

UNITED STATES PATENT OFFICE.

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AUTOMOBILE-BUMPER.

1,383,515.

Specification of Letters Patent.

Patented July 5, 1921.

Application filed April 16, 1921. Serial No. 461,875.

To all whom it may concern:

Be it known that I, LEROY BAUMGARTL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automobile-Bumpers, of which the following is a specification.

This invention relates to improvements in bumpers for motor vehicles, and especially to a novel construction for the impact bar or member of the bumper.

The purpose of the invention is to provide a practical method for making impact members and particularly members of that type having an increased impact area, such as would be obtained, for instance, by two vertically spaced bars or transverse members, an impact member embodying the features of the invention differs from those heretofore known in that the entire member is formed from a single piece of sheet metal by a punching and stamping process, the product being a relatively non-yieldable member made up of horizontally spaced channel-shaped portions connected together at their ends and at points between by vertical or transversely curved portions, likewise channel-shaped.

A preferred construction is disclosed in the accompanying drawings, in which—

Figure 1 is a top plan view of the impact member with a portion broken away to show the construction more clearly,

Fig. 2 is a view in front elevation of the impact bar, and

Fig. 3 is a view in vertical section, taken on line 3, 3 of Fig. 2.

As already suggested, the complete impact member is a unitary or integral structure, made from a blank of sheet metal, such as steel, there being previously designed and constructed suitable dies, such as cutting and punching dies, for cutting the blank in its initial shape, and forming dies, between which the blank is shaped into its final form. However, the process of manufacture is a matter of machine-shop practice and it may be assumed that the accepted practice will be followed.

Disregarding then the method, and confining the description to the product, the impact member consists of several definite portions, as follows—two parallel and vertically spaced portions A, A, extending the

full length of the member and curved rearwardly throughout their end portions. The portions A, A are joined together at their extremities by rounded end portions B, B, and at one or more points intermediate their ends by vertically disposed or transverse portions C, C. The longitudinal portions A, A are channel shape in section, as shown in Fig. 3, that is, consisting of a vertical web 7 and two transverse marginal flanges a^2 and a^3 . The outer or extreme flanges a^2 , a^2 are somewhat greater in width than the inner flanges a^3 , a^3 although tapering to a width equal to that of the inner flanges, as they approach the ends of the impact member, as clearly shown in Fig. 1. In reality, the flanges a^2 , a^2 form parts of a continuous flange that extends entirely around the outer periphery of the impact member, including the rounded end portions B, B.

Included between the horizontal portions A, A and the transverse end and intermediate portions B and C, respectively, are elongated openings or spaces D, these openings being preferably three in number and substantially equal in length. These openings are surrounded by flanges, namely, the flanges a^3 theretofore described, and semi-circular flanges b , b and c , c , which extend around the ends of the semi-circular ends of the openings D, and are in reality integral continuations of the flanges a^3 . Thus it will be seen that the edges of the openings D are surrounded by continuous flanges in the same manner that the outer periphery of the impact member is surrounded by the continuous flange a^2 .

As a preferable means of supporting the impact member upon the frame members of a motor vehicle a pair of links E, E are attached to the impact member at suitable points disposed inwardly from the ends thereof, these arms having a bifurcated end or forked arms e , e , which are insertible between the horizontal portions A, A and are pivotally connected thereto by means of bolts F, F extending through the adjacent flanges a^2 , a^2 and the ends of the arms e , e . To provide for the lateral adjustment of the links a series of bolt holes G are provided along the portions of the flanges a^2 adjacent the points where the links F, F would properly be attached.

It is believed to be desirable in a bumper

to provide an impact member which combines the following features, namely, maximum strength to resist the impacts delivered against it, maximum impact receiving area and minimum weight of material, these features being nicely balanced without sacrificing attractiveness in appearance or giving the impression of bulkiness and mass. In a construction such as herein disclosed, this combination of ideas is believed to be incorporated, the use of a sheet metal blank, so treated as to reproduce a channel beam construction throughout, is manifestly productive of the advantages already announced.

Having described a preferred embodiment of the invention, I claim—

1. A bumper impact member, consisting of vertically spaced portions extending throughout the length thereof, and transverse connecting portions, all stamped from sheet metal and forming a unitary structure.

2. A bumper impact member consisting of vertically spaced longitudinal portions and transverse connecting portions, all stamped from a blank of sheet metal and formed with flanges along the edges of the several portions.

3. A bumper impact member formed from a blank of sheet metal and consisting of vertically spaced longitudinal portions, transverse portions connecting said longitudinal portions at their ends and intermediate their ends, and continuous reinforcing flanges surrounding the periphery of said impact member and the internal spaces thereof.

4. A bumper impact member formed from

a blank of sheet metal and consisting of integral longitudinal portions spaced apart vertically, and end portions connecting said longitudinal portions and a continuous reinforcing flange extending throughout the periphery of the member.

5. A bumper impact member formed from a blank of sheet metal and consisting of longitudinal channel-shaped portions spaced apart vertically, and transverse end and intermediate portions of channel sections, all of said portions merging into an integral unitary structure substantially as described.

6. A bumper impact member of sheet metal stamped and pressed to form parallel longitudinal portions, and transverse end and intermediate portions, all having a channel-shaped section by the formation of marginal flanges which merge at the junctions of the several portions into continuous reinforcing members surrounding the periphery and internal spaces of the impact member.

7. A bumper impact member stamped from sheet metal to form vertically spaced longitudinal portions of channel section and transverse end and intermediate portions, all of said portions having marginal flanges merging into continuous peripheral flanges, the outer longitudinal flanges of said longitudinal portions being of increased width tapering to a uniform flange width toward the ends of the impact member.

In witness whereof, I hereunto subscribe my name this 13th day of April, A. D. 1921.

LERoy BAUMGARTL.