same outwards as is best seen in Figure 6 which is a horizontal section on the plane indicated by the dotted line 6—6, Figure 5, the said flap being left connected at one vertical edge to the part of the bar A from which it is pressed and being riveted or otherwise connected to the vertical web of the intersecting bar B thus assisting to secure the two bars together.

The top and bottom webs of the members A and B may be somewhat wider at the intersecting parts than in the rest of their length, as is best seen in Figure 6, so as to give increased bearing surface at the said parts, the said increased width being obtained where the members A and B have the inwardly turned or flanged edges represented in the cross sectional view Figure 4 by leaving the parts of the horizontal webs at and adjacent to the intersecting portions flat or unflanged.

Between the presented parts of the top and bottom horizontal webs or flanges of the girder bars A and B at the point of intersection a gap or space is preferably left which is filled in with a strip *e* serving to give strength and rigidity at the said parts. The two upper webs and two lower webs with their strengthening strips are secured by riveting, welding or otherwise.

As before stated the main members A, B may have combined therewith supplementary transverse members and such are shown at *f*, *g*. Also, if desired, a longitudinal member such as the rod *h* is provided at the inner side as shown.

In Figure 1 the rear supplementary member *f* has the form of a tube with a fitting *i* for carrying the wheel at one end and a bracket arm *k* on its other end, which end extends beyond the corner of the girder arm *a*, the said bracket arm serving to connect the member *f* to the cycle frame.

The front supplementary member has a preferably channel section form and may have integral therewith the extension g^1 by which connection is made with the cycle frame.

Or both the rear and front transverse supplementary members may be of channel section and have integral therewith extensions at the side to be attached to the cycle frame, as is represented in the modified construction of chassis shown in Figure 3, the extension of the rear channel section member *f* being marked f^1.

The supplementary members *f*, *g*, *h* may be connected to the main members A, B by clips or where the said supplementary members are of channel section they may be riveted, bolted or welded to the members A and B or to brackets thereon.

Telescopic or like connecting tubes or rods *m*, *m* are preferably provided to connect each inner corner of the chassis with the frame of the cycle, motor cycle, or like vehicle.

I wish it to be understood that the term "cycle" as used in the specification and claims is applied in a generic sense and includes an ordinary push bicycle, motor cycle or other similar road vehicle to which the chassis described may be conveniently attached. Further, the term "side-car" is intended to include not only a passenger carrier but also the box-like receptacles sometimes attached to cycles for the conveyance of tradesmen's goods.

By the construction of parts described brazing may, if desired, be entirely dispensed with.

I claim:—

1. A chassis for cycle side-cars comprising, two intersecting diagonally arranged girder-like members, said chassis having adjacent three corners thereof means for connection to the frame of the vehicle and to the side-car wheel, the fourth arm having the form of a cantilever, one of the intersecting girders having an aperture formed therein and a tongue adjacent the aperture, the other girder passing through said aperture and being secured to the first named girder by means of said tongue, said first named girder having a channel formed therein, and a strip secured at an angle to the second named girder and resting in said channel.

2. A chassis for cycle side-cars comprising a girder of channel section having an aperture stamped through the web intermediate the ends thereof, the metal struck up from

said aperture forming a lug, a second girder of channel section passing through said aperture in the first named girder and secured to said lug and to a flange of the first named girder.

3. A chassis for cycle side-cars comprising a girder of channel section having an aperture through the web intermediate the ends thereof, an intersecting girder passing through said aperture and a strip secured to the last named girder and fitting in the channel of the first named girder.

In testimony whereof I have hereunto set my hand.

MAURICE MARCEL PETERS.