

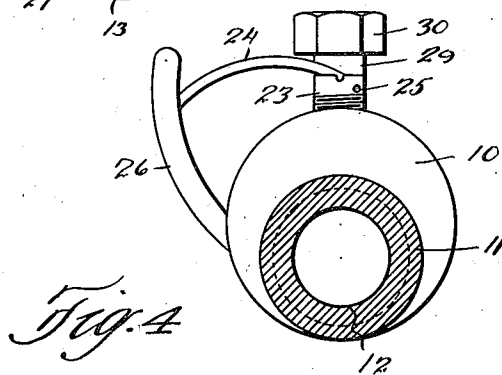
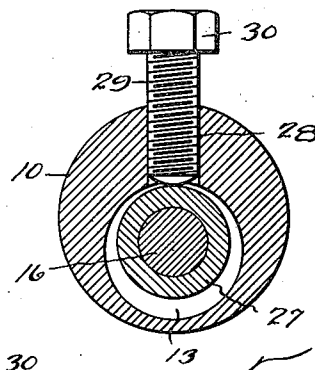
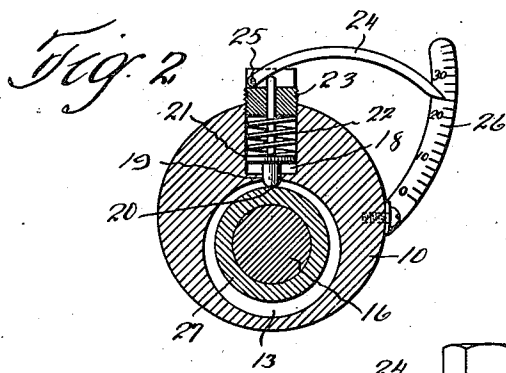
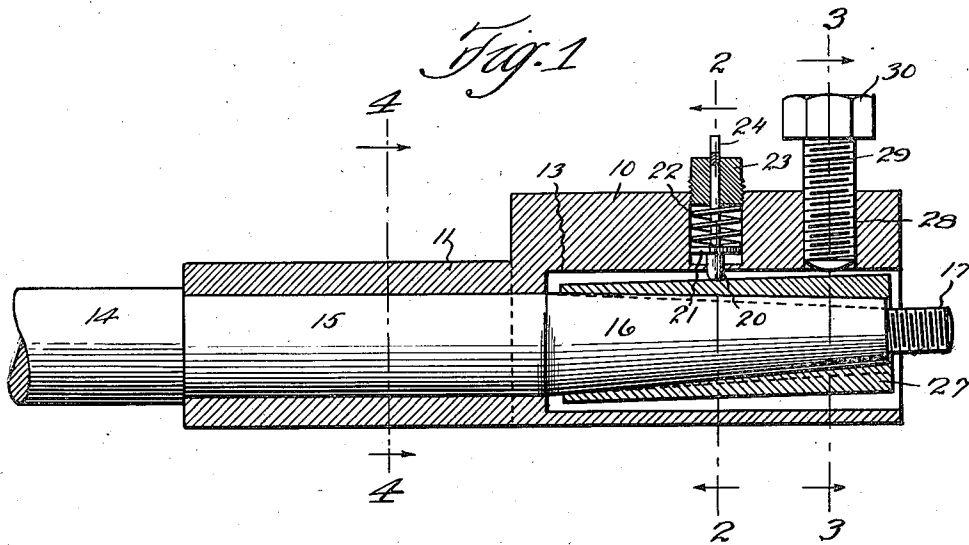
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J. W. SIMMONS

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SPINDLE STRAIGHTENING DEVICE FOR AUTOMOBILE AXLES

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SPINDLE-STRAIGHTENING DEVICE FOR AUTOMOBILE AXLES.

Application filed May 1, 1922. Serial No. 557,796.

To all whom it may concern:

Be it known that I, JOHN W. SIMMONS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Spindle-Straightening Devices for Automobile Axles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention is a device for straightening crooked or bent spindles of vehicle axles. At the present time it is a common thing to observe a wobbly wheel upon an automobile and particularly upon the cheaper and lighter cars. In a large majority of cases this is due to the fact that the spindle of the axle has become bent and it is with the object of providing a cheap, simple and easily operated device for the purpose of straightening or correcting such bent spindles that the present invention has been devised.

The invention consists of a block having a two part bore, one part being adapted to fit upon the axle and the other part to receive therein the spindle of the axle and also a sleeve fitting upon said spindle, said block being provided with means for indicating the amount of deflection of the spindle and also means for moving said spindle back to its true position. The invention consists also in certain details of construction hereinafter fully described and pointed out in the claims.

In the drawings forming a part of this specification Fig. 1 is a vertical longitudinal sectional view of a device embodying one form of my invention, the axle and spindle thereof being shown in elevation; Fig. 2 is a transverse sectional view on the line 2—2 of Fig. 1; Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1 and Fig. 4 is a sectional elevation on the line 4—4 of Fig. 1.

In carrying out my invention I employ a block preferably of steel and embodying in a single piece, two substantially cylindrical portions 10 and 11, the portion 11 being of less diameter than the portion 10 and arranged concentric therewith as most clearly shown in Figs. 1 and 4. The portion 11 is bored centrally as shown at 12 and the portion 10 is bored as shown at 13, the bore 13 being concentric with reference to the bore 12, but eccentric with reference to the cross sectional area of the portion 10 and the bore

13 is somewhat greater in diameter than the bore 12 as most clearly shown in Fig. 1. For convenience of description, the larger portion 10 of the block may be described as the outer portion and the smaller portion 11 as the inner portion. The vehicle axle 14 has a slightly reduced portion 15 which terminates in the tapering spindle 16, the end of which is reduced and threaded as shown at 17, this being the standard construction of the lighter forms of axles. In the thick side of the outer portion of the block there is cut a radial recess 18, the bottom of which is apertured as shown at 19, said aperture establishing a communication between the recess 18 and the bore 13 and working in said aperture is a pin 20 carrying a collar 21 upon which bears a coil spring 22 surrounding the reduced portion of the pin, this reduced portion of the pin extending up through an apertured plug 23 screwed into the outer end of the radial recess and carrying a curved finger 24, pivoted at 25 and having its free end arranged adjacent a graduated arc 26 attached to the side of the block for the purpose of indicating the amount of deflection of the axle spindle as will be more fully explained hereinafter. The tendency of the spring 22 is to project the pin 20 radially inward into the bore 13 of the outer portion of the block. 27 indicates a sleeve which is cylindrical upon the exterior and has a tapering interior so shaped as to receive the tapered spindle 16 of the axle. The thick side of the outer portion of the block is also provided with a radial opening 28 which is threaded and into which screws the bolt or screw 29 having the polygonal head 30. This screw 29 is preferably arranged adjacent the outer end of the upper portion of the block.

In operation the block is fitted upon the end of the axle to be straightened, the reduced portion 15 of the axle fitting snugly within the portion 12 of the inner portion of the block while the spindle 16 will rest within the bore 13 of the outer portion of the block. The sleeve 27 is then fitted upon the spindle and by rotating the block as a whole upon the portion 15 of the axle any deflection of the spindle will be indicated upon the graduated arc 26 by the finger 24 inasmuch as the pin 20 will contact with the exterior of the sleeve 27 and the deflection of the spindle will be indicated as

the pin 20 will be pushed outwardly as the block rotates and the pin rides opposite the point of greatest deflection.

After the point of greatest deflection has been determined and likewise the amount thereof the straightening can be accomplished by turning the screw 29 inwardly, the inner end thereof contacting with the sleeve 27 and forcing it and the spindle 16 into true central position. As soon as this is accomplished the screw 29 is turned back and the apparatus removed from the end of the axle.

It will also be understood that the lower half of the outer portion of the block could be omitted if desired and substantially the same results obtained.

While I have shown the interior of the sleeve 27 as tapered it is because in this particular instance the spindle 16 is tapered. In the practical embodiment of the invention the interior of the sleeve will be shaped to fit upon the spindle—whatever that might be.

Having thus described my invention, what I claim is:

1. A device of the kind described comprising a block having a bore adapted to receive a portion of an axle and an axially disposed portion of greater capacity adapted to receive the spindle of the axle therein, a sleeve adapted to fit upon said spindle within the enlarged opening, a radially movable screw adjustable in the block and adapted to contact with the sleeve and an indicating finger contacting also with said sleeve.

2. A device of the kind described comprising a block, one portion of said block being larger than the other, a smaller portion of said block being bored axially and adapted to receive a portion of the axle therein, the larger portion of said block having an opening communicating with the bore of the smaller portion, said opening being of greater diameter than said bore, the said opening being adapted to receive the spindle of the axle, a sleeve adapted to fit within the opening and upon the spindle of the axle and a radially movable screw working through the larger portion of the block and engaging the said sleeve.

3. A device of the kind described comprising a block composed of an inner portion and an outer portion, said inner portion being bored to receive a portion of an axle, the outer portion having an opening of greater diameter than the said bore, the

said opening being adapted to receive the spindle of the axle, a tapered sleeve fitting in the opening and upon the spindle of the axle, and a radially movable screw working through the outer portion of the block and engaging said sleeve.

4. A device of the kind described comprising a block composed of an inner and outer portion, the inner portion being centrally bored, the outer portion having a bore concentric with the inner portion and of greater diameter than said first named bore, the outer bore being adapted to receive an axle spindle therein, an internally tapered sleeve adapted to be arranged upon the spindle within the outer bore, a radially movable screw, and a spring actuated pin provided with an indicating finger carried by the outer portion of the block, all arranged and adapted to operate as set forth.

5. A device of the kind described comprising a block having an inner and an outer portion, the exteriors of which are cylindrical and eccentric one to the other, the said inner and outer portions being axially bored, said bores being concentric, the outer one being of greater diameter, a sleeve adapted to fit in the outer bore, the interior of said sleeve being tapered, a radially movable indicating pin carried by the outer portion of the block, and means carried by the outer portion for actuating the sleeve within the bore.

6. A device of the kind described comprising a block axially bored, the outer portion of said axial bore being of greater diameter than the inner portion of said bore, an indicating finger carried by the block and adapted to project into the larger bore thereof and a radially movable screw carried by the block and adapted to be projected into the larger bore thereof.

7. A device of the kind described comprising a block axially bored, the outer portion of said bore being larger than the inner portion thereof, a sleeve adapted to fit into the larger bore, the interior of said sleeve being shaped to fit upon an axle spindle, an indicating finger carried by the block and adapted to contact at its inner end with the sleeve and a radially movable means carried by the block adjacent its outer end adapted to engage the sleeve within the bore for the purpose specified.

In testimony whereof, I hereunto affix my signature.

JOHN W. SIMMONS.