Dec. 26, 1950 W. F. LECHMERE 2,535,540

MOTORCYCLE FRAME

Filed July 9, 1948

FIG. 1.

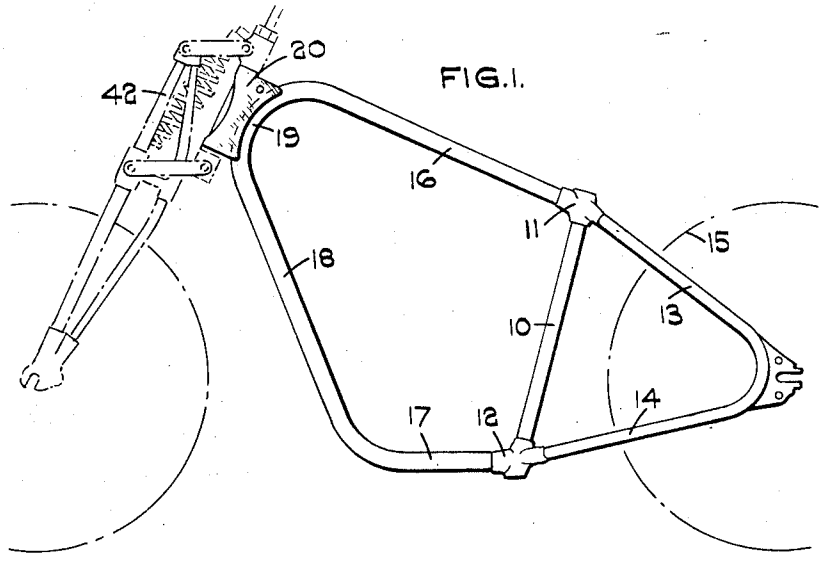


FIG. 6.

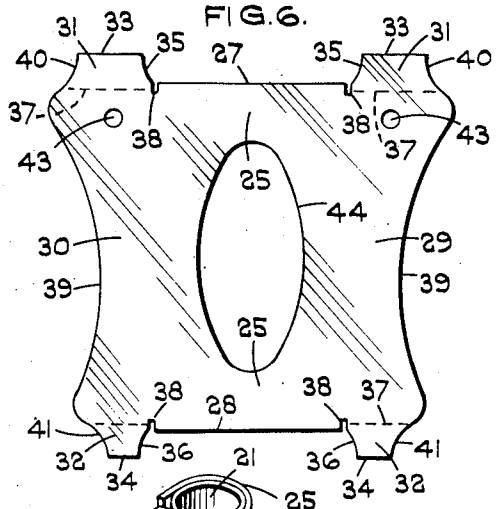


FIG. 2.

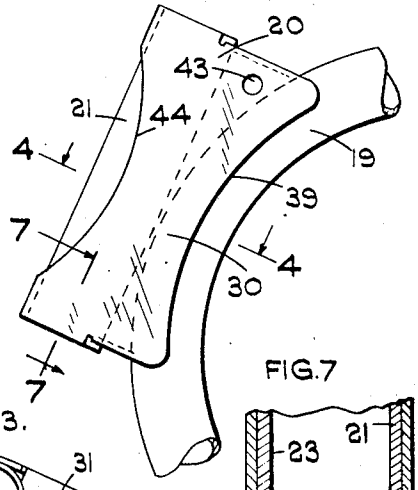


FIG. 7

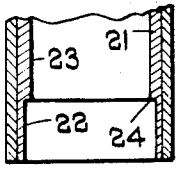


FIG. 5.

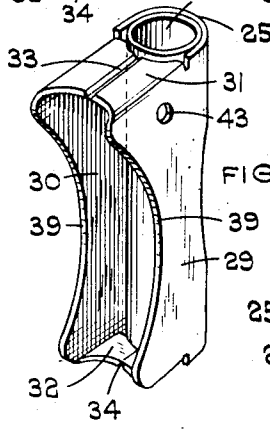


FIG. 3.

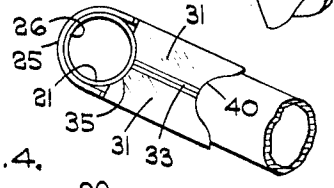
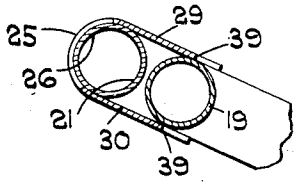


FIG. 4.



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UNITED STATES PATENT OFFICE

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MOTORCYCLE FRAME

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3 Claims. (Cl. 280—281)

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This invention relates to motor cycle frames.

In motor cycle frames hitherto proposed or known it is usual to mount the stem or other supporting element of the front fork assembly in a short length of tube or a casting which forms a component part of the frame. In the most common form of construction this tube is secured to the other frame members at each end by an associated lug presenting a pair of circular openings into one of which the tube extends and into the other of which extends a member of the frame, the lug and the tube and the lug and the frame being secured to each other by welding or brazing and the lug being customarily formed as a casting or forging or sometimes of folded sheet metal.

One object of the present invention is to provide a new or improved construction of mounting member for the front fork assembly which is simpler and less expensive to manufacture.

A further object of the present invention is to provide a new combination of front fork assembly mounting member and frame construction which is of great strength and at the same time simple and inexpensive to manufacture.

Referring to the drawings:

Figure 1 illustrates a motor cycle frame constructed in accordance with the invention including a mounting member for the front fork assembly also constructed in accordance with the invention, the whole being shown in side elevation.

Figure 2 is a fragmentary view of the construction shown in Figure 1 showing in side elevation the position of attachment of the mounting member on the motor cycle frame.

Figure 3 is a plan view of the parts shown in Figure 2.

Figure 4 is a cross sectional view on the line 4—4 of the parts shown in Figure 2.

Figure 5 is a perspective view of the mounting member alone.

Figure 6 is a view of the sheet metal blank constituting one of the elements from which the mounting member is constructed and is shown prior to folding.

Figure 7 is a fragmentary view of the lower end of the mounting member shown in section on the line 7—7 of Figure 2.

As seen in Figure 1 the motor cycle frame comprises at the rear a saddle tube 10 of usual construction secured at each end by lugs 11 and 12 also of usual construction to conventional rear frame members 13 and 14. The position of the rear wheel of the motor cycle is indicated by the chain dotted lines 15.

The front portion of the frame is formed of a

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single length of tube secured at one end to the upper portion of the saddle tube by means of the lug 11 and at the other end to the lower portion of the saddle tube by means of the lug 12.

Between the lugs 11 and 12 this front portion is bent into loop formation and comprises an upper approximately horizontal length 16 and a lower approximately horiztonal length 17, each of these lengths extending forwardly from respective upper and lower portions of the saddle tube lugs 11 and 12. The forward ends of the lengths 16 and 17 are connected by a forwardly disposed length of tube 18 which merges with the length 16 through a rounded corner or arcuate portion 19.

The mounting member for the front fork assembly seen generally at 20, Figure 1, comprises a length of tube 21 which is adapted to receive complementary supporting elements of the front fork assembly. For instance as seen in Figure 7, the ends of the tube may be bored out to a larger internal diameter as at 22 compared with the central portion of the tube as at 23, an internal axially directed shoulder 24 thereby existing at each end of the tube and forming in conjunction with the machined portion 22 a housing for the bearings on the front fork assembly constituting the supporting elements therefor.

A further part of the mounting member comprises a plate which is shown in Figure 6 in the form of a blank prior to its application to the tube 21. The plate comprises a central portion indicated generally at 25 which is bent round to part cylindrical form so as to embrace the front portion 26 of the circular cross section tube 21.

The length of the plate may be such that it is equal to the length of the tube and in applying it to the tube it is arranged so that its upper and lower edges 27 and 28 of the central portion are flush with corresponding ends of the tube as seen in Figures 2 and 5, or alternatively the plate may be initially somewhat longer than the tube and the upper and lower edges may be subjected to a machining operation after application to the tube 21 so as to obtain a flush relation between the ends of the tube and the edges 27 and 28 of the plate.

At either side of the central portion the plate has side portions 29 and 30 as seen in Figure 6 and these are folded towards each other and are directed rearwardly on either side of the tube 21 and extend tangentially of the walls of the tube 21 and substantially parallel to each other as best seen in Figure 4.

Each side portion is provided at its upper edge

with an ear 31 and at its lower edge is an ear 32 which, after the side portions have been folded towards each other are bent inwardly so that the inner edges 33 of the upper ears and inner edges 34 of the lower ears lie adjacent each other.

The edges 35 of the upper ears and the edges 36 of the lower ears are of suitable concave formation corresponding with the external curvature of the tube 21 so that after bending inwardly, they lie closely against the outer wall of the tube. Also the line along the edge of the upper and lower ears is bent as indicated by the dotted lines 37, Figure 6, and is preferably spaced inwardly from the corresponding edges 27 or 28 of the central portion of the plate, the ears being separated from the edges 27 and 28 by small open-ended slots 38 so that after bending, the ears lie in a plane spaced inwardly from the ends of the tube and engage the side walls of the tube at positions spaced inwardly from the ends thereof.

After applying the plate folded and bent as described to the tube 21 it is suitably welded or brazed to the tube as for instance by applying a fillet weld along the tangential junction of the tube 21 and the side portions 29 and 30. Adjacent edges 33 and 34 of corresponding ears are also welded or brazed together.

As applied to the forwardly disposed tubular member of the motor cycle frame including a rounded corner portion 19 as described, the rear edges 39 of the side portions are preferably of concave formation corresponding with the curvature of the arcuate portion 19 of the frame and the width of the side portions is such that the concave edges lie level with the axis or centreline of the tubular member of the frame to which the mounting member is applied. The edges 40 and 41 of upper and lower ears respectively are also of suitable concave formation so that in the bent position of the ears these edges lie closely against the arcuate portion 19 of the frame.

The arcuate portion 19 of the frame is engaged with the internal side walls of the cavity defined by the side portions 29 and 30 and the ears 31 and 32 of the plate and is suitably welded or brazed to these so that the mounting member is rigidly secured to the remainder of the motor cycle frame with the tube 21 positioned in substantially tangential relationship to the arcuate portion 19. The axis of the tube 21 extending downwardly and somewhat forwardly to correspond with the steering axis of the motor cycle. The front fork assembly is shown in position at 42 by the dotted lines in Figure 1.

Preferably the plate of the mounting member includes an opening in the central portion which as seen in the drawings at 44, may be of oval form. This opening in the blank may be used for the insertion of a name plate or transfer and is found also to facilitate the folding of the blank around the tube 21.

In the upper part of the side portions 29 and 30 means are included whereby the tank of the motor cycle may be secured at its forward end, said means comprising a pair of circular holes 43 extending through the material on the plate.

Although in the claims which follow the term "welding" is employed to denote the method of securing the plate to the tube of the front fork assembly mounting member, and the method of securing the plate to the motor cycle frame, it will be understood that it is within the scope of the invention to employ brazing to effect such securing.

What I claim then is:

1. In a motor cycle frame the combination of a main frame of looped formation in which the upper and forward members are formed of a single length of tube and merge into one another through an arcuate portion, with a mounting member for the front fork assembly comprising a bearing tube and a folded sheet metal plate having a part-cylindrical central portion embracing the tube and welded thereto, and rearwardly directed side portions on each side of said tube extending tangentially and substantially parallel to each other from the walls of said tube to define a cavity into which the arcuate portion of the frame engages, the arcuate portion being positioned in substantially tangential relationship to said bearing tube, and being welded to said side portions of the sheet metal plate.

2. In a motor cycle frame in which a mounting member for a front fork assembly is welded to a tubular arcuate member joining the upper and forward members of the frame, the mounting member comprises a bearing tube and a folded sheet metal plate having a part-cylindrical central portion embracing the front portion of the tube, rearwardly directed side portions on each side of the tube extending tangentially and substantially parallel to each other from the walls of the tube, said side portions being connected together at their upper and lower edges by integrally formed ears, the rear edges of which are of concave arcuate form, so that said side portions and ears define a hollow body adapted to receive the arcuate member of the frame in contact with the inner side walls of said body and with the rear edges of said ears.

3. In a motor cycle frame in which a mounting member for a front fork assembly is welded to a tubular arcuate member joining the upper and forward members of the frame, the mounting member comprises a bearing tube and a folded sheet metal plate having a part cylindrical central portion embracing the front portion of the tube, and rearwardly directed side portions on each side of the tube extending tangentially and substantially parallel to each other from the walls of the tube, said side portions having rear edges of arcuate form corresponding with the curvature of said arcuate member of the frame and substantially level with the axis of the arcuate member.

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