

G. STETTLER.

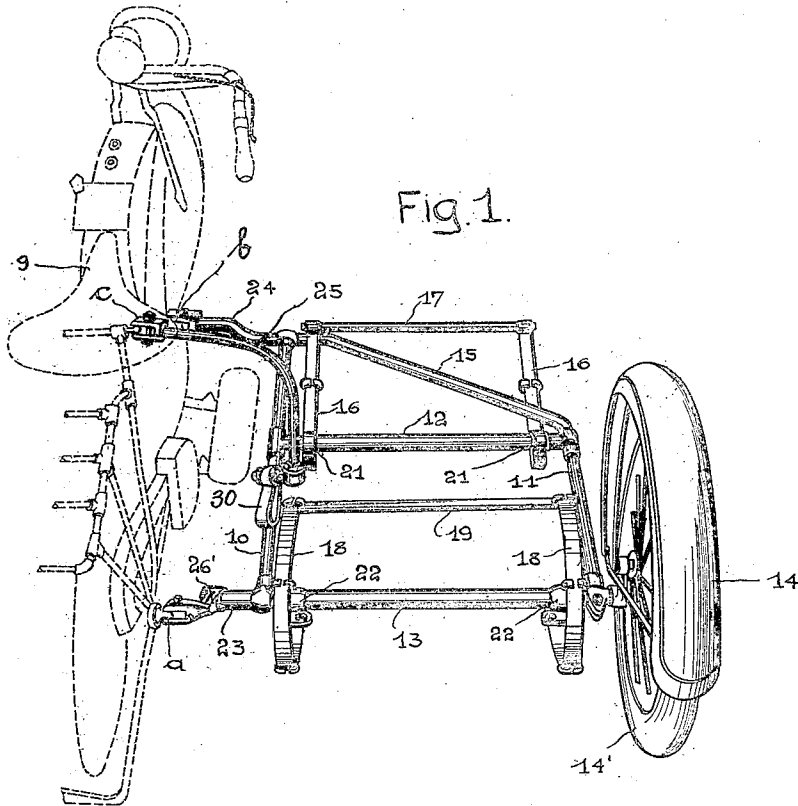
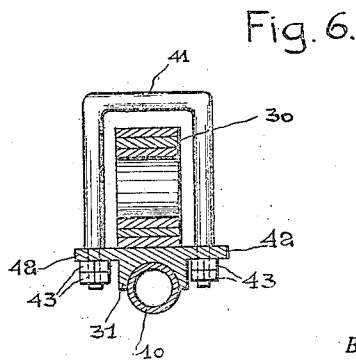
SIDE CAR ATTACHMENT FOR MOTORCYCLES.

APPLICATION FILED JULY 18, 1919.

Patented May 31, 1921.

2 SHEETS—SHEET 1.

1,379,655.



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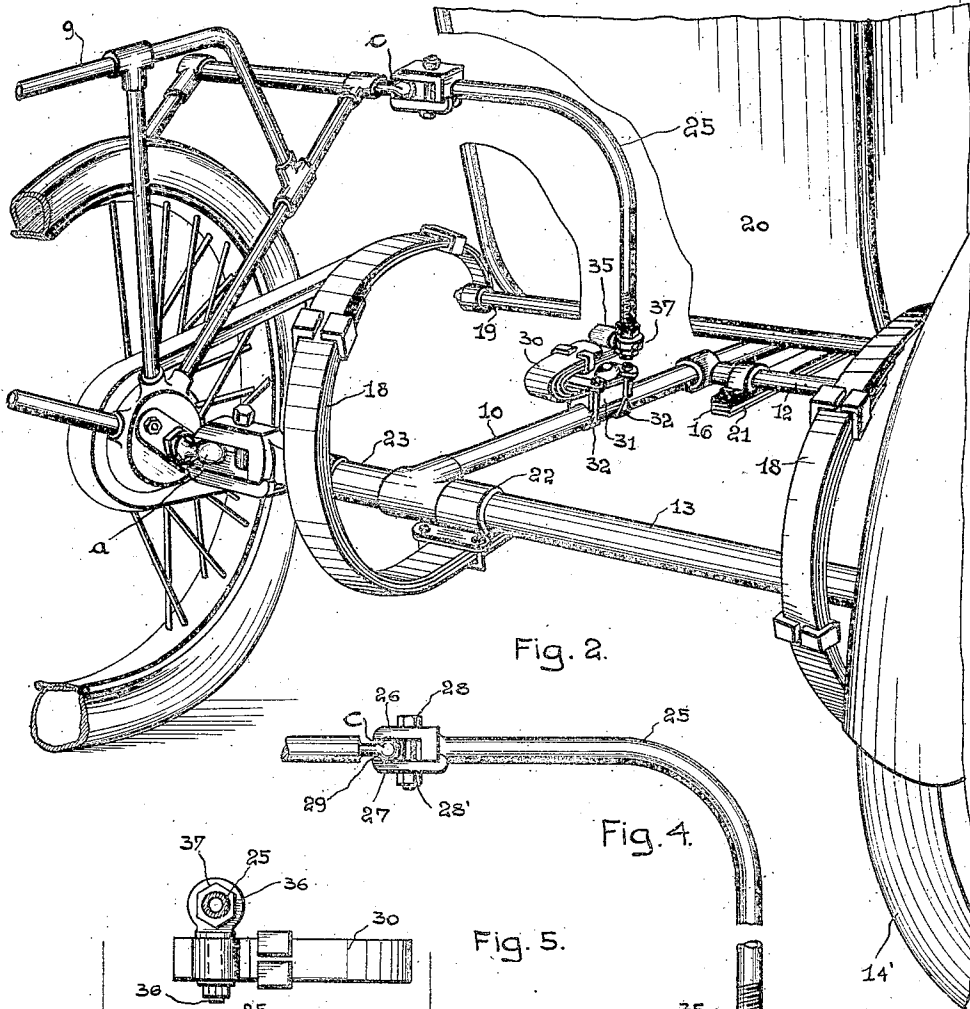


Fig. 2.

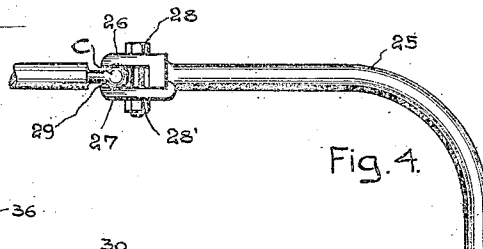


Fig. 4.

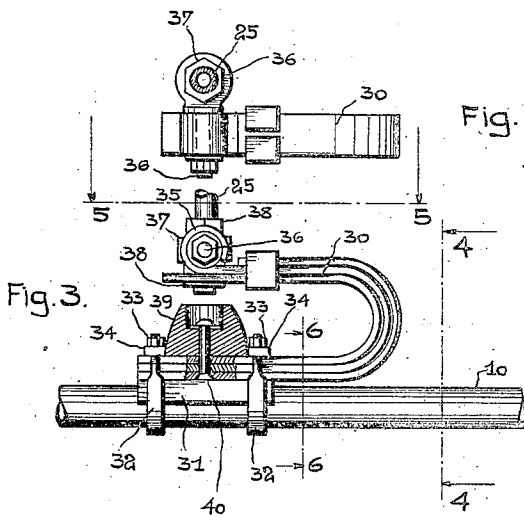


Fig. 3.

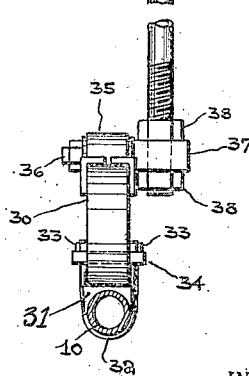


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SIDE-CAR ATTACHMENT FOR MOTORCYCLES.

1,379,655.

Specification of Letters Patent.

Patented May 31, 1921.

Application filed July 18, 1919. Serial No. 311,758.

To all whom it may concern:

Be it known that I, GOTTFRIED STETTTLER, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented new and useful Improvements in Side-Car Attachments for Motorcycles, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in side-car attachments for motor-cycles, and has for its object the production of an arrangement of this character whereby the side-car will be connected with the motor-cycle in such a manner as to reduce to a minimum the possibility of the transfer of jolts, jars and vibration from the side-car to the motor-cycle and vice-versa.

A further object is the production of a construction of the character mentioned in which the side-car frame will be possessed of great strength and rigidity, and in which the connection of the side-car to the motor-cycle will be such as to relieve to the greatest extent possible the strain upon the motor-cycle when the same is in use.

A still further object is the production of a motor-cycle side-car which will be of economical construction and highly efficient and comfortable in use.

Other objects will appear hereinafter.

With these objects in view, the invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which—

Figure 1 is a perspective view of a side-car with the body thereof omitted, the same being shown arranged in operative relation with a motor-cycle which is shown in dotted lines;

Fig. 2 is a fragmentary perspective view of the rearward end of the motor-cycle and the side-car attached thereto;

Fig. 3 is an enlarged sectional detail showing the connection of the vertical connecting arm with the side-car frame;

Figs. 4 and 5 are sections taken on sub-

stantially lines 4—4 and 5—5 respectively of Fig. 3; and

Fig. 6 is a section taken on substantially line 6—6 of Fig. 3, in connection with which is shown a device for limiting upward flexing of the free end of the adjacent spring.

The preferred form of construction, as illustrated in the drawings, is designed for use in connection with a motor-cycle 9 of conventional design, and comprises a side car frame having spaced inner and outer longitudinally extending frame members 10 and 11. Said frame members 10 and 11 are rigidly connected by transversely extending frame members 12 and 13, the latter constituting the rear axle of the side-car and having an offset bracket 14 at its outer end which supports the side-car wheel 14'. The frame member 11 is provided at its front end with a diagonally disposed extension 15 which is connected at its front end with the corresponding end of frame member 10, as clearly seen in Fig. 1.

To the cross frame member 12 are applied longitudinally extending supporting springs 16, connected at their front ends by a bar 17. Correspondingly applied to the rear cross frame member 13 are supporting springs 18, the upper free ends of which are connected by a bar 19. The body 20 of the side-car is suitably mounted upon and secured to the bars 17 and 19 as will be readily understood by those skilled in the art. The fastening of the springs 16 and 18 to the frame members 12 and 13 is accomplished by clips 21 and 22 respectively which clampingly embrace said frame members.

The side-car frame thus produced is one possessing great strength and rigidity, and the mounting of the said car body thereon is such that said body will be yieldingly supported, affording ease and comfort to the occupant during use of the device.

The frame members 13 and 15 are extended laterally to form rigid side extensions 23 and 24 respectively which, in the use of the side-car, are adapted to be pivotally connected as at points *a* and *b* with suitable portions of the frame work of the motor-cycle. Relative vertical movement of the side-car is limited by means of an angularly formed vertically disposed connecting arm 25, the upper end of which is connected at

a point *c* with a suitable portion of the motor-cycle which is spaced vertically from the points *a* and *b*. Each of the connections at the points *a*, *b* and *c* is of the ball-and-socket type, the same, as shown in detail in Fig. 4, where the connection at point *c* is illustrated, comprises stationary and movable socket parts 26 and 27 respectively, adjustably connected together by a bolt 28 and cooperating nut 28'. Said socket members 26 and 27 embrace a ball member 29, producing a ball-and-socket connection which permits of universal pivotal movement. The ball parts of these connections are carried by or fastened to the motor-cycle, the socket parts being connected with the side-car structure, as will be readily understood. The socket member 26 at the point *a* is carried by an offset bracket 26' which rigidly embraces extension 23.

The arrangement is such that a connection between the side-car and the motor-cycle is provided which is rigid in a horizontal direction establishing a firm connection between the two vehicle parts for propulsion purposes. At the same time the connection provided permits of considerable relative movement vertically or in a direction necessary to permit of vertical shocks and jars such as are received in travel of the device over the ground being absorbed and not transmitted from one part to the other. The ball and socket connections are of special importance too in that they afford an arrangement which will compensate for slight inaccuracy in manufacture, it being clear that, through the use of such connections, should error in alinement of the parts be found during assembly, the parts of the ball-and-socket connections will move relatively to each other and thus compensate for the discrepancy.

The lower end of the connecting arm 25 is yieldingly connected with the side-car frame member 11 by means of a bowed spring 30, preferably of the semi-elliptic type. The under side or end of the spring 30 is connected with the side-car frame member 11 by means of a block 31 arranged upon said frame member 11, clamping bands 32 and cooperating nuts 33 and yokes 34, serving to clampingly fasten said spring 30 and block 31 to frame member 10, as clearly seen in Figs. 2, 3 and 4.

The opposite end of the spring 30 is formed to constitute a bearing 35, in which is rockingly or rotatably mounted a bolt 36 formed at one end with an eye 37, as clearly seen in Figs. 4 and 5. The eye 37 snugly receives the lower end of arm 25, which is adjustably connected therewith by means of nuts 38 threaded upon said arm and which engage against opposite sides of said eye, as clearly seen in Fig. 4. The arm 25 is thus yieldingly connected with the upper

side or end of spring 30 in such a manner as to permit of relative pivotal movement of said arm in a plane extending longitudinally of the side-car and further in such a manner as to permit of relative vertical adjustment of said arm.

Through the connection of the lower end of the arm 25 with the side-car frame, as described, an arrangement is provided in which said arm does not at any time come in direct contact with the side-car, the connection being made through the medium of a resilient element, namely, the spring 30, with which said arm is swingingly connected. This being so, an arrangement is provided which is possessed of great resiliency and yieldability, so that in the operation of the motor-cycle, shocks and jars will not be transferred from the side-car to the motor-cycle or vice-versa, but will be absorbed by said connection as above pointed out.

In order to aid and protect the spring 30 when the latter is subjected to excessive compression, a cushion 39 of suitable resilient material is interposed between the ends of said spring, said member 39 being secured to the lower end of said spring by means of a suitable fastening member 40. The arrangement is such that the cushion 39 will not be brought into play during slight flexing or compression of the spring, such as results through ordinary vibration of the side-car or motor-cycle, the cushion being adapted, however, to be engaged by the upper end of said spring when excessively depressed, thus helping to absorb the shock to which the same is subjected and to prevent breakage thereof. Also, if desired, a member 41 of inverted U-shape may be employed, as seen in Fig. 6, to limit upward flexing of the free end of said spring. Where a member 41 is employed, the block 31 is extended and formed with perforated lugs 42 through which the reduced lower ends of said member extend and to which said ends are fastened by nuts 43. Said member 41 is so arranged that normally the same does not contact with spring 30, it being adapted to serve only in the event of excessive upward flexing of said spring, in which event it limits the upward movement thereof preventing rupture of the spring such as might otherwise result. The member 41 extending as it does around the sides and top of the free end of spring 30 serves also as a means of preventing lateral flexing or side-sway of said spring thereby further guarding against rupture of the spring.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I therefore do not wish to be limited to the precise details of construction set forth, but

desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame; a connecting member having one end connected with said motor-cycle frame at a point spaced vertically from said side-car frame; and a V-shaped spring interposed between and connecting the opposite end of said connecting member with said side-car frame at a point spaced laterally from the motor-cycle frame.

2. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame; a connecting member having one end connected with said motor-cycle frame at a point spaced vertically from said side-car frame; and a semi-elliptic spring interposed between and connecting the opposite end of said connecting member with said side-car frame at a point spaced laterally from the motor-cycle frame.

3. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame; a connecting member having one end connected with said motor-cycle frame at a point spaced vertically from said side-car frame; and a V-shaped spring having one end connected with the opposite end of said connecting member, the other end of said spring being connected with said side-car frame at a point spaced laterally from the motor-cycle frame.

4. The combination with a motor-cycle, of a side-car having operative connection therewith, permitting of relative vertical movement of said side-car; means for limiting relative vertical movement of said side-car comprising a member having one end connected with said motor-cycle at a point spaced vertically from the points of said before mentioned operative connection between said motor-cycle and said side-car; a yielding connection between the opposite end of said connecting member and said side-car comprising a V-shaped spring connected at one end with said side-car; and a bolt rotatably mounted in the opposite end of said spring and connected with the opposite end of said connecting member.

5. The combination with a motor-cycle, of a side-car having operative connection therewith, permitting of relative vertical movement of said side-car; means for limiting relative vertical movement of said side-car comprising a member having one end connected with said motor-cycle; a spring carried by said side-car and having a free end

connected with the opposite end of said connecting member; and means for limiting flexing movement of said free end of said spring.

6. The combination with a motor-cycle, of a side-car having operative connection therewith, permitting of relative vertical movement of said side-car; means for limiting relative vertical movement of said side-car comprising a member having one end connected with said motor-cycle; a spring carried by said side-car and having a free end connected with the opposite end of said connecting member; and means arranged above and below said free end of said spring for limiting flexing movement thereof.

7. The combination with a motor-cycle, of a side-car having operative connection therewith, permitting of relative vertical movement of said side-car; means for limiting relative vertical movement of said side-car comprising a member having one end connected with said motor-cycle; a spring carried by said side-car and having a free end connected with the opposite end of said connecting member; and a member disposed in the path of flexing of said free end of said spring for limiting upward flexing movement thereof.

8. The combination with a motor-cycle, of a side-car having operative connection therewith, permitting of relative vertical movement of said side-car; means for limiting relative vertical movement of said side-car comprising a member having one end connected with said motor-cycle at a point spaced vertically from the points of said before mentioned operative connection between said motor-cycle and said side-car; a bowed spring having one end connected with the opposite end of said connecting member, the other end of said spring being connected with said side-car; and a cushion interposed between the ends of said spring.

9. The combination with a motor-cycle, of a side-car having operative connection therewith, permitting of relative vertical movement of said side-car; means for limiting relative vertical movement of said side-car comprising a member having one end connected with said motor-cycle at a point spaced vertically from the points of said before mentioned operative connection between said motor-cycle and said side-car; a bowed spring having one end connected with the opposite end of said connecting member, the other end of said spring being connected with said side-car; and a cushion interposed between the ends of said spring, said cushion being carried by one of said spring ends and being adapted to be engaged by the other upon excessive compression of said spring.

10. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a

spring yieldable in a certain plane; means connecting said spring with said motor-cycle frame; and means for preventing lateral flexing of said spring.

5 11. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a spring yieldable in a vertical plane; means
10 connecting said spring with said motor-cycle frame; and means for preventing lateral flexing of said spring.

12. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a spring yieldable in a certain plane; means
15 connecting said spring with said motor-cycle frame; and means carried by said side-car frame for preventing lateral flexing of said
20 spring.

13. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a spring yieldable in a vertical plane; means
25 connecting said spring with said motor-cycle frame; and means carried by said side-car frame for preventing lateral flexing of said
30 spring.

14. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a
35 spring yieldable in a certain plane; means

connecting said spring with said motor-cycle frame; and means for limiting movement of said spring in said plane and for preventing lateral flexing thereof.

15. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a spring yieldable in a certain plane; means
40 connecting said spring with said motor-cycle frame; and means extending at three sides of said spring for limiting movement of the same in said plane and for preventing lateral flexing thereof.

16. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a spring; a connecting element rockingly
45 mounted in said spring; and means connecting said element with said motor-cycle frame.

17. The combination with a motor-cycle frame, of a side-car comprising a frame having operative connection with said motor-cycle frame, said connection comprising a
50 spring; a stud rockingly mounted in said spring; and means connecting said stud with said motor-cycle frame.

In witness whereof, I have hereunto subscribed my name. 65

GOTTFRIED STETTLER.

Witnesses:

CHARLES E. HASTING,
CALVIN E. MADLEM.