No. 875,018. PATENTED DEC. 31, 1907.

E. C. F. VERSCHAVE.

SHAPED IRON OR STEEL FOR AUTOMOBILE FRAMES.

APPLICATION FILED APR. 2, 1907.

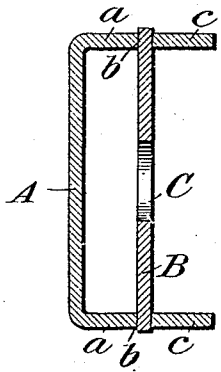


Fig. 1.

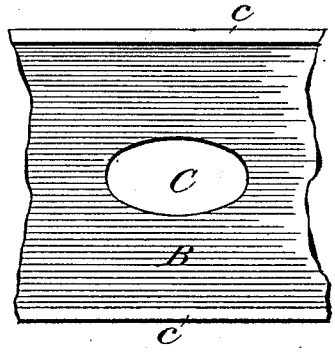


Fig. 2.

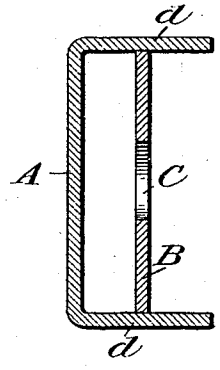


Fig. 3.

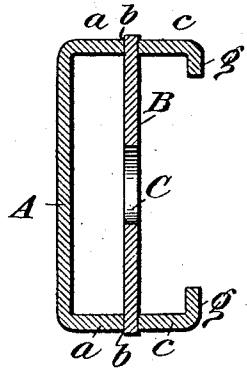


Fig. 4.

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UNITED STATES PATENT OFFICE.

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SHAPED IRON OR STEEL FOR AUTOMOBILE-FRAMES.

No. 875,018. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed April 2, 1907. Serial No. 365,940.

To all whom it may concern:

Be it known that I, EDOUARD CHARLES FRANÇOIS VERSCHAVE, a citizen of the Republic of France, residing in Paris, France, have invented certain new and useful Improvements in Shaped Iron or Steel Specially for Manufacture of Frames of Automobile Vehicles, of which the following is a specification.

Heretofore in the manufacture of chassis for automobile vehicles welded tubes have been employed, these tubes being provided in their interior or not with a transverse or cross-shaped stiffening, or the chassis have been made of pressed steel.

Tubular chassis present the great advantage of very considerable strength, but on the other hand, owing to the cylindrical form of the tubes, it is somewhat difficult to make joints upon these tubes which are not liable to displacement; it is for this reason that chassis of reinforced wood are frequently preferred, or latterly of course chassis of pressed sheet steel. These latter, however, present the great defect of being wanting in rigidity, and of undergoing very considerable deformations when they are not loaded in a uniform manner, or when they are subjected to the shocks or strains which occur during the running of the vehicle. Now these deformations are certainly dangerous, for the reason that they strain the joints by which the parts are fixed to the chassis, and may even produce the breakage of the fixed and movable parts which constitute the backbone of the automobile mechanism, or at all events render them inoperative; for example, the change speed gear shaft or the like may be deflected. The means adopted by the applicant for obviating these defects is the construction of the chassis of shaped iron or steel, and the fitting to these shaped parts of a vertical core, imparting to the longitudinal and transverse members of the chassis, a far higher degree of rigidity in the longitudinal vertical direction and in the transverse horizontal direction. This core may be fitted in various ways which are hereinafter described with reference to the accompanying drawing, in which:

Figures 1 and 2 illustrate one constructional form in cross-section and side elevation. Figs. 3 and 4 represent further forms of reinforced shaped irons for forming chassis.

In the first place a piece of iron A is drawn or stamped in such a manner as to give it a U-shaped form with a very large base Fig. 1, the arms *a* of which extend only as far as *b;* then a flat iron B which constitutes the core is arranged in place, the height of this core being slightly greater than the height of the iron A; then on each side two small arms *c c* are fitted, and these small arms are welded to the extremities of the core B, which are themselves welded to the extremities of the arms *a*, this welding being autogenous for example and effected by means of the blow-pipe or of electricity. In this type of arm it should be noted that the core B has its upper extremities interposed between the extremities of the arms *a* and *c;* it is to this that its great strength is due. In order to render an iron obtained in this manner lighter and to facilitate the attachment of parts to it, it may be provided with holes C at appropriate places. An iron of the same profile might also be obtained as shown in Fig. 3 by drawing or stamping a U-shaped iron A, the arms *d* of which have a length equal to the sum of the lengths of the arms *a* and *c* which are in line one with the other, plus the thickness of the core which is interposed in the preceding type. It will of course be understood that this length *a* plus *c*, plus the thickness in question may vary as desired. Then between the opposite arms *d d* the vertical core B is interposed at an appropriate distance from the bottom A and its extremities are welded to the said arms *d d* by means of the blow pipe or of electricity.

The types of irons which have been given by way of example may comprise arms whose right hand extremities, which are directed towards the interior of the chassis, are turned over at right angles. This is the case for example with the profile represented in Fig. 4, which is similar to the profile shown in Fig. 1 and is manufactured in the same manner, but in which the extremities of the arms *c* are turned down at *g* which contributes to imparting still greater rigidity to the iron.

Instead of providing a vertical core which extends throughout the entire length of the iron, it may be sufficient to arrange flat irons of a certain length at intervals, leaving spaces of sufficient size between them to permit of attaching the parts to be fixed to the chassis.

As will be understood in order to construct a chassis with the profiled irons

which have just been described, an elongated frame is formed, the extreme longitudinal or transverse members being curved if necessary; this frame may comprise a certain number of stays likewise of profiled iron, these different parts being assembled one with the other by means of riveted plates or by autogenous welding or by any other appropriate means. It will of course be understood that these profiled irons may be utilized for any purpose for which they are adapted, for example they may be employed for constructing the chassis of trucks of tramway vehicles or metal frames and structures of any kind suitable for industrial purposes.

What I claim is:—

1. A metal structure comprising a U-shaped iron provided with small arms, and a vertical core extending from one to the other of said arms and united thereto by autogenous welding, said arms being extended beyond said core and being integral and of uniform thickness throughout their width.

2. A metal structure comprising a U-shaped iron provided with small arms, a vertical core fitted against the said arms, the height of which is greater than that of the U-shaped iron, and two small supplementary wings in line with the arms of the U so that the extremities of the core are interposed between the extremities of the arms of the U and of the said wings, the parts being united by autogenous welding.

3. A metal structure comprising a U-shaped iron provided with small arms, and a vertical core extending from one to the other of said arms and united thereto by autogenous welding, said arms being extended beyond said core and being integral and of uniform thickness throughout their width, the extremities of the extreme wings being turned down.

In witness whereof I have hereunto signed my name this 21st day of March 1907, in the presence of two subscribing witnesses.

EDOUARD CHARLES FRANÇOIS VERSCHAVE.

Witnesses:
JULES ARMENGAUD, Jeune,
RENÉ ARMENGAUD.