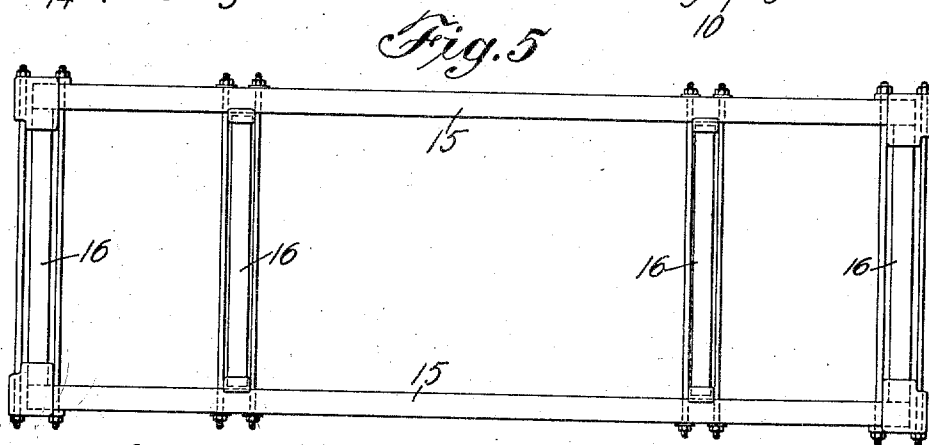
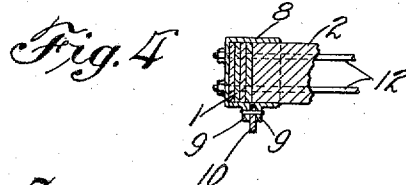
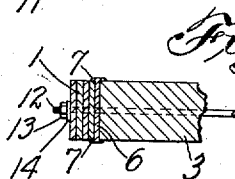
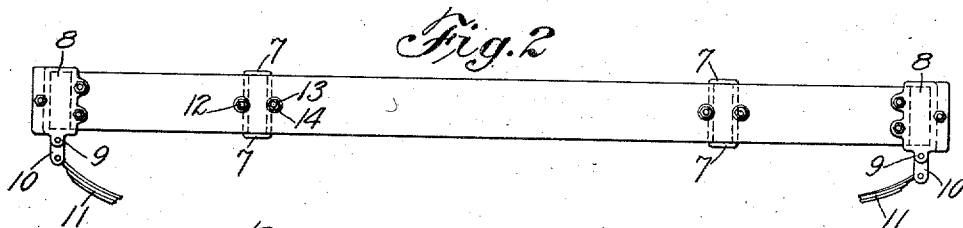
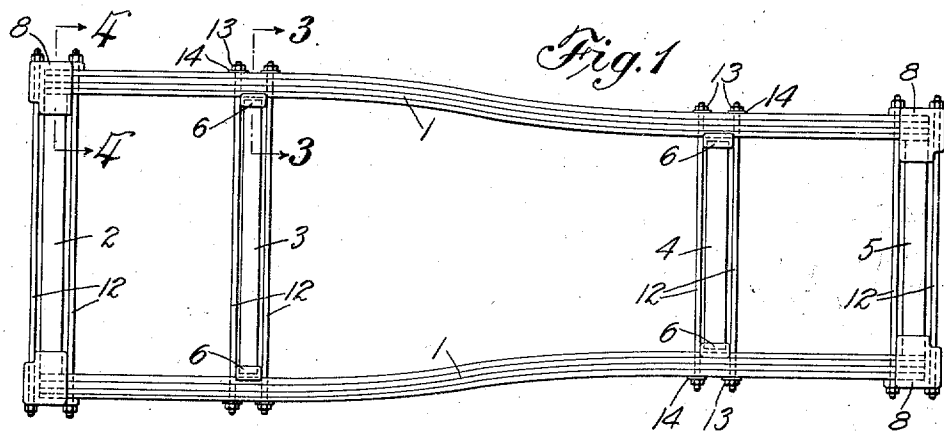


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VEHICLE FRAME.
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1,018,482.

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VEHICLE-FRAME.

1,018,482.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HERBERT COOPER, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Vehicle-Frames, of which the following is a specification.

This invention relates to an improvement in vehicle frames, particularly to the type of frames used in the construction of automobiles.

Heretofore, in the construction of frames for automobiles, it has been customary to employ both wood and metal. In some of the present structures, the frame is constructed entirely of metal; in others, entirely of wood; and in others, both metal and wood are employed. It has been found in practice that frames constructed of metal are defective because the passage of the vehicle over uneven roads tends to twist the frame out of its original form. This results either in loosening the rivets or other fastenings, or in a permanent buckling of the frame itself. Either of these results is very objectionable. Further, such twisting often results in throwing an undue strain upon the driving mechanism of the vehicle. When frames of wood are employed, the same twisting tendency exists, with similar results. In automobiles constructed for commercial purposes, it is very important that the driving mechanism run at its highest possible efficiency, and that the frame supporting the driving mechanism be durable as well as inexpensive to build and maintain.

It is one of the objects of the present invention, therefore, to provide a frame that is inexpensive, efficient and durable, and that is flexible enough to permit the passage of the vehicle over uneven roads without straining any part of the structure.

It is a further object of the invention to produce a frame constructed partly of wood and partly of metal fastened together in such a manner as to permit the parts to have a relative movement while passing over uneven roads without straining any of the parts.

Another object is the production of a frame of this type in which the various elements of the frame are not fastened rigidly together, but are placed in abutment only and held in this position by suitable tie rods or bolts long enough to afford flexi-

bility without undue strain either to the bolts or other elements of the frame.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings which form a part of this specification and in which like characters of reference indicate the same or like parts, Figure 1 is a plan view of a device constructed in accordance with the invention, Fig. 2 is a side elevation of the structure shown in Fig. 1, Fig. 3 is a sectional view taken on the line 3-3 in Fig. 1, Fig. 4 is a sectional view taken on the line 4-4 in Fig. 1, and Fig. 5 is a plan view of a modified form of frame also constructed in accordance with the invention.

In carrying the invention into effect, there is provided a pair of sills spaced apart by transverse beams. Lateral displacement of these beams is prevented by suitable means engaging the ends of the beams and the sides of the sills, and the whole structure is held together flexibly by means engaging both sills and adapted to hold the sills against the ends of the beams. The above elements may vary within wide limits.

In the device selected to illustrate the invention, which is merely a preferred form, there is provided a pair of laminated wood sills 1. These sills are rectangular in cross section, and extend throughout the length of the frame, and one end of each is offset from the opposite end.

The sills are provided with offset ends in order to make the forward end of the frame narrower than the rear end to permit swinging of the front or steering wheels not shown.

For the purpose of spacing the sills apart, transverse beams 2, 3, 4 and 5 are provided. These beams are of wood and vary in length, as clearly shown in Fig. 1. The ends of the beams 3 and 4 engage sockets 6 of metal, which sockets are shaped to receive the ends of the beams and are provided with flanges or lips 7 projecting beyond the ends of the beams. The projecting flanges are arranged to engage the sills by overlying and underlying the same, as clearly shown in Fig. 3. Similarly, the ends of the beams 2 and 5 at the ends of the frame engage sockets 8 shaped to receive the ends of the beams and

also the ends of the side sills, as clearly shown in Fig. 4.

Spring supports are provided and consist in integral lugs 9 formed on the under side of the sockets 8, and to these lugs spring links 10 and springs indicated at 11 are attached in a well known manner. It will be noted that in the structure so far described, the transverse beams abut against the side sills but are not fastened thereto, the sockets 6 and 8 serving merely to retain the ends of the beams in position, without holding them there under strain. For the purpose of holding the frame securely but flexibly together, means are provided for engaging both sills to hold them against the ends of the beams. As shown, this means consists in a series of tie bolts or rods 12 extending across the structure in groups arranged close to the beams. The rods or tie bolts are provided with nuts 13 which with the washers 14 operate to hold the sills against the ends of the beams. The rods are long enough to take up, by their own resiliency, any torsional strain likely to be set up by the passage of the vehicle over uneven roads. It will be readily understood that this arrangement effectually prevents displacement of the beams, and yet permits the frame as a whole to twist or work without throwing any undue strain upon the various elements thereof.

In the modified form of frame illustrated in Fig. 5, the side sills 15 are of wood in one piece, and the transverse beams 16 are of equal length to maintain the sills 15 in parallelism.

It is to be understood that the offset sills 1 may in some constructions be of wood or metal in one piece, and that the sills 15 may be laminated or constructed of metal. In certain constructions also, the beams 2, 3, 4, 5, and 16 may be of metal; or they may be of laminated wood, if desired.

Changes and variations may be made in the structure by means of which the invention is carried into effect. The invention,

therefore, is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. As a new manufacture, a flexible automobile frame having a pair of longitudinal side sills, a plurality of transverse beams spacing the sills apart, a plurality of loose sockets interposed between the ends of the beams and sides of the sills, and a series of tie-rods engaging both sills to hold the ends of the beams in the sockets and the sockets against the sides of the sills but permitting a limited relative movement of the sills and beams.

2. As a new manufacture, a flexible automobile frame having a pair of longitudinal side sills lying in the same horizontal planes, a plurality of transverse beams spacing the sills apart and lying in the same planes as the sills, a plurality of loose sockets interposed between the ends of the beams and the sides of the sills, and a series of tie-rods engaging both sills to hold the ends of the beams in the sockets and the sockets against the sides of the sills but permitting a limited relative movement of the sills and beams.

3. As a new manufacture, a flexible automobile frame having a pair of longitudinal side sills, a plurality of transverse beams spacing the sills apart, a plurality of loose sockets interposed between the ends of the beams and the sides of the sills, a part of said sockets having lugs adapted to support springs, and a series of tie-rods engaging both sills to hold the ends of the beams in the sockets and the sockets against the sides of the sills but permitting a limited relative movement of the beams and sills.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

HERBERT COOPER.

Witnesses:

FRANK H. VICK, Jr.,
C. E. MARTIN.