H. L. ALLEN, JR.

RADIATOR VALVE WRENCH.

APPLICATION FILED SEPT. 28, 1915.

1,185,160.

Patented May 30, 1916.

2 SHEETS—SHEET 1.

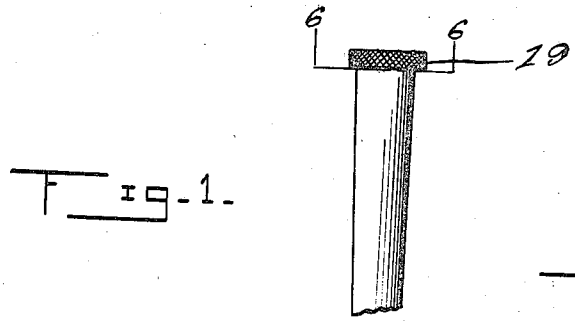


Fig. 1.

Fig. 7.

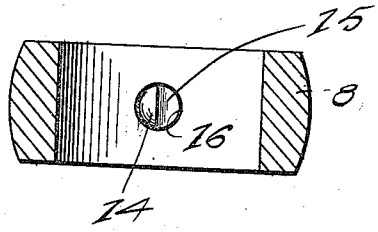


Fig. 6.

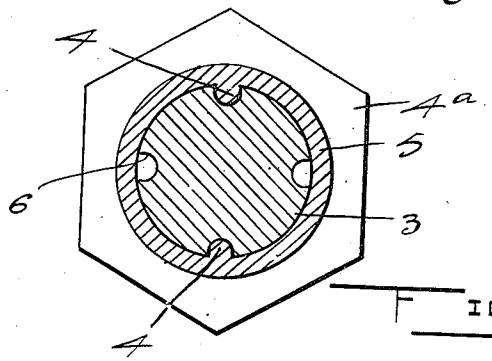
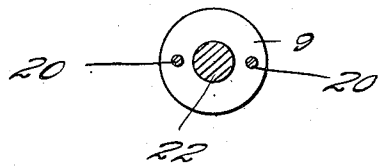


Fig. 5.



Witnesses

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2 SHEETS—SHEET 2.

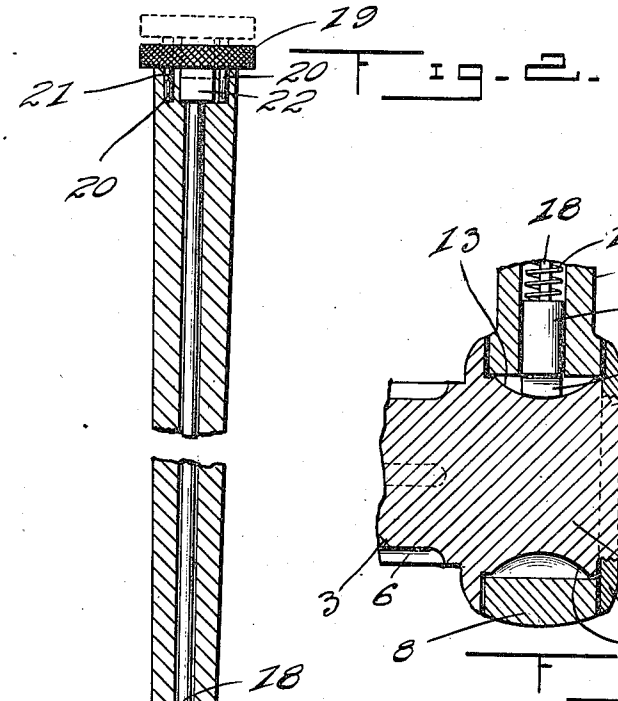
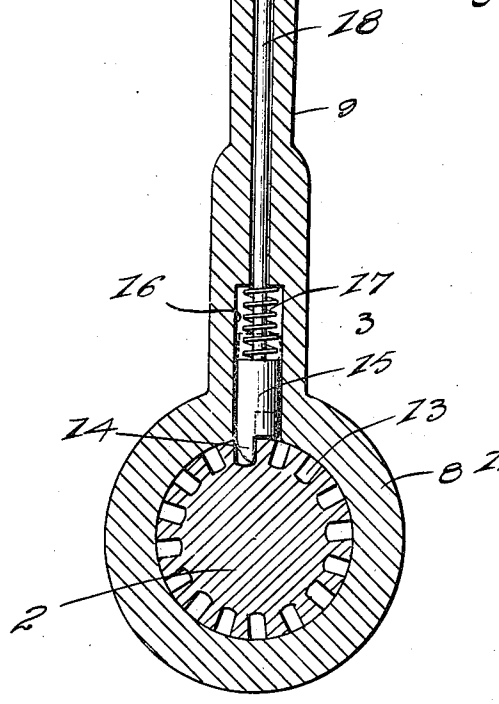


Fig. 2.

Fig. 3.



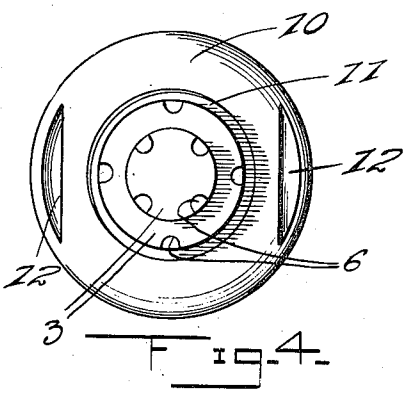


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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RADIATOR-VALVE WRENCH.

1,185,160. Specification of Letters Patent. Patented May 30, 1916.

Application filed September 28, 1915. Serial No. 53,078.

To all whom it may concern:

Be it known that I, HARRY L. ALLEN, Jr., a citizen of the United States, residing at Arctic Center, in the county of Kent and State of Rhode Island, have invented certain new and useful Improvements in Radiator-Valve Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in wrenches.

The object of the present invention is to improve the construction of wrenches and to provide a simple practical, and comparatively inexpensive ratchet radiator valve wrench designed for operating on the tail pieces of radiator valves to screw the same into and remove them from radiators and adapted to obviate the crude method ordinarily resorted to to screw said tail pieces in or remove them from radiators and enable such work to be performed easily and rapidly.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claim hereto appended, it being understood that various changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings Figure 1 is a side elevation of a radiator valve tail piece wrench constructed in accordance with this invention and shown applied to a tail piece, parts being in section, Fig. 2 is a longitudinal sectional view, taken through the handle and illustrating the construction of the ratchet mechanism, Fig. 3 is a detail sectional view taken at right angles to Fig. 2, Fig. 4 is an end elevation of the tail piece engaging member and the nut, the handle being omitted, Fig. 5 is a sectional view on the line 5—5 of Fig. 1, Fig. 6 is a detail sectional view on the line 6—6 of Fig. 1, Fig. 7 is a detail sectional view through the bearing of the handle, the tail piece engaging member being omitted, to show the pawl.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 designates a rotary radiator valve tail piece engaging bar or member composed of a central head or hub portion 2 and a series of successively reduced engaging portions 3 located at opposite sides of the head or hub 2 and adapted to extend into and engage the interior ribs 4 of a radiator valve tail piece 5. The radiator valve tail pieces 5 which are arranged within the nut 4^a in the usual manner are provided on their interior with diametrically opposite longitudinally disposed ribs 4 and the engaging portions 3 of the rotary bar or member 1 are cylindrical or round and are provided with four longitudinal grooves 6 adapted to receive the ribs 4 of the tail piece and interlock the latter with the said rotary bar or member as clearly illustrated in the Fig. 1 of the drawings.

Two pair of the longitudinal grooves are provided so that only a quarter turn or less is necessary to adjust the bar or member to engage it with the ribs 4. The reduced portions 3 of the rotary bar or member are of different diameters to fit the different sizes of tail pieces 5 and while four of the engaging portions 3 are shown in the accompanying drawings any other desired number may of course be employed as will be readily understood. The central or intermediate hub portion 2 of the rotary bar or engaging member of the wrench is provided at one side with a fixed or integral flange 7 and it operates within a bearing or casing 8 of a hollow operating handle 9 and is detachably secured therein by a nut or threaded ring or collar 10 which is screwed on a threaded portion 11 at the opposite side of the hub from that at which the flange 7 is located. The nut or collar 10 is provided with opposite exterior recesses 12 to enable it to be readily engaged by a wrench or other tool. The hub is provided between the flange and the collar with an annular series of milled slots 13 of substantially segmental form adapted to be engaged by a tooth 14 of a reversible pawl or dog 15 mounted within a counter bore 16 at the inner end of the hollow handle 9 and yieldably maintained in engagement with the hub 3 by a coiled spring 17. The pawl or dog is adapted to ratchet over the recesses 13 when the hollow handle is swung in one direction and it engages one of the recesses 13 when

the handle is swung in the opposite direction and locks the rotary bar or member 1 rigid with the handle during such movement of the latter. By this construction the wrench is adapted to operate as a double or reversible ratchet tool for enabling the rotary bar or member to be continuously rotated in either direction by an oscillatory movement of the hollow handle 9. Instead of providing the slots or recesses 13 a ratchet face of any other desired character may of course be employed and the pawl is secured to the inner end of a rod 18 extending through the hollow handle and provided at the outer end thereof with an operating disk or head 19 having a milled edge or checkered periphery to enable it to be readily grasped and turned after the rod is drawn outwardly sufficiently to disengage the tooth from the ratchet face of the rotary bar or member and also to disengage a pair of spaced pins 20 from sockets 21 of the operating handle. The operating disk or head 19 is provided with a shank 22 which is suitably secured to the outer end of the rod and in the operation of the pawl or dog the latter is adapted to ride over the ratchet face without disengaging the pins from the sockets or bores 21 of the handle 9.

The tool which may be constructed of any suitable material is preferably made of turned steel or drop forging with the exception of the rod 18 which is preferably made of brass to prevent rusting in event of moisture collecting in the hollow handle.

What is claimed is:—

A wrench for radiator valve tail pieces including a rotary bar or member comprising a hub portion located intermediate of the ends of the bar or member and provided with recesses, said hub portion being also provided at one side with a fixed flange and having a threaded portion at the opposite side and successively reduced engaging portions extending from opposite sides of the hub, a handle having a bearing receiving the hub, a collar or nut mounted on the threaded portion of the bar or member and retaining the same in the bearing and a pawl or dog carried by the handle and engaging the recesses of the bar or member.

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

HARRY L. ALLEN, Jr.

Witnesses:
James M. Reynolds,
Charles A. McGuire, Jr.