G. H. FILKINS.

AUTOMOBILE DEVICE.

APPLICATION FILED JULY 16, 1917.

1,328,654. Patented Jan. 20, 1920.

Fig. 1.

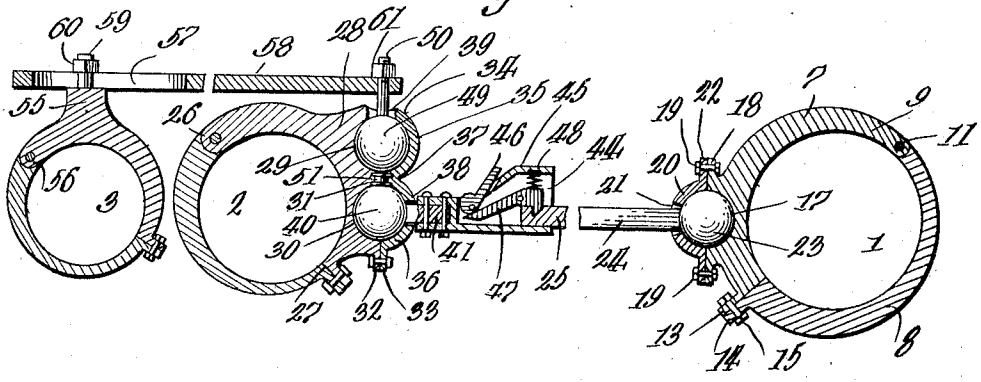


Fig. 2.

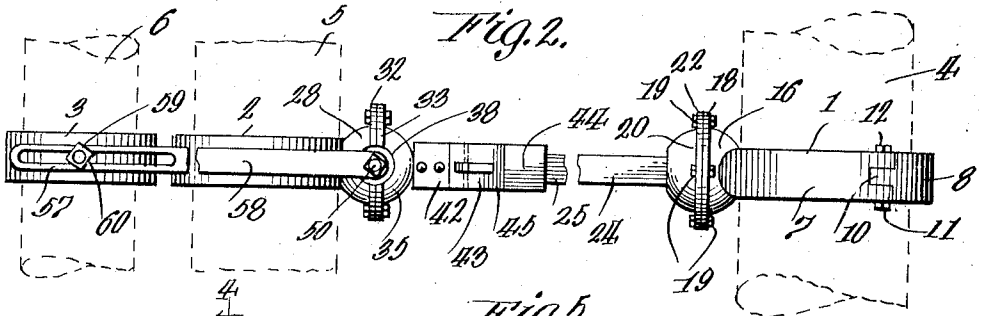


Fig. 3.

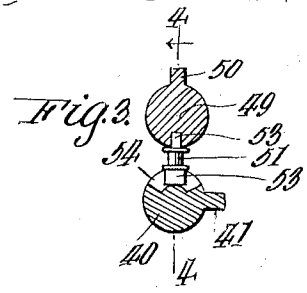


Fig. 5.

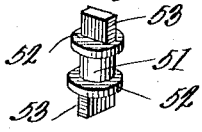


Fig. 4.

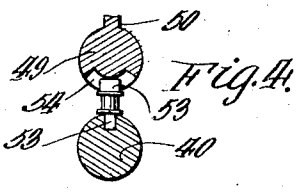
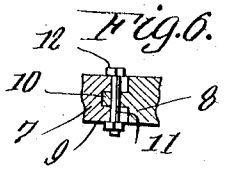


Fig. 6.



WITNESSES

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AUTOMOBILE DEVICE.

1,328,654. Specification of Letters Patent. **Patented Jan. 20, 1920.**

Application filed July 16, 1917. Serial No. 180,919.

To all whom it may concern:

Be it known that I, GEORGE H. FILKINS, a citizen of the United States, residing at Watervliet, in the county of Albany and State of New York, have invented certain new and useful Improvements in Automobile Devices, of which the following is a specification.

This invention has reference to couplers and more specifically to an improved form of coupling means adapted to the towing of vehicles.

One of the principal objects of the invention is to provide a coupling means which is susceptible of lateral movement so that when interposed between two vehicles, the parts of the coupler are permitted a sufficient amount of play to enable the towed vehicle to more easily follow the lead of the conducting vehicle, particularly when rounding corners.

A further object is to provide a coupler of this character formed principally of two vehicle-clamping members, adapted for separable engagement with one another and so related that the movement of one member is dominated and controlled by the movement of the other; said dominated member having associated therewith an auxiliary guiding clamp to be attached to the steering rod of the vehicle being towed.

As a still further object, the invention may be said to contemplate, in general, the provision of a more efficient and economical form of coupler, made up of comparatively few parts, and so constructed as to readily adapt itself to any sudden or diverse movement of the coupled vehicles.

With the above and other objects in view, this invention consists in the details of construction, arrangement and combination of parts as will be hereinafter more fully described in the following specification and pointed out in the drawings, wherein:

Figure 1 is a longitudinal sectional view of the improved coupler,

Fig. 2 is a top plan view thereof,

Fig. 3 is a detailed sectional view of the bearing and the connecting pin by which the steering of the towed vehicle is accomplished,

Fig. 4 is a similar view to Fig. 3, the section through the bearing, however, being taken at right angles to that taken in the former view, to show how the slotted portions of the bearings cross each other at right angles.

Fig. 5 is a perspective view of the connecting pin, and;

Fig. 6 is a fragmentary sectional view taken through the hinged portion of one of the clamp members.

As shown in the drawings, the coupler is composed of clamp members 1, 2 and 3 by means of which the device is attached to the vehicles; the clamp indicated at 1 being adapted to embrace the rear axle 4 of the front auto while the other clamps are attached, respectively, to the front axle 5 and steering rod 6 of the towed auto, as indicated by the dotted lines.

Clamp 1 consists of ring sections 7 and 8, the former of which is provided with a forked end 9 for the reception therein of a tongue extension 10 carried by the latter section. A bolt 11 passing through the end 9 and the tongue 10, and having its threaded extremity engaged by a nut 12 serves to retain the clamp sections in connection with each other while providing at the same time a hinge upon which the sections may be readily swung either to open or closed position. The width of the sections is very narrow at their connected ends but gradually increases so that toward their free ends the sections are considerably thickened, and thus strengthened to withstand the strain placed upon the clamp at such points. Each of the sections 7 and 8 is provided near its free end with outstanding flanges 13 and 14 which meet when the sections are closed and which are joined by fastening means 15. The section 7 is further provided with a semi-spherical enlargement 16, extending beyond the clamp 1 and rearwardly of the auto axle 4, as shown in the drawings. The center of the enlargement is hollowed out to provide a recess 17 surrounded by the flange 18. Secured by the bolts 19 to the flange 18 is a cap piece comprising a cup-shaped portion 20 having a central opening 21 and a flange 22 similar to the flange 18, already referred to. When thus fastened to the enlargement the cup shaped portion 20 is directly opposite the recess 17 and forms therewith a spherical socket or recess into which the half bearing 23 is disposed. This bearing 23 is adapted to be movably disposed within its socket and carries a coupling bar 24 which passes through the open-

ing 21; this opening being widened at its mouth to permit of a slight degree of both vertical and lateral movement of the said coupling bar. At its outermost end the coupling bar is provided with a recessed or hook-end 25 which is adapted for separable engagement with that portion of the coupler attached to the towed vehicle.

The clamp 2 which is attached to the auto axle 5 is of practically the same construction as clamp 1, with the exception that the former is thicker toward its hinged end 26 than toward its flanged portions 27 and that it is provided with an offset portion 28, having a pair of vertically alined spaced recesses 29, and 30 having a ridge portion 31 therebetween. A flange 32 is provided about the offset portion and is adapted for bolted engagement with the flange 33 of the cap plate 34 which, in this instance comprises a pair of vertically alined cup sections 35 and 36 having an intermediate ridge portion 37 which is in spaced relation to the ridge 31 while the cup sections are disposed oppositely to the spaced recesses 29 and 30. The lower cup section 36 is provided with a central opening or passage 38 while the upper portion of the offset 28 and the upper cup section 35 is cut away to form an opening 39. Disposed within the lower socket 30 is a spherical bearing 40 having a shank bar 41 protruding through the opening 38 and bolted to the end 42 of the coupling box 43. The coupling box has its end 44 enlarged to receive the hook end 25 of the coupling bar and is further provided with a sloping roof 45 cut away to accommodate a pivoted cam lever 46. Mounted within the enlarged end 44 is a pivoted catch 47, comprising a toothed head and a rearwardly extending shank. A coil spring 48 normally tends to force the toothed head downwardly so that it will securely engage and hold the hook end of the coupling bar. To facilitate the releasing of the coupling bar, the cam lever is swung to engage its cam head with the shank of the catch, upon which the shank will be forced downwardly until the toothed head of the catch is raised out of engagement with the coupling bar and the latter is thereby released.

A third spherical bearing 49 is disposed in the upper socket 29 and is provided, as in the case of the others, with a shank or stem 50 which projects upwardly through the opening 38, for a purpose to be hereinafter explained. In order that movement of the lower bearing 40 may be instantaneously transmitted to the upper bearing 49 a connecting pin 51 is used. This pin is formed with a central cylindrical portion having at each end a disk 52. Extending forwardly from each of the disks are short, flat sided lugs 53 which are arranged to be at right angles to each other as may be seen by referring to Fig. 5 of the drawings. The pin is positioned between the upper and lower bearings which have their inner opposing faces provided with slots 54 to accomodate therein the adjacent lug of the pin. The intermediate ridges 31 and 37 of the clamp 2 are each provided with spaced guideways or recesses in which the edges of the disks are supported. Any movement of the lower bearing 40 in a horizontal plane will cause the connecting pin 51 to be similarly moved, and in turn such movement is immediately transmitted to the upper bearing 49 with which the connecting pin is engaged.

Clamp 3 of the coupler is employed for the control of the steering rod of the auto which is being towed and is somewhat similar, in construction, to clamp 2, differing from the latter in that the enlargement or offset 55 carried thereby is formed on the uppermost part, in proximity to the hinge 56 and is devoid of any recesses. On the other hand this enlargement provides a rest for the slotted end 57 of a link bar 58; the shank 59 of the enlargement extending through the slot and being engaged by nut 60, by which the bar is fastened rigidly to the enlargement. The other end of the bar is rigidly secured to the shank 50 of the bearing 49 by the tightening of the nut 61 so that when the bearing 49 is turned to either the right or left, the clamp 3 will be likewise turned, thus steering the towed auto to the direction taken by the leading vehicle.

In the employment of the coupler for the purposes herein specified, the clamp 1 is preferably uncoupled from the other part of the device so as to be more conveniently attached to the rear axle 4. After clamp 1 has been properly adjusted, clamp 2 is attached to the front axle 5 of the auto to be towed and clamp 3 is made fast to the steering rod 6 thereof. In cases where either the front axle or steering rod or both have become distorted due to collision or other cause the attachment of the coupler is rendered comparatively easy, by reason of the fact that the arcuate slots 54 permit the bearings to be relatively adjusted on the lugs 53 so that the link bar will readily respond to the movement of the bearings 49 and 40 irrespective of the fact that one clamp may be out of alinement with the other. Upon coupling the bar 24 to the box 44 the bearing 40 is dominated by the clamp 1 so that any movement of the latter is almost immediately transmitted to the bearings 40 and 49 and subsequently to clamps 2 and 3 by reason of which the movement of the towed vehicle is properly controlled.

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

1. In a device of the character described

including an end clamping member having a socket, an intermediate clamping member having a pair of sockets, a rod, a spherical member on each end to enter sockets of the end and intermediate clamping members, a second end clamping member, a spherical member mounted in the other socket of the intermediate member, a connection between the second end member and the last mentioned spherical member, and means for transmitting motion between the spherical members of the intermediate clamping member whereby to permit relative independent movement of the end clamping members at right angles to each other, but to cause transmission of movement between one end clamping member and the other when either of said end clamping members is moved in a certain plane.

2. A device of the character described including an intermediate clamping member having a pair of connected sockets, a spherical member in each socket, each spherical member having a circumferentially extending recess, the recess of one member being disposed relatively at a right angle to the recess of the other member, a shaft located between the sockets, rectangular terminals on the ends of the shaft to enter the recesses of the spherical members, end clamping members, a universal connection between one spherical member of the intermediate clamping member and one end clamping member, and a pin and slot connection between the other spherical member of the intermediate clamping member of the other end clamping member.

3. A coupling device including a central clamp member and auxiliary clamps positioned respectively to the right and left of said central clamp, one of said auxiliary clamps being adapted to embrace the steering rod of a vehicle, while the other clamp is attachable to the rear axle of a preceding vehicle, connecting rods carried by each of said auxiliary clamps for coupling engagement with said central clamp, and swiveled bearings carried by said central clamp and engaging said connecting rods to provide pivot means whereby said auxiliary clamps may be adjusted relatively to said central clamp.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. FILKINS.

Witnesses:
EDW. X. HALLIVAN,
FRANK F. BORTER.