PATENT SPECIFICATION

Application Date: Oct. 21, 1924. No. 24,978/24.
„ „ Nov. 28, 1924. No. 28,518/24.
One Complete Left: July 20, 1925.
Complete Accepted: Dec. 24, 1925.

244,555

PROVISIONAL SPECIFICATION.

No. 24,978, A.D. 1924.

Improvements in or relating to Side Car or like Wheeled Carrier Attachments to Motor Cycles.

We, A. J. STEVENS & COMPANY (1914) LIMITED, of Graiseley House, Penn Road, Wolverhampton, a British company, and CHARLES WILLIAM HAYWARD, of Walsall Street, Wolverhampton, a British subject, do hereby declare the nature of this invention to be as follows:—

This invention comprises certain improvements in or relating to side cars or like wheeled carrier attachments to motor cycles, and it has for its object an improved construction of chassis, which is cheap to produce and readily assembled.

By the present improvements, the chassis members are connected together in such a manner that the need for brazing is in the main obviated, or entirely obviated. The chassis is also so constructed that it may be packed in a small space when in a disassembled condition, the parts being readily assembled when unpacked.

According to this invention, the side car wheel axle is mounted in a bracket which is fixed on the end of a transverse axle tube. This bracket forms a platform for attaching a C-spring which supports the rear of the side car body. A similar bracket, without the extension for carrying the wheel axle, is secured to the other end of the axle tube, a C-spring being similarly carried by this bracket. These two brackets are fixed to forwardly directed tubular members, conveniently by means of a screwed pin and nut clamping device. In the preferred form, the said brackets are fixed on the ends of the axle tube by means of each end of the tube fitting into a split socket in the respective brackets. Lugs on each side of the split socket pass downwardly below the axle tube, and a pin brazed or screwed in the end of each longitudinal member of the chassis passes through perforations in the said lugs for receiving a spring washer and clamping nut. When this nut therefore is screwed up, the axle tube is clamped in the bracket socket, whilst the ends of the longitudinal members are tightly fixed also to the bracket. The bracket if desired may be permanently fixed to the end of the longitudinal member or to the end of the axle tube, but it is preferred to fix the brackets as described, in order to obviate the need for brazing, and in order to provide a joint which can be readily assembled after the chassis has left the works. Each C-spring is clamped on the platform of the bracket by means of two U-bolts which engage in semicircular grooves on the bracket, and pass through perforations in a clamping plate superimposing the C-springs.

The longitudinal members conveniently comprise the limbs of a tube bent into a substantially U-shaped form, the front of the tube at the centre of the bend having means incorporated for fixing a spiral spring, which resiliently supports the front of the side car body from the chassis. A torque tube is fixed at one end to the centre of the axle bar, the other end being fixed to the motor cycle frame in the usual manner. The front end of the chassis is also connected to the motor cycle frame by means of a cross tube, and such tube is fixed to the front of the chassis by means or clips, such clips conveniently comprising two brackets each having two recesses for

[*Price* 1/-]

engaging the two tubes, a clamping bolt passing through the two brackets and between the two tubes.

A chassis thus constructed is extremely cheap to manufacture as brazed joints are entirely, or in the main, eliminated. The strength or safety of the chassis is not however impaired as it will be noted that the torque tube tends to pull the said brackets against the ends of the said U-shaped tube. Again as the brackets are carried on the end of the U-tube, such U-tube will tend to hold the brackets on the ends of the axle bar. Moreover the brackets are connected to the side car body by the C-springs. The chassis can also be assembled for connection to the left or right hand side of the machine.

Dated this 20th day of October, 1924.

J. E. S. LOCKWOOD,
Patent Agent for the Applicants,
3, New Street, Birmingham.

PROVISIONAL SPECIFICATION.

No. 28,518, A.D. 1924.

Improvements in or relating to Side Car or like Wheeled Carrier Attachments to Motor Cycles.

We, Charles William Hayward, of Walsall Street, Wolverhampton, a British subject, and A. J. Stevens & Company (1914) Limited, of Graiseley House, Penn Road, Wolverhampton, a British company, do hereby declare the nature of this invention to be as follows:—

This invention comprises certain improvements in or relating to side cars or like wheeled carrier attachments to motor cycles, and it has for its object an improved construction of chassis, which is cheap to produce and readily assembled. This invention comprises an improvement in or modification of the invention set forth in the Specification accompanying my Application for Patent No. 24,978/1924, whereby the chassis members are connected together in such a manner that the need for brazing is in the main obviated, or entirely obviated, the chassis being also so constructed that it may be packed in a small space when in a disassembled condition, the parts being readily assembled when unpacked.

According to this invention, the side car wheel axle is mounted in a bracket which is fixed on the end of two transverse axle tubes. This bracket preferably also forms a platform for attaching a C-spring which supports the rear of the side car body. A similar bracket is secured to the other ends of the axle tubes, a C-spring being similarly carried by this bracket. These two brackets are also fixed to forwardly directed tubular members conveniently by means of a screwed pin and a nut clamping device. In the preferred form, the said brackets have an elongated hole or opening for receiving the said two transverse axle tubes which are disposed one above the other. Circular holes are formed in the opposite walls of the elongated recess, and cylindrical hollow plugs are passed through each hole, the ends of each plug being recessed or tapered on opposite sides for bearing against the adjacent faces of the said two transverse tubes. A screwed pin on the end of the said forwardly directed members passes through these two hollow plugs, and a collar on the pin is adapted to bear on one plug, whilst a spring washer and nut threaded over the end of the screwed pin is adapted to bear on the other hollow plug. When this latter nut, therefore, is tightened up, the two hollow plugs separate the two transverse tubes to bind the same in the bracket, whilst at the same time the forwardly directed tubular member is firmly secured to the bracket. The said clamping nut therefore fixes the bracket to both the transverse tubes and the forwardly directed tube. The said screwed pin may be fixed in the said forwardly directed tubular member in any desired manner. For instance the pin may be screwed therein. Or again an inner tube may be fixed in the end of the forwardly directed tubular member, the inner end of such tube having preferably two saw cuts therein on diametrically opposite sides. The bore at the split end of this tube is also tapered, and the said screwed pin, which is to be fixed to the end of the forwardly directed tubular member, has a tapered end for engaging the tapered bore of the split tube, so that when the pin is moved axially, such pin wedges itself in the split tube which is itself wedged in the outer tubular member. The screwed pins can of course be brazed in the ends of the forwardly directed tubular members. Each C-spring is clamped on the platform of the bracket by means of two U-bolts which engage in semi-circular grooves on the bracket, and pass through perforations in a clamping plate superimposing the C-springs.

The said forwardly directed tubular members or longitudinal members conveniently comprise the limbs of a tube bent into a substantially U-shaped form. Brackets are clipped to the side limbs of this U-shaped tube near the front end for mounting C-springs which support the front end of the side car body. These brackets conveniently comprise two saddle piece which fit above and below the tube, the saddle pieces having grooves in the side for receiving a U-bolt. The ends of this U-bolt pass through holes in a clamping plate, and nuts screwed on the ends of the bolt are adapted to fix the C-spring to the upper saddle piece and also to clamp the two saddle pieces to the tube. A torque tube is fixed at one end to the centre of the axle tubes, the other end being fixed to the motor cycle frame in the usual manner; this torque tube is fixed to the end of a bolt which passes through a clip comprising two brackets which have recesses for engaging the two tubes. The front end of the chassis is connected to the motor cycle frame by means of a cross tube, and such tube is fixed to the front transverse tubular portion of the chassis by means of clips, such clips conveniently comprising two brackets which have recesses for engaging the two tubes, and a clamping bolt which is fixed through the two brackets between the two tubes.

A chassis thus constructed is extremely cheap to manufacture as brazed joints are entirely, or in the main, eliminated. The strength or safety of the chassis is not however impaired as it will be noted that the torque tube tends to pull the said brackets against the ends of the said U-shaped tube. Again as the brackets are carried on the ends of the U-tube, such U-tube will tend to hold the brackets on the ends of the axle tubes. Moreover the brackets are connected to the side car body by the C-springs. The chassis can also be assembled to either the left or right hand side of the motor cycle, as the brackets on each end of the transverse axle tubes can either support the wheel spindle or be utilised for receiving the link connected to the motor cycle frame.

Dated this 27th day of November, 1924.

J. E. S. LOCKWOOD,
Patent Agent for the Applicants,
3, New Street, Birmingham.

COMPLETE SPECIFICATION.

Improvements in or relating to Side Car or like Wheeled Carrier Attachments to Motor Cycles.

We, A. J. Stevens & Company (1914) Limited, of Graiseley House, Penn Road, Wolverhampton, a British company, and Charles William Hayward, of Walsall Street, Wolverhampton, a British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention comprises certain improvements in or relating to side cars or like wheeled carrier attachments to motor cycles, and it has for its object an improved construction of chassis, which is cheap to produce and readily assembled.

According to the present improvements, a side car chassis for motor cycles comprises forwardly directed side tubes and a rear axle tube or member, each end of which tube is connected to the respective side tubes by means of a bracket on which is mounted a wheel axle or cycle frame connecting tube, such bracket being clamped in position on the respective side tube and axle tube or member by a single fixing nut or like screw device. The bracket has a socket for receiving a single tube or member (or forwardly directed side member) which is gripped in the socket when the forwardly directed side member (or axle tube) is clamped to the bracket. The bracket may have a socket for receiving two tubes forming the axle member which are clamped therein by means of wedge sleeves, a pin carried by the respective side tube passing through the bracket and wedge sleeves for the purpose of fixing the axle tube and forwardly directed side tube to the bracket when a nut on the end of the screwed pin is tightened thereon. The forwardly directed side tubes may form the limbs of a U-shaped tube, the rear of the limbs of which are connected to the axle tube by means of brackets. The said brackets may support the rear C-springs. The C-spring may be fixed to the bracket fixed on the chassis by means of a U-bolt engaging a groove in the bracket. By this invention also the C-spring is fixed to the chassis by means of a split clip comprising two saddle pieces or clip members which are clamped around a tube and also have springs fixed thereto by means of U-bolts which engage in side grooves in the saddle pieces. By this invention also a side car chassis for motor cycles comprises a number of tubular members which are jointed together by means of brackets or clips each comprising a split socket having lugs on each side of the split, the socket engaging one tube to be connected, whilst the lugs engage over a pin fixed to the end of the other tube to be connected, the parts being so arranged that when the said lugs on the brackets or clips are engaged on the respective pins and the nuts tightened on the pins, the chassis is correctly assembled.

In order that the invention may be clearly understood and readily carried into effect, reference may be had to the accompanying drawings on which:—

Figure 1 is a side elevation of a portion of a side car chassis.

Figure 2 is a front view of Figure 1.

Figure 3 is a plan view.

Figure 4 is a side elevation of a portion of a modified form of chassis.

Figure 5 is a plan view of Figure 4.

Figure 6 is a cross sectional view and Figure 7 a side elevation, of the brackets shown by Figures 4 and 5.

Figure 8 is a rear view of a portion of a further modified form of chassis.

Figure 9 is a plan view of a portion of the chassis shown by Figure 8, and

Figure 10 is a side view of the wheel carrying bracket shown by Figures 8 and 9.

According to this invention, the side car wheel axle 1 is mounted in a bracket 2 which is fixed on the end of the axle tube 3. This bracket 2 forms a platform for attaching a C-spring 4 which supports the rear of the side car body. A similar bracket 2 is secured to the other end of the axle tube 3, a C-spring 6 and cycle frame connecting member 7 being similarly carried by this bracket. These two brackets 2 are fixed to forwardly directed tubular members 8 by means of a screwed pin and nut clamping device. In the preferred form, the said brackets 2 are fixed on the ends of the axle tube 3 by means of each end of the tube fitting into a split socket 9 in the respective brackets. Lugs 10 on each side of the split socket pass downwardly below the axle tube, and a pin 11 brazed, screwed or clamped in the end of each member 8 passes through perforations in the said lugs 10 for receiving a clamping nut 12. When this nut therefore is screwed up, the axle tube 3 is clamped in the socket 9, whilst the ends of the members 8 are tightly fixed also to the bracket. Each C-spring 4 and 6 is clamped on the platform of the bracket by means of two U-bolts 13 which engage in semi-circular grooves 14 on the bracket, and pass through perforations in a clamping plate 15 superimposed upon the C-springs.

The members 8 conveniently comprise the limbs of a tube bent into a substantially U-shaped form, the front transverse portion of the tube, at the centre of the bend, having means incorporated for fixing a spiral spring 16 which resiliently supports the front of the side car body from the chassis. A torque tube 17 is fixed at one end to the centre of the axle bar 3, the other end being fixed to the motor cycle frame in the usual manner. The front end of the chassis is also connected to the motor cycle frame by means of a cross tube 18, and such tube is fixed to the front of the U-tube by means of clips, such clips conveniently comprising two brackets 19 and 20, each having two recesses for engaging the two tubes, a clamping bolt 21 passing through the two brackets and between the two tubes. The cross tube 18 can be adjusted both transversely and radially in the clips, whilst the clips can themselves be adjusted on the U-tube, thus enabling the cross tube 18 to be connected to various types and sizes of motor cycle frames.

According to the modification shown by Figures 4, 5, 6 and 7, the brackets 22, corresponding to the aforementioned brackets 2, have an elongated hole 23 or opening for receiving the two transverse axle tubes 24 which are disposed one above the other. Circular holes are formed in the opposite walls of the elongated recess, and cylindrical hollow plugs 25 are passed through each hole, the ends of each plug being recessed or tapered at 26, on opposite sides, for bearing against the adjacent faces of the said two transverse tubes. A screwed pin 11 (see also Figure 1) on the end of the said forwardly directed members 8 passes through these two hollow plugs 25, and a collar 27 on the pin is adapted to bear on one plug, whilst the nut 28 is adapted to bear on the other hollow plug. When this latter nut, therefore, is tightened up, the two hollow plugs separate the two transverse tubes to bind the same in the bracket 22, whilst at the same time the member 8 is firmly secured to the bracket. The screwed pin 11 may be fixed in the said member 8 in any desired manner. An inner tube 29 (see Figure 1) may be fixed in the end of the member 8, the inner end of such tube having preferably two saw cuts 30 therein on diametrically opposite sides. The bore at the split end of this tube is also tapered, and the said screwed pin 11 has a tapered end 31, for engaging the split tube 29, so that when the pin is moved axially, such pin wedges itself in the split tube which is itself wedged in the member 8. Brackets for supporting C-springs in the modification shown in Figures 4 to 7 comprise two saddle pieces or clip members 32 which fit around the tube 8, the saddle pieces having grooves in the side for receiving a U-bolt. The torque tube is fixed to the end of a bolt which passes through a clip comprising two brackets which have recesses for engaging the two tubes.

The mudguard 33 is supported entirely by the C-spring 4 and is not therefore attached to the side car body. Conveniently the mudguard is connected at two places to the upstanding end 34 of the cross member 35 to which the side car body is fixed. The mudguard is connected to the upstanding end 34 by means of the bolt 36 at one part, and at the other part by means of the clip 37 which is clipped to the bar 38 and to the pin 39 which pin connects the C-spring 4 to the transverse member 35.

According to a further modified form shown by Figures 8, 9, and 10, the bracket 40 (corresponding to the bracket 2 shown by Figures 1 and 2) has the split socket 41 clamped on to the forwardly directed side member 42 whilst the axle tube 43 is fixed to the bracket by means of a pin fixed on the end thereof and passing through the lugs 44, the arrangement being similar to the modification shown by Figures 1 and 2 with the exception that the split socket is clamped on the longitudinal side member instead of on the axle tube. This arrangement enables the longitudinal tube 42 to project rearwardly beyond the axle tube 43 for fixing the end of the frame 45 thereto. This frame 45 is fixed to the longitudinal member 42 by means of the split clips 46 which are clamped on the tube 42 and are connected to the ends of the frame 45 by means of the nuts 47 engaging a screwed pin fixed to the ends of the frame 45 and passing through the lugs 48 on the split clip 46. In this modification the C-spring is not fixed direct to the bracket 40 but to a split clip 49 comprising saddle pieces 32 as previously described. The member 45 carries the bearing 45a for the outer end of the wheel axle.

In lieu of the longitudinal members forming the side limbs of the U-shaped tube the front transverse bar of the chassis may be formed separate and the front and side tubes may be connected at the front corner by means of split clips similar to 46.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A side car chassis for motor cycles comprising forwardly directed side tubes and a rear axle tube or member each end of which tube is connected to the respective side tube by means of a bracket on which is mounted a wheel axle or cycle frame connecting tube, and which bracket is clamped in position on the respective side tube and axle tube or member by a single fixing nut or like screw device.

2. A side car chassis as set forth in the 1st claim in which the bracket has a socket for receiving a single axle tube or member (or forwardly directed side member) which is gripped in the socket when the forwardly directed side member (or axle tube) is clamped to the bracket.

3. A side car chassis as set forth in the 2nd claim in which the bracket comprises a split socket for receiving the axle bar (or forwardly directed side tube) which is clamped in such socket by a pin and nut on the end of the respective forwardly directed side member (or axle tube), which pin passes through lugs on the socket.

4. A side car chassis as set forth in the 2nd claim in which the bracket has a socket for receiving two tubes forming the axle member which are clamped therein by means of wedge sleeves, a pin carried by the respective side tube passing through the bracket and wedge sleeves for the purpose of fixing the axle tube and the forwardly directed side tube to the bracket when a nut on the end of the screwed pin is tightened thereon.

5. A side car chassis as set forth in the preceding claims in which the forwardly directed side tubes form the limbs of a U-shaped tube, the rear of the limbs of which are connected to the axle tube by means of brackets.

6. A side car chassis for motor cycles as set forth in the preceding claims, in which the brackets support the rear C-springs.

7. A side car chassis as set forth in the 3rd and 4th claims in which a pin is secured to the forwardly directed side tube or axle tube by means of a conical head on the said pin expanding a slotted tube in the interior of the said side tube.

8. A side car chassis as set forth in the preceding claims in which a C-spring is fixed to the bracket fixed on the chassis, by means of a U-bolt engaging in a groove in the bracket.

9. A side car chassis for motor cycles

in which a C-spring is fixed to the chassis by means of a split clip comprising two saddle pieces or clip members which are clamped around a tube, and also have the springs fixed thereto, by means of U-bolts which engage in side grooves in the saddle pieces.

10. A side car chassis for motor cycles comprising a number of tubular members which are jointed together by means of brackets or clips each comprising a split socket having lugs on each side of the split, the socket engaging one tube to be connected whilst the lugs engage over a pin fixed to the end of the other tube to be connected, the parts being so arranged that when the said lugs on the brackets or clips are engaged on the respective pins and the nuts tightened thereon the chassis is correctly assembled.

11. A side car chassis for motor cycles, substantially as herein set forth and illustrated.

Dated this 17th day of July, 1925.

J. E. S. LOCKWOOD,
Patent Agent for the Applicants,
3, New Street, Birmingham.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1926.

[This Drawing is a reproduction of the Original on a reduced scale]

SHEET 1

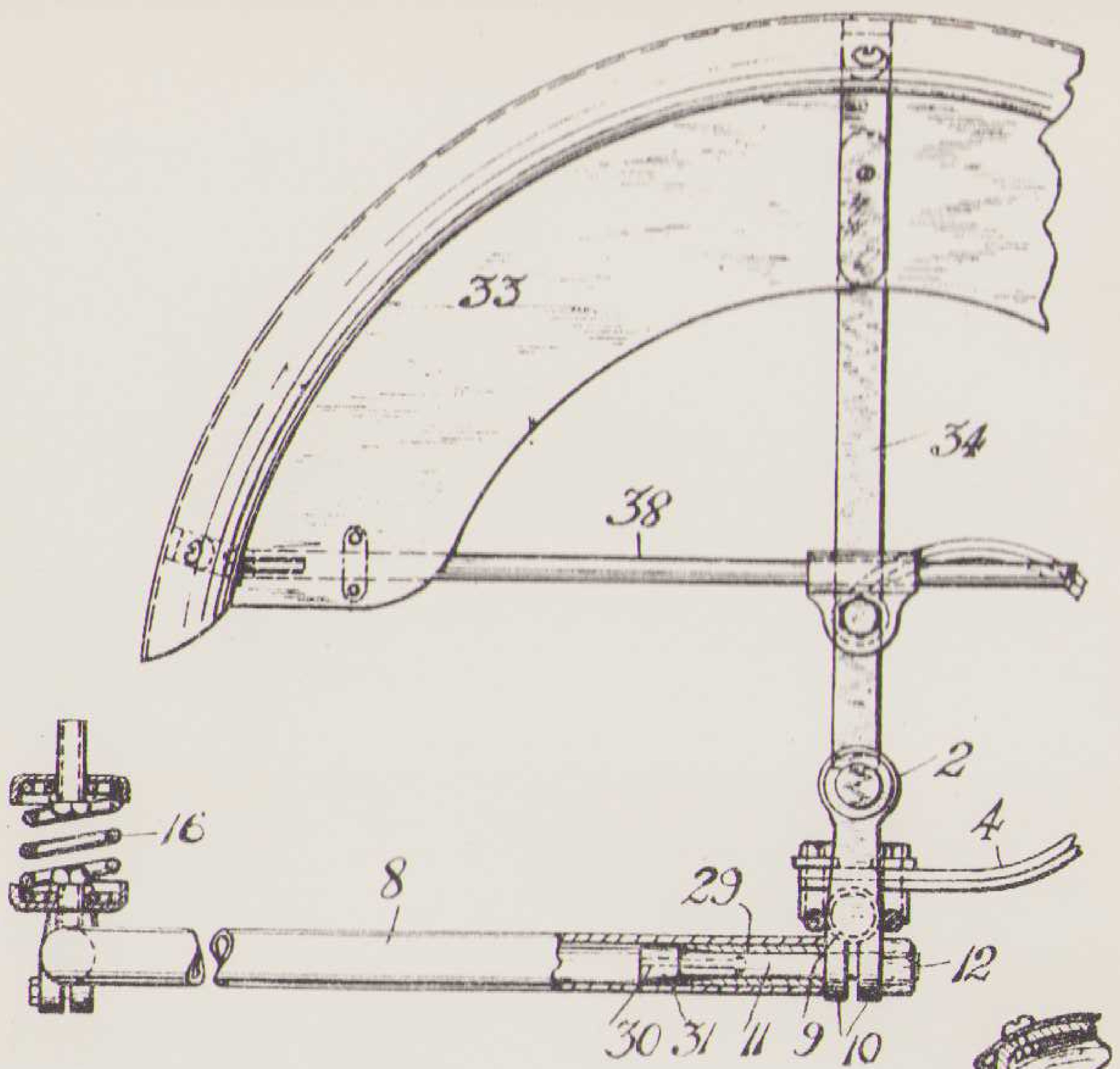

Fig. 1.

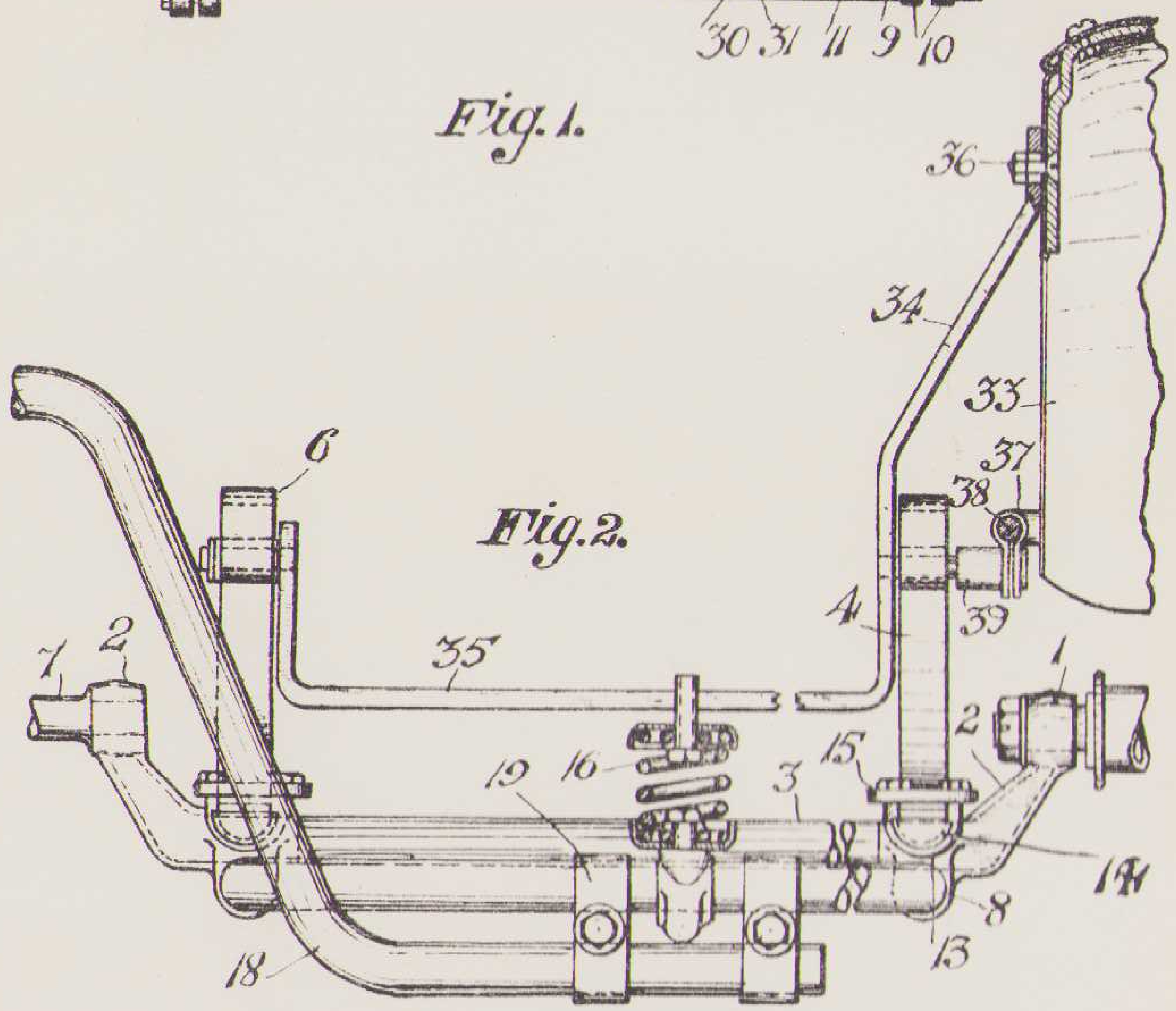

Fig. 2.

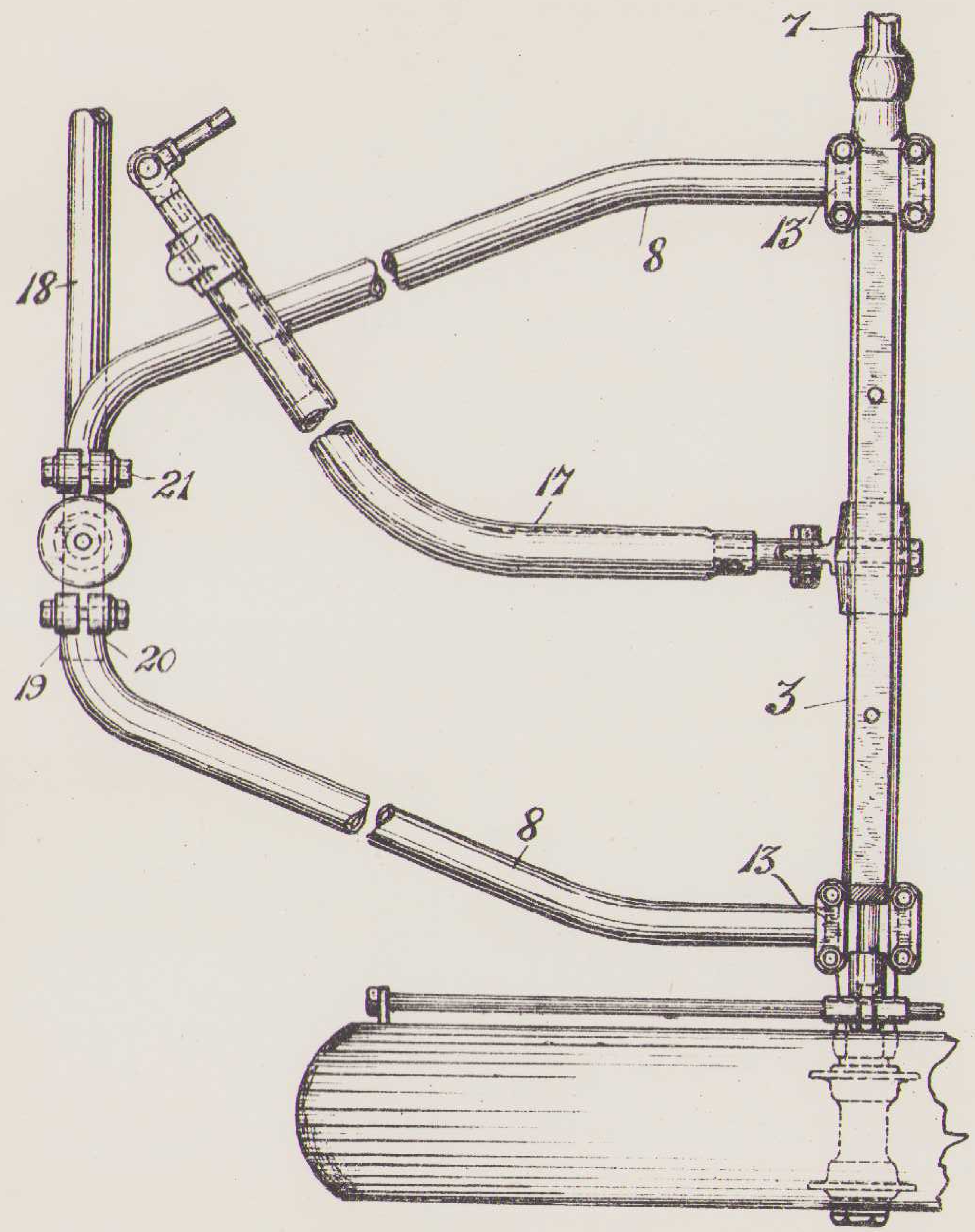

Fig. 3.

Charles & Read Ltd. Photo Litho.

[This Drawing is a reproduction of the Original on a reduced scale.]

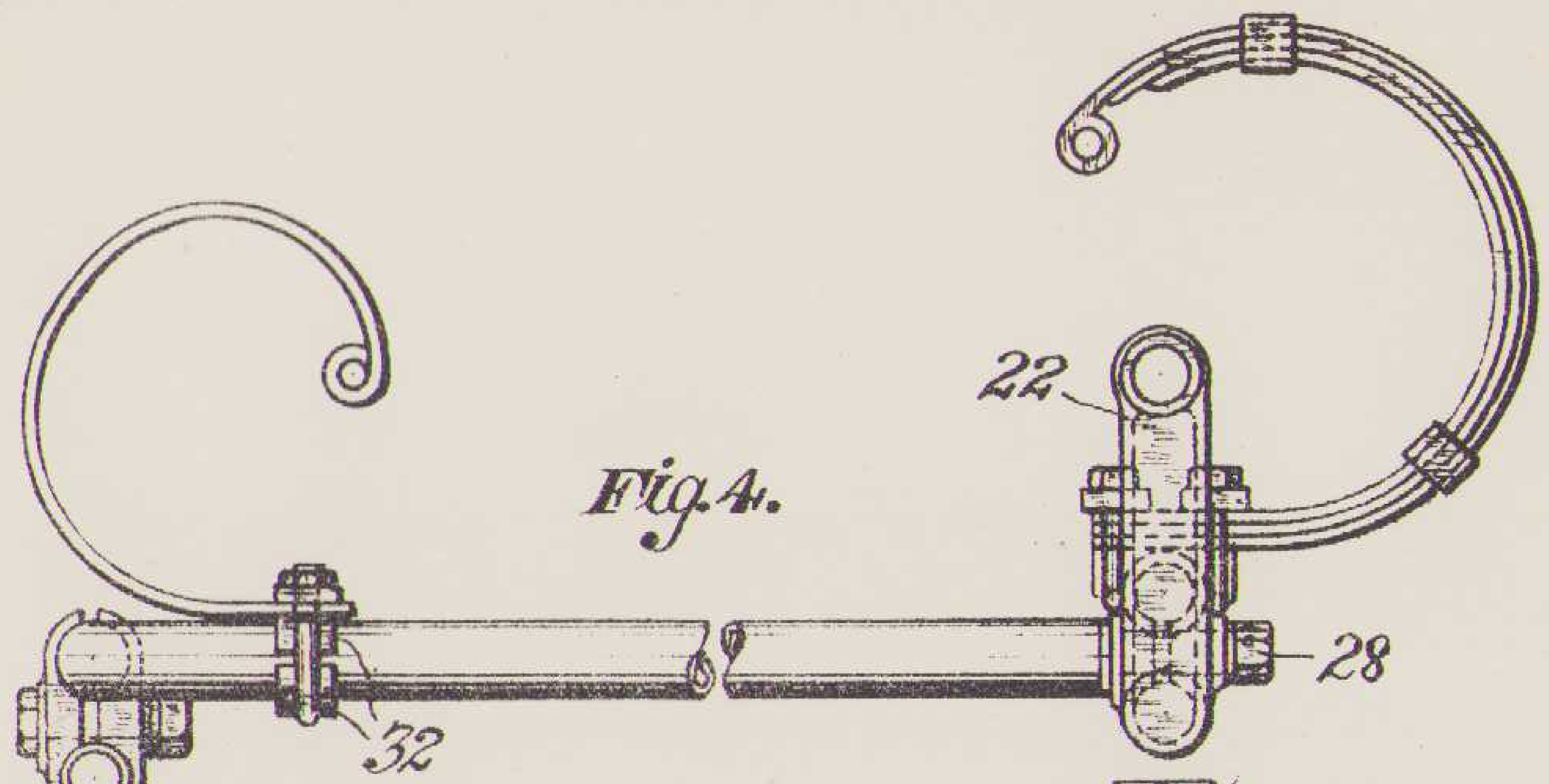

Fig. 4.

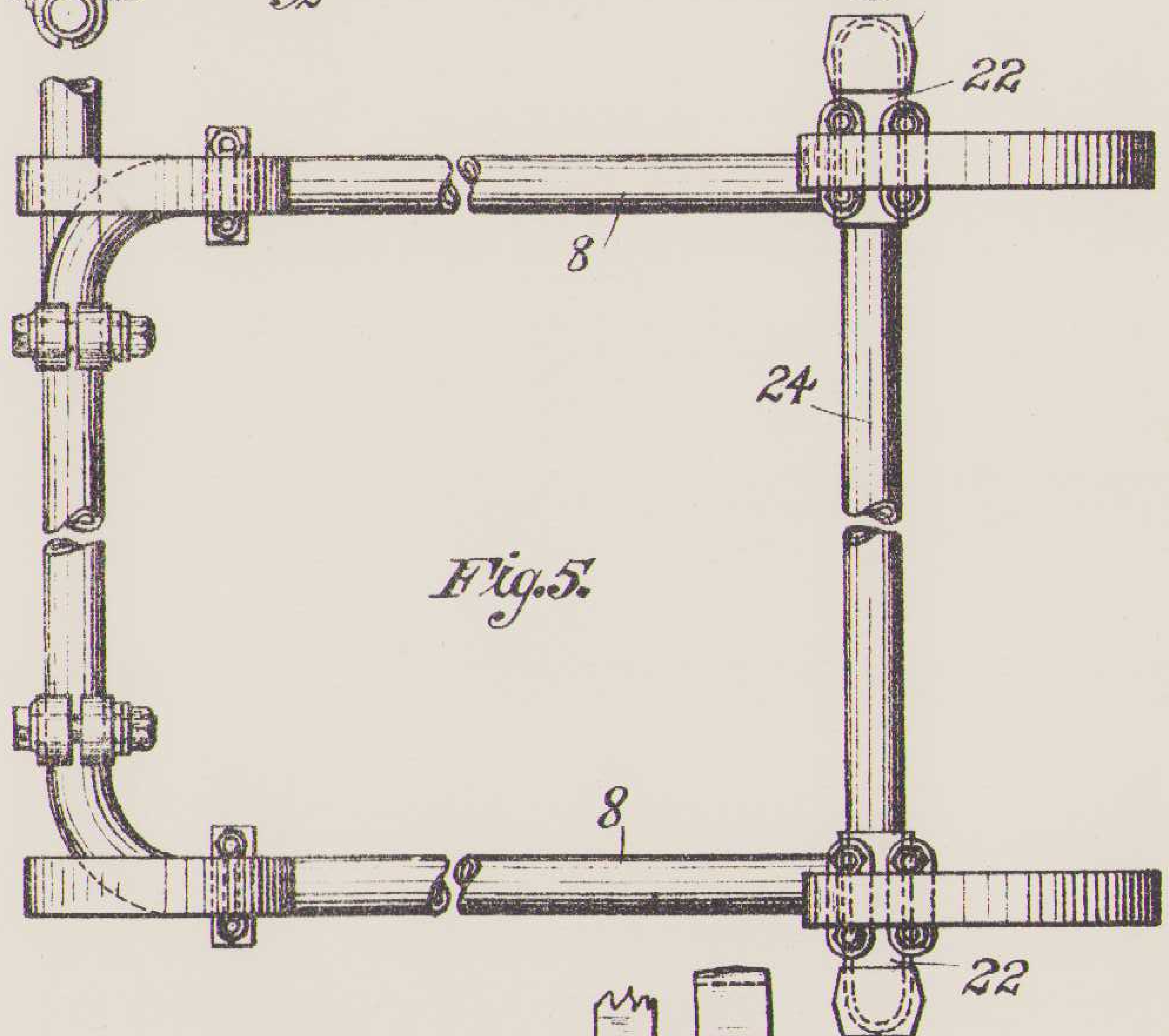

Fig. 5.

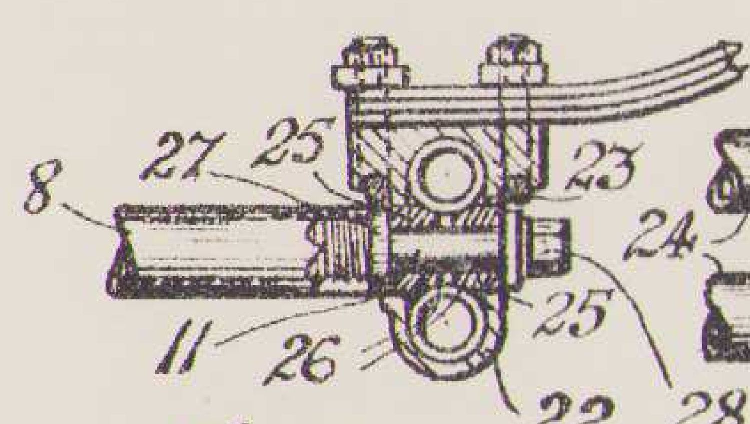

Fig. 6.

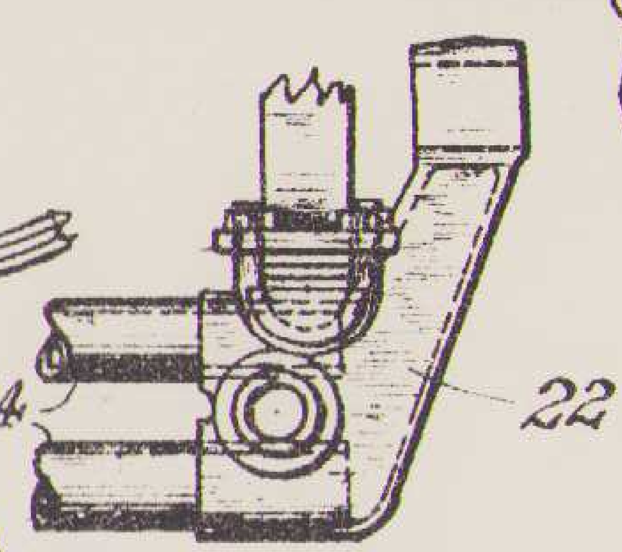

Fig. 7.

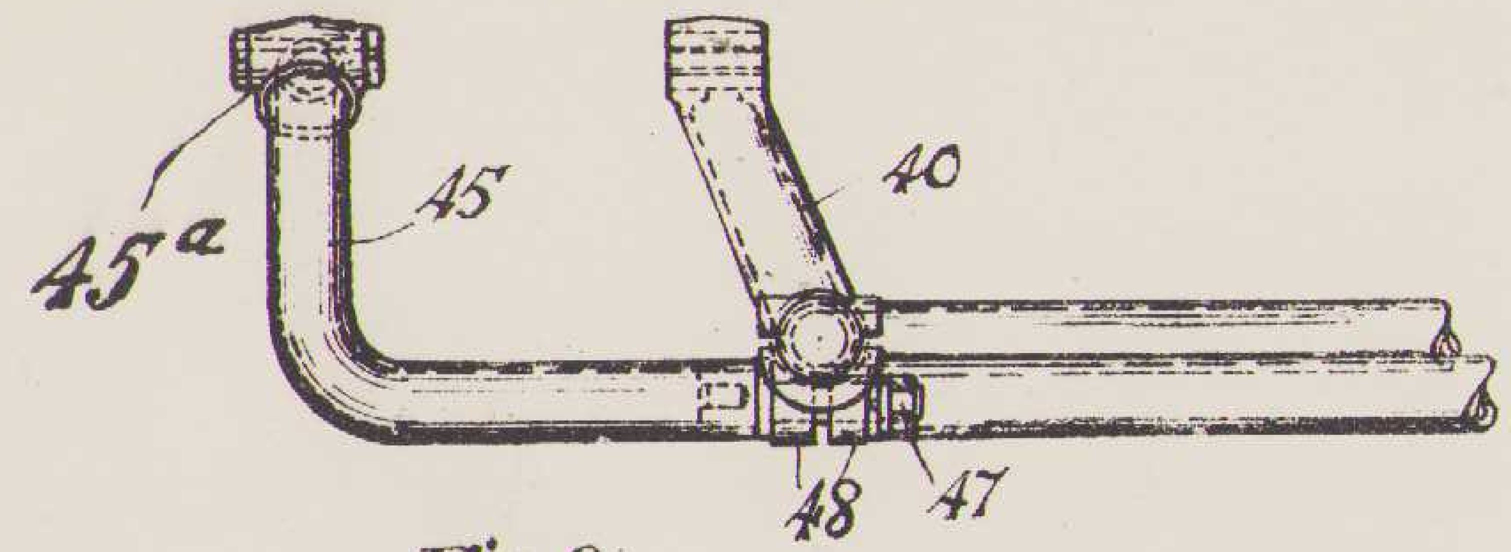

Fig. 8.

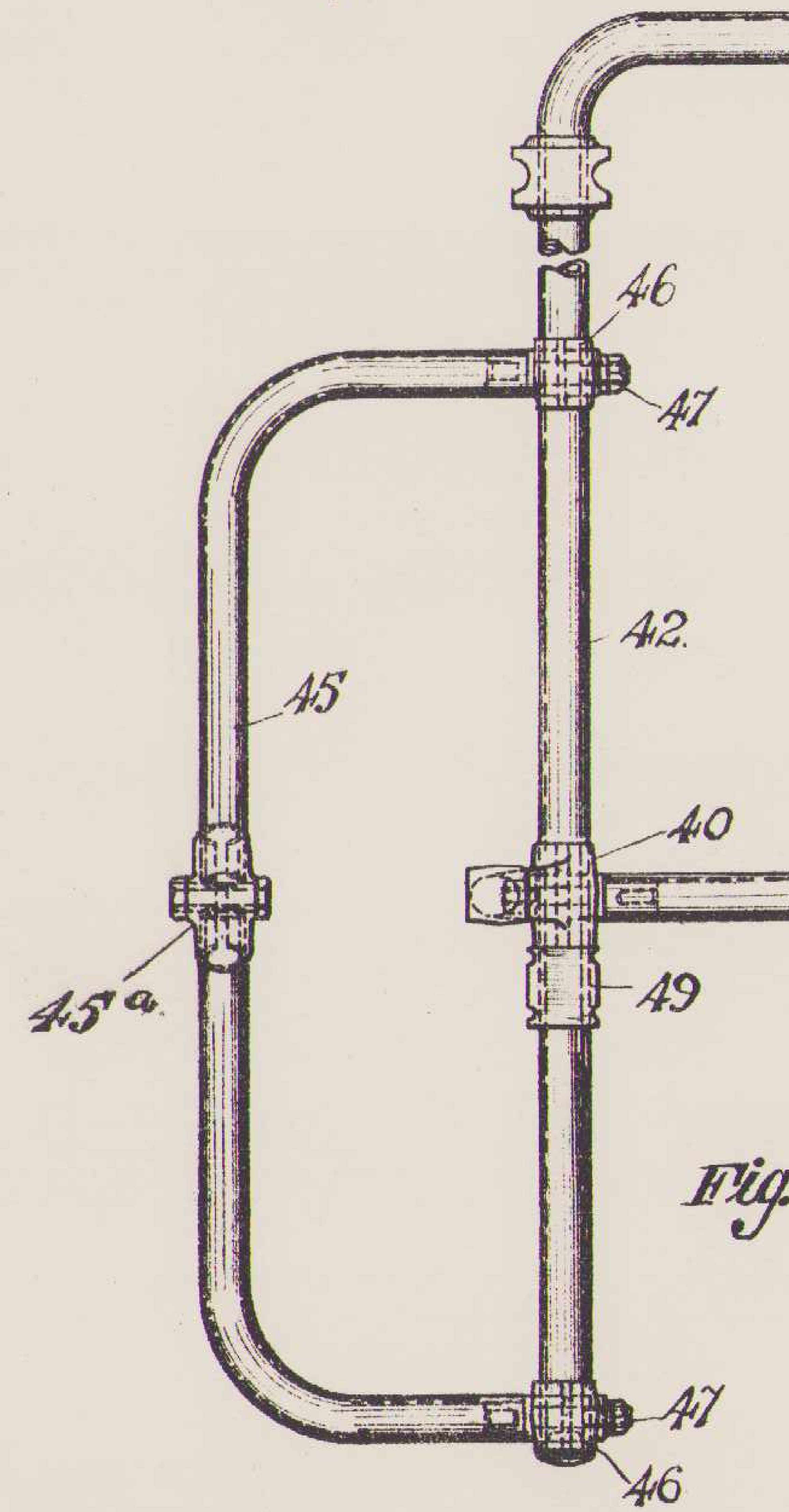

Fig. 9.

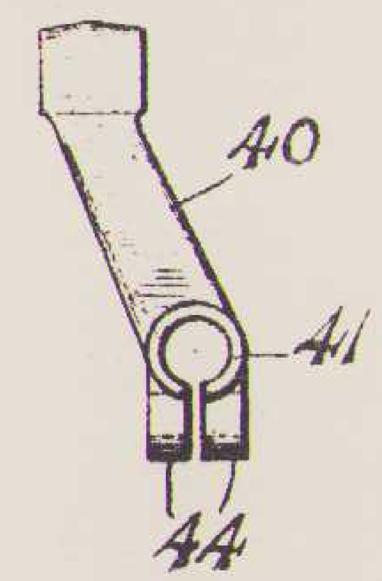

Fig. 10.