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2,011,208

ADJUSTABLE YOKE END

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FIG. 1

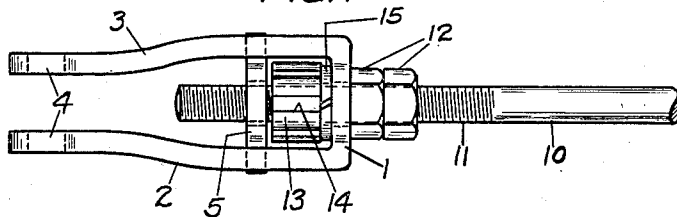


FIG. 2

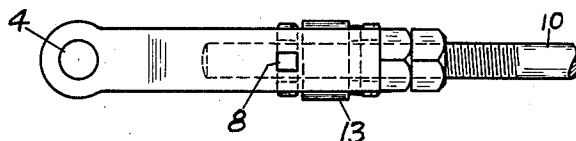


FIG. 3

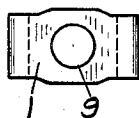


FIG. 4

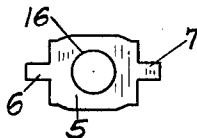


FIG. 5

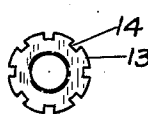


FIG. 6

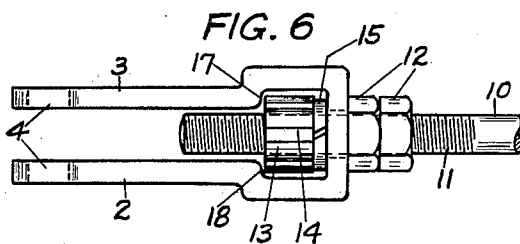


FIG. 7

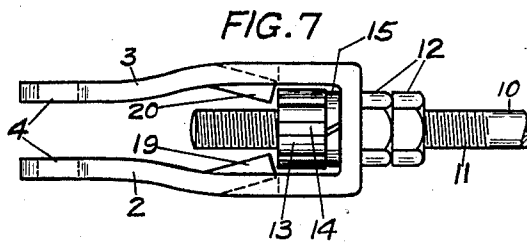
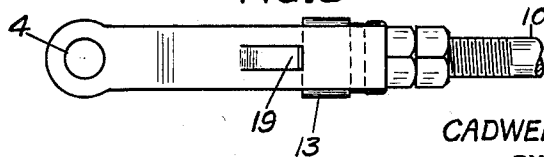


FIG. 8



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ADJUSTABLE YOKE END

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4 Claims. (Cl. 287—59)

This invention relates to a device which is particularly adapted for use in the adjustment of connecting-rods or links, tie-rods, brake-rods, and the like used on automotive vehicles or in connection with railway signal and switch work.

It is the principal object of my invention to provide an adjustable yoke-end which will enable the slack to be taken up in the rod to which the yoke-end is connected, without being obliged to disconnect the yoke-end from the device to which it is attached; for example, a brake-pedal in an automotive vehicle, which operation takes time and in some cases is rather troublesome for the reason that the pull-back springs apply a tension on the pin holding the yoke-end to the brake-pedal, which makes it rather hard to get the pin back in place, even though the pin may have been removed without much difficulty.

Another object of my invention is to provide an adjustable yoke-end which, while permitting the adjustment heretofore described without disconnecting the parts, allows the adjustable yoke-end to function without noise.

Another object of my invention is to provide an adjustable yoke-end which will stay in adjustable position.

In the drawing accompanying this specification:

Figure 1 is a plan-view of one form of the clevis or yoke-end.

Figure 2 is a side-view of Figure 1.

Figure 3 is a view of the end of the yoke which receives the rod.

Figure 4 is a plan-view of a brace member which may be used in the form of device shown in Figures 1 and 2.

Figure 5 is a plan-view of the adjusting nut.

Figure 6 is a plan-view of a modified form of the device.

Figure 7 is a plan-view of a further modified form, while

Figure 8 is a side-view of Figure 7.

In the drawing, 1 is a U-shaped member having arms 2 and 3 which are preferably bent toward each other at their free ends. Each of the arm-ends is provided with a hole 4 to receive a pin carried by a member to which the clevis or yoke-end 1 is to be attached. While the yoke-end 1 may be made of casting, I prefer to make it of drawn or rolled stock such as steel.

A brace and positioning member 5 is located between the arms 2 and 3, being held there in any satisfactory manner. One such way is illustrated in Figure 4, wherein the brace-member 5 has lugs 6 and 7 which enter holes 8 in the arms 2

and 3. Preferably the holes 8 are rectangular in shape to prevent the member 5 from turning. The end-lugs 6 and 7 may be riveted to the arms 2 and 3, or welded thereto.

The end of the yoke-end 1 is provided with a clearance hole 9 for a rod 10 threaded at 11 to receive the lock-nuts 12. Positioned within the space between the end of the yoke-end 1 and the member 5, and carried on the threads 11, is an adjusting nut 13. The nut 13 may be provided with a plurality of longitudinal notches 14, or it may be provided with a plurality of holes arranged in staggered relationship, so that it may be readily adjusted by any tool that is commonly handy, such as a screw-driver or plain rod, to turn the nut against a spring or take-up washer 15 which is seated against the inner surface of the clevis 1.

From what has been said, it will be seen that the nut 13 may be turned after the lock-nuts 12 are loosened to take up slack in the rod-end connection, after which the lock-nuts 12 are set up into position. The nut 13 is prevented from turning or loosening not only by the lock-washer 15, but by the member 5 which is provided with a clearance hole 16 through which the rod-end passes. The member 5 is positioned so that the nut 13 will engage it before the spring-tension is entirely relieved from the washer 15. Thus, the nut 13 is limited in its longitudinal or lateral movement along the rod 10, whereby the chances of the rod-end and clevis connection becoming relatively loosened are eliminated.

In the form shown in Figure 6, the arms 2 and 3 are offset toward each other so as to provide shoulders 17 and 18 to prevent the nut 13 from moving only a short distance laterally on the rod 10.

In Figures 7 and 8, lugs 19 and 20 are punched inwardly from the arms 2 and 3 respectively to provide limiting stops for the nut 13.

In either form of the device indicated, the nut 13 can be adjusted so as to take up slack in the rod 10 without disconnecting the pin from the holes 4, which pin is attached to some operating or mechanical element such as a brake-lever.

As has been explained, the nut 13 is further prevented from loosening, due to vibration of the apparatus to which the yoke-end or clevis is applied, by use of one or more lock nuts 12 used as indicated. However, by loosening the nuts 12, the adjusting nut 13 can be moved against the member 5, the shoulders 17 and 18, or lugs

19 and 20, to back off the rod 10, if it is found to be desirable.

From the drawing and description, it will be seen that I have provided an adjustable rod-end connection, including a clevis, which can be made on a punch-press from drawn or rolled stock, thereby producing a device which is cheap to manufacture and one that possesses relatively great strength.

10 Having thus described my invention, what I claim is:

1. In a device of the class described, a U-shaped member, the ends of the arms thereof being provided with means for attaching a mechanical element thereto, a threaded rod-end passing through the base of said U-shaped member, an adjusting nut on the rod-end located entirely between the arms of the U-shaped member, a spring-lock-washer between the adjusting nut and the base of the U-shaped member, means on the U-shaped member providing for but checking the lateral position away from the base of the U-shaped member of said adjusting nut before all the tension of the lock-washer is relieved, and at least one locking means on the rod-end adjacent the outer part of the base of the U-shaped member.

2. A device as set forth in claim 1 further

characterized in that said lateral motion providing and checking means is carried by the arms of the U-shaped member.

3. In a device of the class described, a clevis having arms and a clearance hole in the base thereof, a threaded rod-end adapted to go through said hole, a nut on the rod-end located entirely, but turnable, between the arms of the clevis, a take-up device between said nut and the inner part of the clevis base, means, carried by the arms of the clevis, providing for but limiting the longitudinal movement of said nut before said take-up device has finished its take-up function, and means exterior of the clevis to lock the nut against the base of the clevis.

4. A mechanical arrangement including a clevis having means at one end for connection to a mechanical element, a threaded rod-end passing freely through the base of the clevis, means for adjusting the relative positions of the clevis and rod-end comprising an adjustable device on the rod-end between the arms of the clevis, a slack take-up member between said adjustable device and the base of the clevis, and means for limiting the longitudinal movement of the nut on the rod-end.

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