F. W. NUERWELL.

CONNECTING ROD GAUGE AND STRAIGHTENER.

APPLICATION FILED JUNE 6, 1921.

1,408,023.

Patented Feb. 28, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

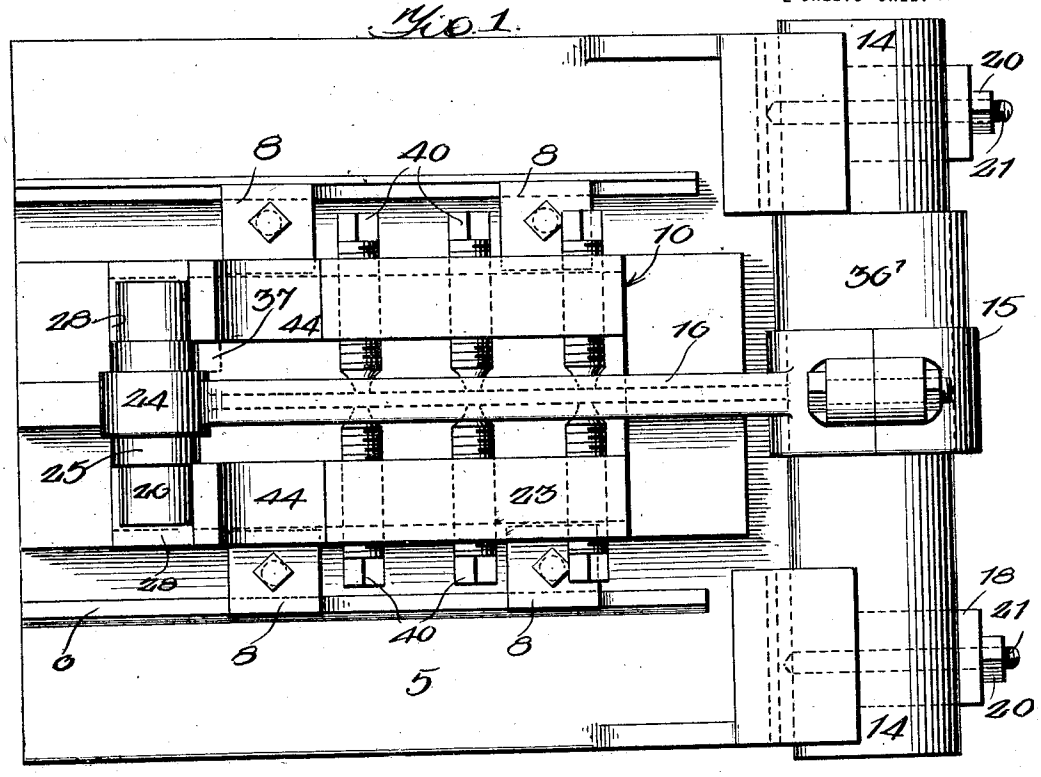
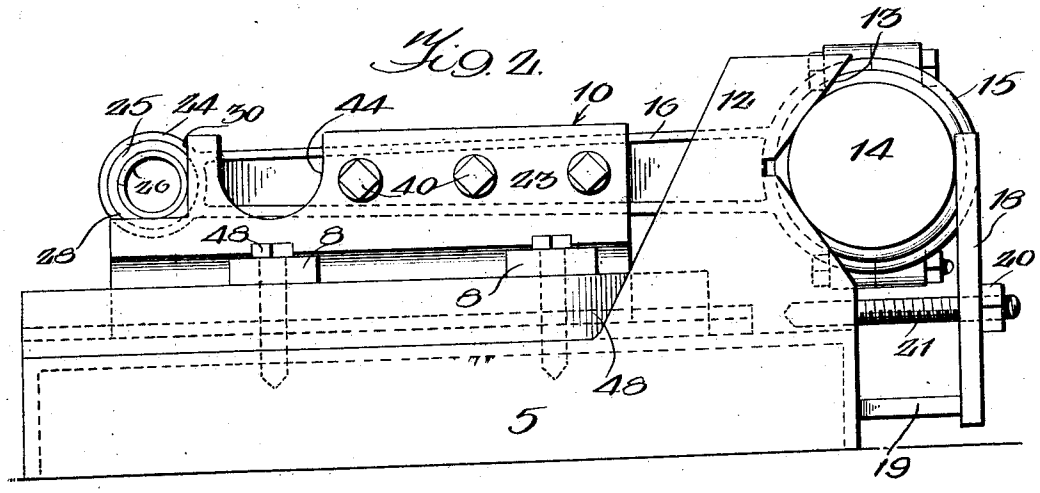


Fig. 2.



WITNESSES

George G. Mayer

L. L. Quesada

INVENTOR

F. W. NUERWELL,

BY Munn & Co.,

ATTORNEYS

F. W. NUERWELL.

CONNECTING ROD GAUGE AND STRAIGHTENER.

APPLICATION FILED JUNE 6, 1921.

1,408,023.

Patented Feb. 28, 1922.

2 SHEETS—SHEET 2.

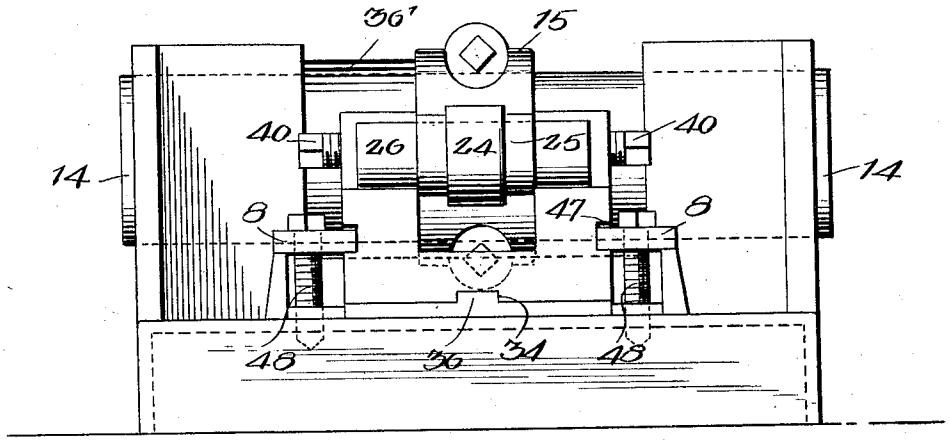
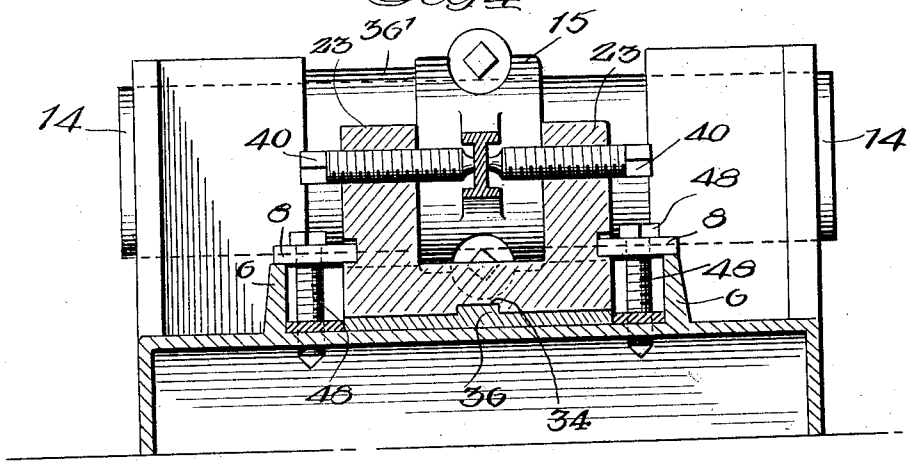


Fig. 3.

Fig 4



WITNESSES

George C. Hayes

L. M. Quesada

INVENTOR

F. W. NUERWELL,

BY Munn Reed.

ATTORNEYS

UNITED STATES PATENT OFFICE.

FRED W. NUERWELL, OF TULSA, OKLAHOMA.

CONNECTING-ROD GAUGE AND STRAIGHTENER.

1,408,023. Specification of Letters Patent. Patented Feb. 28, 1922.

Application filed June 6, 1921. Serial No. 475,253.

To all whom it may concern:

Be it known that I, FRED W. NUERWELL, a citizen of the United States, and a resident of Tulsa, in the county of Tulsa and State of Oklahoma, have invented certain new and useful Improvements in Connecting-Rod Gauges and Straighteners, of which the following is a specification.

This invention relates to gauges and straighteners especially adapted for use in connection with the connecting rods of internal combustion engines.

An important object of this invention is to provide a gauge having novel means whereby it might be ascertained if the longitudinal axis of the wrist pin bearing or bushing is parallel to the longitudinal axis of the sectional bearing which receives the crank of the crank shaft.

Further, the invention aims to provide means whereby it may be readily ascertained if the rod is twisted or bent.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings:—

Figure 1 is a plan view of the device,

Figure 2 is a side elevation of the same in use,

Figure 3 is an end elevation of the same,

Figure 4 is a vertical transverse sectional view through the same.

In the drawings the numeral 5 designates a base having its upper side provided with integral spaced parallel upstanding flanges 6 which not only serve as a means for reinforcing the base but as abutments for pairs of clips 8 employed for anchoring a carriage generally designated by the numeral 10 in position.

With reference to Figures 1 and 2, it will be noted that the base 5 is provided with upstanding shoulders 12 having V-shaped notches 13 for receiving a mandrel 14, the said mandrel being extended through the sectional bearing 15 of a connecting rod 16. The connecting rod 16 always assumes the same horizontal position since the mandrel 14 occupies a predetermined position by reason of its contact with the inwardly inclined faces of the pair of notches 13. Furthermore, rods of various sizes will be caused to assume a predetermined position by reason of the contact of the cylindrical mandrel 14 with the inclined faces of the notches 13. Of course a mandrel of a certain size is employed for each size connecting rod and in use the mandrel is of a size to snugly fit in the connecting rod bearing.

The mandrel 14 is securely held in engagement with the shoulders 12 by means of upstanding arms 18 secured to the base as indicated at 19 and drawn into engagement with the mandrel by means of nuts 20 threaded on bolts 21, the bolts being threaded into the adjacent end of the base.

The carriage 10 is provided with a pair of spaced parallel side walls 23 defining a passage through which the shank of the connecting rod extends. As illustrated in Figure 1, the head 24 of the connecting rod receives a bushing 25 which in turn receives a wrist pin 26. As is well known, the wrist pin 26 extends beyond the ends of the bushing 25 and is adapted to be received within spaced aligned bushings in a piston so as to connect the piston to the connecting rod in such a manner that the piston may partake of a rocking motion with relation to the rod.

The ends of the side walls 23 adjacent the wrist pin are formed with notches having horizontal walls 28 arranged in the same plane and adapted to be engaged by the end portions of the wrist pin. If the end portions of the wrist pin rest flatly on the horizontal walls 28 the operator will know that the rod is not twisted. On the other hand, if the end portions of the wrist pin do not flatly contact with the horizontal walls 28 he will know that the rod is twisted and the approximate extent of the twist.

The notches above referred to are also provided with vertical walls 30 arranged at right angles to the walls 28 and forming a means to indicate if the longitudinal axis of the wrist pin 26 is parallel to the longitudinal axis of the sectional bearing. It frequently occurs that the bushing 25 is improperly seated in the head 24 or that the wrist pin is improperly seated in the bushing 25 and in either case the wrist pin will not be exactly parallel to the axis of the sectional bearing. The carriage 10 may be moved along the base so that the vertical walls of the notches or recesses will be presented to the end portions of the wrist pin 26. Should the end portions of the wrist pin flatly contact with both of the vertical walls it will indicate that the wrist pin is in the same plane with the sectional bearing 15. On the other hand, if only one end portion of the wrist pin flatly contacts with one of the

vertical walls 30 it will indicate that the wrist pin is not in the same plane with the sectional bearing, whereupon the operator may proceed to make the necessary adjustment or replacement as the case may be. With reference to Figures 3 and 4, it will be noted that the base of the carriage is formed with a longitudinal groove 34 which receives an upstanding longitudinally extending rib 36 formed on the upper side of the base.

By reason of the rib 36 which extends into the groove 34, the carriage is at all times held at right angles to the mandrel 14 so that the vertical and horizontal walls 30 and 28 respectively will at all times be properly presented to the wrist pin.

Should it be desired to test the rod for straightness, a spacing sleeve 36′ of a proper length may be mounted on the mandrel 14 between the sectional bearing 15 and one of the upstanding shoulders 12. After moving the connecting rod laterally so that it will be flatly engaged with the sleeve 36′ and so that the sleeve 36′ will be engaged with the shoulder, a spacing block 37 is arranged between the head 24 and one of the side walls 23. The spacing block 37 and the sleeve 36′ is of course of a size to correctly indicate the true condition of the rod with respect to straighteners. That is to say, the sleeve 36′ and the spacing or measuring block 37 are of a size to be used in conjunction with a connecting rod of a certain size.

Should it be found that the rod is bent, spaced series of set screws 40 threaded through the walls 23 may be engaged with the shank of the rod for the purpose of straightening the same. If it is desired to straighten the rod near the wrist pin the carriage is moved along the base so that the ends of the wrist pin are received in approximately semi-circular recesses 44 in the upper sides of the side walls 23 whereupon the screws 40 may be engaged with the rod at a point close to the wrist pin.

The carriage 10 is securely held in an adjusted position by means of the clips 8 which extend into grooves 47 in the opposite sides of the carriage and which are held in position by means of cap screws 48 threaded into the base.

Having thus described the invention, what is claimed is:—

1. A connecting rod straightening device comprising a base having upstanding shoulders formed with V-shaped notches, a mandrel contacting with the walls of said notches and adapted to be extended through a connecting rod bearing, a carriage slidable on said base and having upstanding side walls, and pairs of spaced set screws adapted to engage the opposite sides of said rod whereby to straighten the rod.

2. A connecting rod straightening device comprising a base having upstanding shoulders formed with V-shaped notches, a mandrel contacting with the walls of said notches and adapted to be extended through a connecting rod bearing, a carriage slidable on said base and having upstanding side walls, pairs of spaced set screws adapted to engage the opposite sides of said rod whereby to straighten the rod, and means to secure said carriage in an adjusted position.

3. A connecting rod straightener comprising a base having upstanding end portions, a mandrel engaging said end portions and adapted for supporting the sectional bearing of a connecting rod, a carriage slidable on said base and having upstanding side walls defining a groove adapted for the reception of the shank of a connecting rod, and set screws carried by said side walls and extending into said groove for engaging the shank of a connecting rod and straightening the same.

4. A connecting rod straightener comprising a base having upstanding end portions, a mandrel engaging said end portions and adapted for supporting the sectional bearing of a connecting rod, a carriage slidable on said base and having upstanding side walls defining a groove adapted for the reception of the shank of a connecting rod, and set screws carried by said side walls and extending into said groove for engaging the shank of a connecting rod and straightening the same, said side walls being provided with wrist pins receiving recesses adjacent said set screws.

5. A connecting rod straightener comprising a base having upstanding end portions, a mandrel engaging said end portions and adapted for supporting the sectional bearing of a connecting rod, a carriage slidable on said base and having upstanding side walls defining a groove adapted for the reception of the shank of a connecting rod, set screws carried by said side walls and extending into said groove for engaging the shank of a connecting rod and straightening the same, and means to hold said mandrel in engagement with the upwardly extended end portion of said base.

FRED W. NUERWELL.