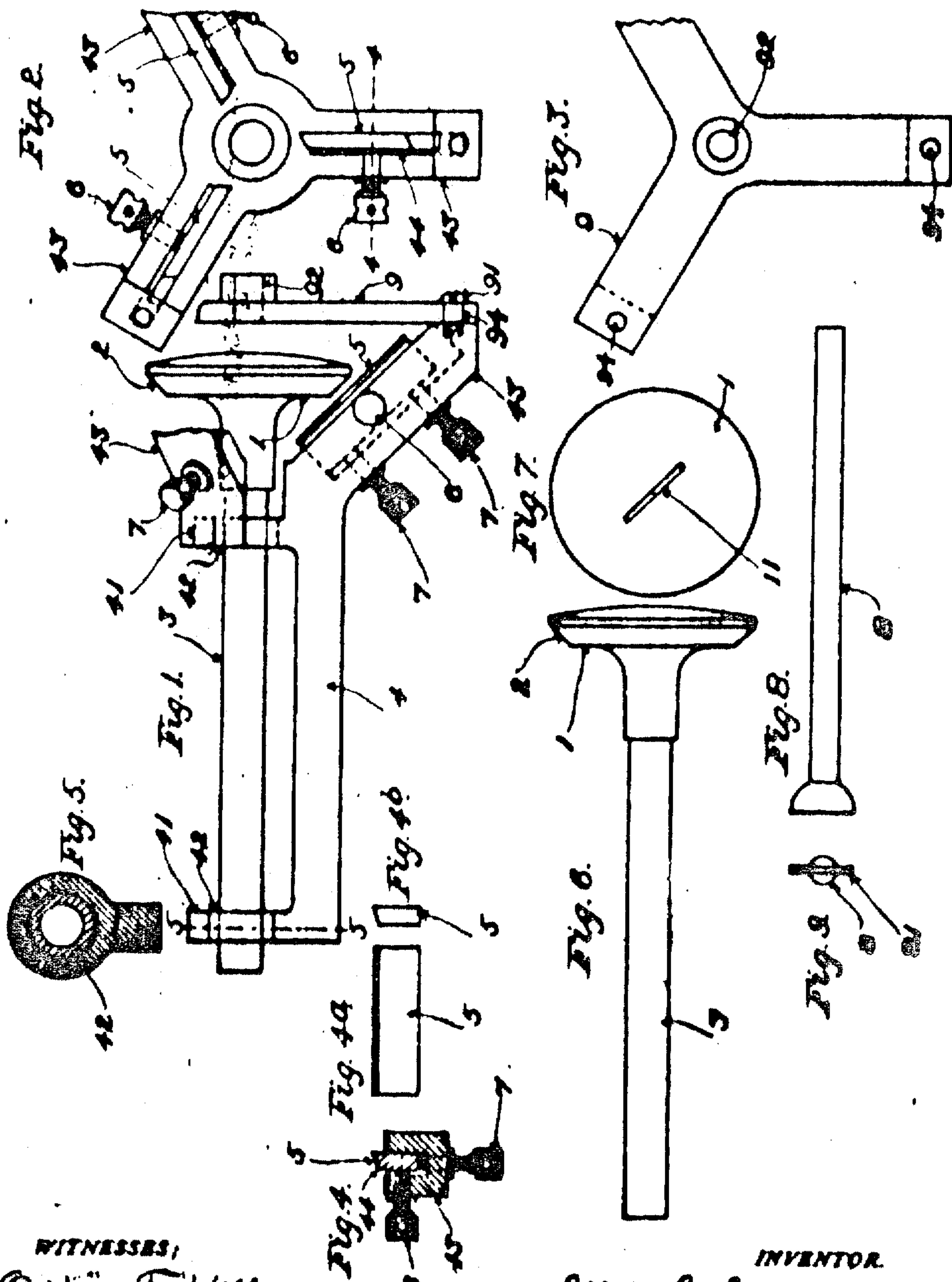


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 DEVICE FOR TRUING UP THE VALVES OF GAS ENGINES, &c.
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WITNESSES,

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983,571. DEVICE FOR TRUING UP THE VALVES OF GAS-ENGINES, &c.

ALLAN CAMERON SARGENT, Lowell, Mass.
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To all whom it may concern:

Be it known that I, ALLAN C. SARGENT, a citizen of the United States, residing at Lowell, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Devices for Truing Up the Valves of Gas-Engines, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

The valves of gas and similar engines become pitted, and more or less covered with scale, so that after a certain amount of use they no longer seat properly. So far as I am aware, the usual practice is to remove them from the engines and true them up by either a tool or a rotary grinder.

The general object of the invention is to provide a simple, convenient, and practical device for use in truing-up the valves of gas engines, and other like valves, and more especially to provide a device suitable for the use of an automobilist or motor-boat man with which any one may effect such truing-up whenever necessary.

A further object of the invention is to provide a handy portable device for the purpose.

The invention consists in a device having features which will now be explained with the aid of the accompanying drawings, in which latter,—

Figure 1 shows in side elevation a device in which the invention is embodied, with a valve applied thereto, certain portions of the device being broken away as hereinafter explained. Fig. 2 is an end elevation of the device of Fig. 1, looking from the right-hand side in Fig. 1, the supporting-yoke for the valve-rotating implement being removed and certain portions being broken away. Fig. 3 shows the supporting-yoke for the valve-rotating implement, separately, a portion thereof being broken away. Fig. 4 is a view in section on line 4, 4, of Fig. 2, showing the means of supporting, securing, and adjusting one of the truing-tools. Fig. 4^a is an elevation of one of the truing tools, detached. Fig. 4^b is an end elevation of the said truing tool. Fig. 5 is a view in section on line 5, 5, Fig. 1. Fig. 6 shows in side elevation a valve such as my invention is designed to operate upon. Fig. 7 shows the said valve in end elevation, looking from the right in Fig. 6. Fig. 8 shows in side elevation a suitable tool for use in rotating a valve like that of Figs. 6 and 7 when applied to a device embodying the invention. Fig. 9 is an end elevation of the said tool, looking from the left in Fig. 8.

The valve which is shown in Figs. 6 and 7 is well-known. It has a head 1 provided with a beveled seating face 2, and a cylindrical stem 3. The device in which the invention resides is provided with a bearing or bearings adapted to receive the stem 3 of the valve, and within which the said stem may turn or rotate, and with one or more cutting or abrading tools adapted to act upon the seating face 2 as the valve is turned or rotated, to dress off and true up the said face. The device is provided with a guide or bearing for an implement employed to effect the turning or rotating of the valve in convenient manner. Preferably, the fixed part or frame of the device is constructed suitably for being clamped in a vise for the purpose of enabling the device to be supported and held while the operation of truing-up a valve is being performed.

Having reference, now, to the illustrated embodiment of the invention, at 4, Fig. 1, is the fixed part or frame of the device, it being shaped to enable it to fit between the jaws of a vise and be held securely thereby. At 41, 41, are bearings with which the said fixed part or frame is provided to receive the stem 3 of a valve. The number and length of the bearings may vary in practice. Bushings 42, 42, are applied to the same to fit the stem of the valve. Such bushings are removably secured in place in any suitable manner in order to enable them to be replaced by others having bores of a different diameter when required, so as thereby to provide for accommodating valves having stems of various sizes. A valve is shown applied in Fig. 1, with the stem 3 thereof fitted within the bushings 42, 42.

At 5 is a tool for acting upon the seating face 2 of the valve. It is in the present instance a cutting-blade, as shown best in Figs. 4, 4^a, and 4^b, formed for instance of steel. It is mounted in an arm 43 of the fixed part or frame 4. The said arm is recessed at 44 to form a pocket to receive the said tool, and is provided with a clamping-screw 6 by which the tool is securely held in place within the recess or pocket. The threaded stem of the said clamping-screw works in a screw-threaded hole that is tapped through one side-wall of the recess or pocket, and its inner end engages with one side of the tool, the tool being clamped between the said end and the opposite wall of the recess or pocket. The tool is supported in a position in which its working edge has an angle or inclination conforming to that of the seating face 2 of the valve. To provide for adjustment of the tool toward and from the valve, and for variation of the angle or inclination of the tool, the adjusting-screws 7, 7, are employed. The said adjusting-screws engage with the back of the tool at opposite points in the

length of the latter. The threaded stems thereof work in screw-threaded holes which are tapped in the arm 43, and the inner ends thereof engage with the back of the tool. One or more tools 5 may be employed. The device shown in the drawings is constructed to employ three. The fixed part or frame is furnished with a number of supporting-arms 43 corresponding with the number of tools which is designed to be used. In Fig. 1 one tool is shown, the others and the securing and adjusting devices therefor being omitted and the corresponding supporting arms being broken away. I contemplate in some instances employing a tool which is constituted of a slip or block of carborundum, emery, or other suitable abrading material in place of the steel cutter.

In the use of the device, it is clamped in a vise or otherwise conveniently held, and a valve is applied, substantially in the manner which is represented in Fig. 1. The seating face 2 of the valve is pressed against the tool or tools 5, and the valve is turned or rotated so as to produce the required action of the said tool or tools upon the said face. The turning movement of the valve may be communicated thereto by means of an implement on the order of a screw-driver having its engaging end entered into the slit 11, Fig. 7, in the end of the valve. A convenient implement for the purpose is shown in Figs. 8 and 9, in which 8 is a shank having at one end thereof an expanded or widened blade 81. The shank 8 is designed to be clasped within the jaws of a brace-bit. Upon inserting the said blade 81 into the slit 11 and turning the implement, meanwhile transmitting through the latter pressure acting to press the seating face of the valve against the tool or tools, the new seat will be obtained.

A guide for supporting and steadying the turning implement is constituted by the yoke 9, Figs. 1 and 3. The latter is three-armed, and is secured to the arms 43, 43, of the fixed part or frame by means of screws 91, one of which is shown in Fig. 1, which pass through holes 94, 94, in the outer ends of the arms of the yoke. The said yoke has a guide-bearing 92, Figs. 1 and 3, within which the shank 8 of the turning implement is placed.

What is claimed as the invention is,—

1. In a truing-up device for valves, the combination with a frame provided with valve-centering devices, and one or more truing-up tools mounted upon the head-end of the said frame, of a guiding device also mounted upon the said head-end and having a guide or rest adapted to removably receive a long-stemmed separate hand-implement by which the centered valve may be engaged and turned, and within which guide or rest

the said implement is freely movable endwise to engage it with the valve and press the acting face of the valve into engagement with the said tool or tools to be acted upon thereby.

2. In a truing-up device for stemmed valves, the combination with one or more bearings adapted to receive the stem of a valve and center the latter for the truing-up operation, and one or more truing-up tools, of a guide or rest in front of said tool or tools, adapted for removal and replacement to facilitate the insertion and removal of the valve, and also adapted to removably receive a long-stemmed separate hand-implement for use in turning the valve, and support the said implement in line with the bearing or bearings, the said guide or rest permitting free endwise movement of the said implement to engage the valve and press the face of the latter into engagement with the said tool or tools, to be acted upon thereby.

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

ALLAN CAMERON SARGENT.

Witnesses:

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