Jan. 2, 1923. 1,441,148.

J. P. FIELD.

STEERING GEAR CENTERING DEVICE.

FILED MAY 19, 1921.

Fig. 1.

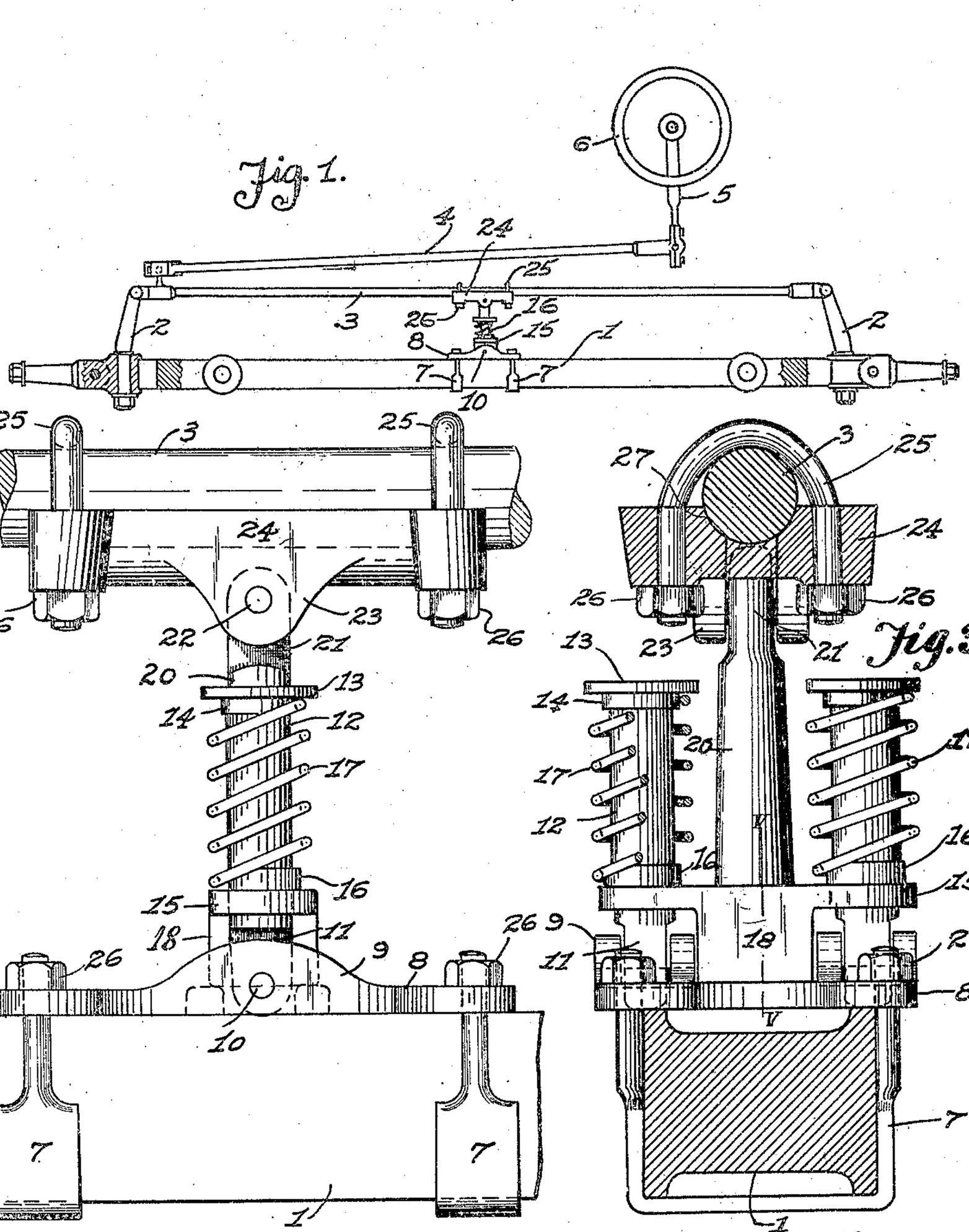


Fig. 2.

Fig. 3.

Fig. 4.

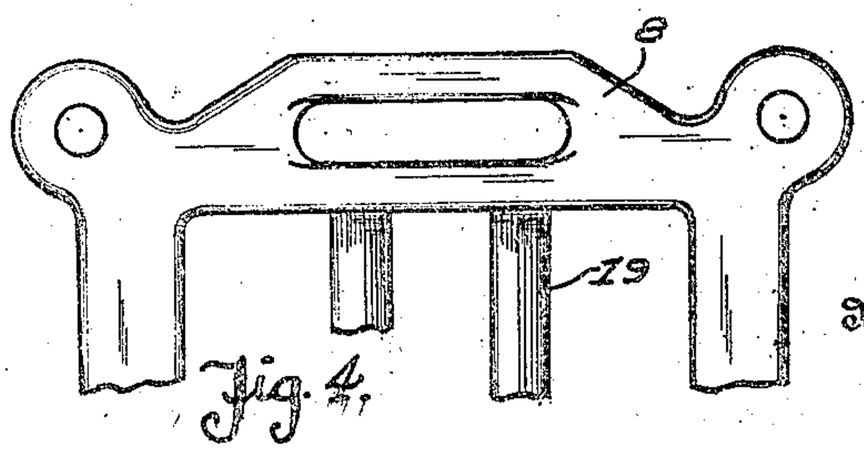
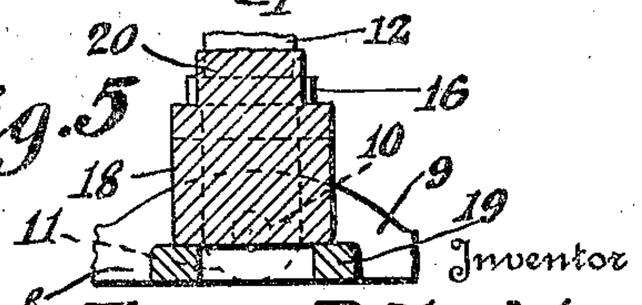


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH A. HASSEL, OF PHILADELPHIA, PENNSYLVANIA.

VALVE-GRINDING TOOL.

Application filed November 30, 1921. Serial No. 518,799.

To all whom it may concern:

Be it known that I, JOSEPH A. HASSEL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in a Valve-Grinding Tool, of which the following is a specification.

My invention relates to new and useful improvements in a valve grinding tool, and has for its object to provide a device of this character that may be guided or supported and operated by one hand for grinding engine valves in their seats.

Another object of the invention is to provide in a tool of the class described a standard, integral bearings formed therewith a spindle journalled in the said bearings having a tool chuck on one end and a pinion on the other, said pinion meshing with a triangular or segmental gear oscillatingly journalled on the standard and normally forced in one direction by means of a spring, an operating lever pivoted to the upper end of the standard and a pitman or connecting rod pivoted to the outer end of the lever and the segmental gear for actuating the latter.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains, may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawing forming a part of this application, in which:—

Fig. 1, is a front elevation of a valve grinding tool made in accordance with my invention and showing a fragmentary view of an engine in the region of its valve which is to be rotated by use of the tool.

Fig. 2, is a side elevation of the valve grinding tool, a portion of which is broken away and sectioned to illustrate certain details of construction.

Fig. 3, is an inner or rear face view of the segmental gear.

Fig. 4, is an edge view thereof.

Fig. 5, is a face view of the adjustable member which engages the slot or holes in a valve.

In carrying out my invention as here embodied, 2 represents a standard having a bearing lug 3 at or adjacent its lower end and another bearing lug 4 in alignment with the first named one but spaced some distance therefrom or adjacent the center of said standard lengthwise. In these bearings is journalled the spindle 5 carrying a chuck 6 on its lower end below the bearing 3 and a pinion 7 on its upper end above the bearing 4.

The pinion 7 meshes with a triangular segmental gear 8 which is journalled on a trunnion 9 or its equivalent so that as said segmental gear is oscillated a rotary motion will be transmitted to the spindle 5. The rear face of the segmental gear is recessed as at 10 so as to provide a flange 11 at each side both of which coact with a stop pin 12 projecting from the standard into the recess so as to limit the oscillating movements of said gear. Said segmental gear is also provided with a slot 13 adjacent one of the flanges and parallel therewith in which rests one end of a spring 14 the coil of said spring being disposed about the trunnion 9 with its other end set in a groove 15 in the standard 2 so that said segmental gear will be normally moved toward or into the position shown in Fig. 1.

To the upper end of the standard 2 is pivoted the operating lever 16 as at 17 and to the outer or free end of said lever is pivoted one end of the pitman or connecting rod 18 as at 19, the other end of said connecting rod being bent to form the arm 20 lying at approximately right angles to the body of the connecting rod and this arm is pivoted in any suitable and well known manner to the segmental gear at one of its corners as indicated at 21.

To use the device for grinding the valve a tool rod 22 is placed in the chuck 6 and held in position by means of a set screw 23′ and this tool rod carries an adjustable member 23 having lugs 24 on one end for registration with holes in the valve 25 while the opposite end is provided with a screw driver blade 26 for registration with the slot of a slotted valve.

In practice the tool rod 22 is inserted through the valve port of an engine and the member 23 brought into engagement with the valve to be ground, it being understood that a suitable grinding compound is placed between the valve and its seat, then by gripping the operating lever 16 in one hand the grinding tool may be steadied and any

nuts 26 or other fastening means. The rod engaging plate 24 is of sufficient length to obtain a firm purchase on the rod 3 and for this purpose has a seat 27 for the rod 3. With the bolts 25 at the ends of the plate 24, said plate will be firmly held in engagement with the rod 3 to move therewith.

By reference to Figs. 1 and 2, showing the device in a straight-ahead position, it will be noted that the expansive force of the springs 17 retain the coupling member 20 at approximately a right angle to the axle 1. But should the rod 3 be shifted either to the right or to the left, as when steering, the cross-head 15 must slide on the guide rods 12 and lend additional tension to the springs 17. With these springs stressed, there is a constant tendency of the device to restore the connecting rod 3 to its normal position and such adjustment will take place when the steering wheels permit and without manual adjustment of the steering wheel 6. The springs 17 do not interfere materially with the adjustment of the connecting rod 3 by the steering wheel and the device simply constitutes a yieldable connection between the axle 1 and the connecting rod for preventing constant vibration of the connecting rod or accidental shifting thereof to the extent of requiring constant attention and a firm purchase on the steering wheel 6 when the lane of travel is straight or approximately so.

It is thought that the utility of my invention will be apparent without further description, and while in the drawing there is illustrated a preferred embodiment of my invention, it is to be understood that the structural elements are susceptible to such changes as fall within the scope of the appended claims.

What I claim is:—

1. A centralizing device adapted to be installed between a vehicle axle and the connecting rod of a vehicle steering gear, comprising an axle engaging plate, a connecting rod engaging plate, pivoted guide rods carried by said axle engaging plate, a cross-head slidable on said guide rods, springs encircling said guide rods between the outer ends thereof and said cross-head, and a coupling member carried by said cross-head and pivotally connected to said connecting rod engaging plate, said coupling member being normally between said guide rods and in the same vertical plane thereof.

2. A centralizing device as in claim 1, characterized by an enlargement on the rear face of said cross-head in alinement with said coupling member and normally engaging said axle plate.

3. A centralizing device as in claim 1, characterized by said guide rods and said cross-head having collars supporting the end convolutions of said springs in spaced relation to said guide rods.

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

JAMES P. FIELD.

Witnesses:
ANNA M. DORR,
KARL H. BUTLER.