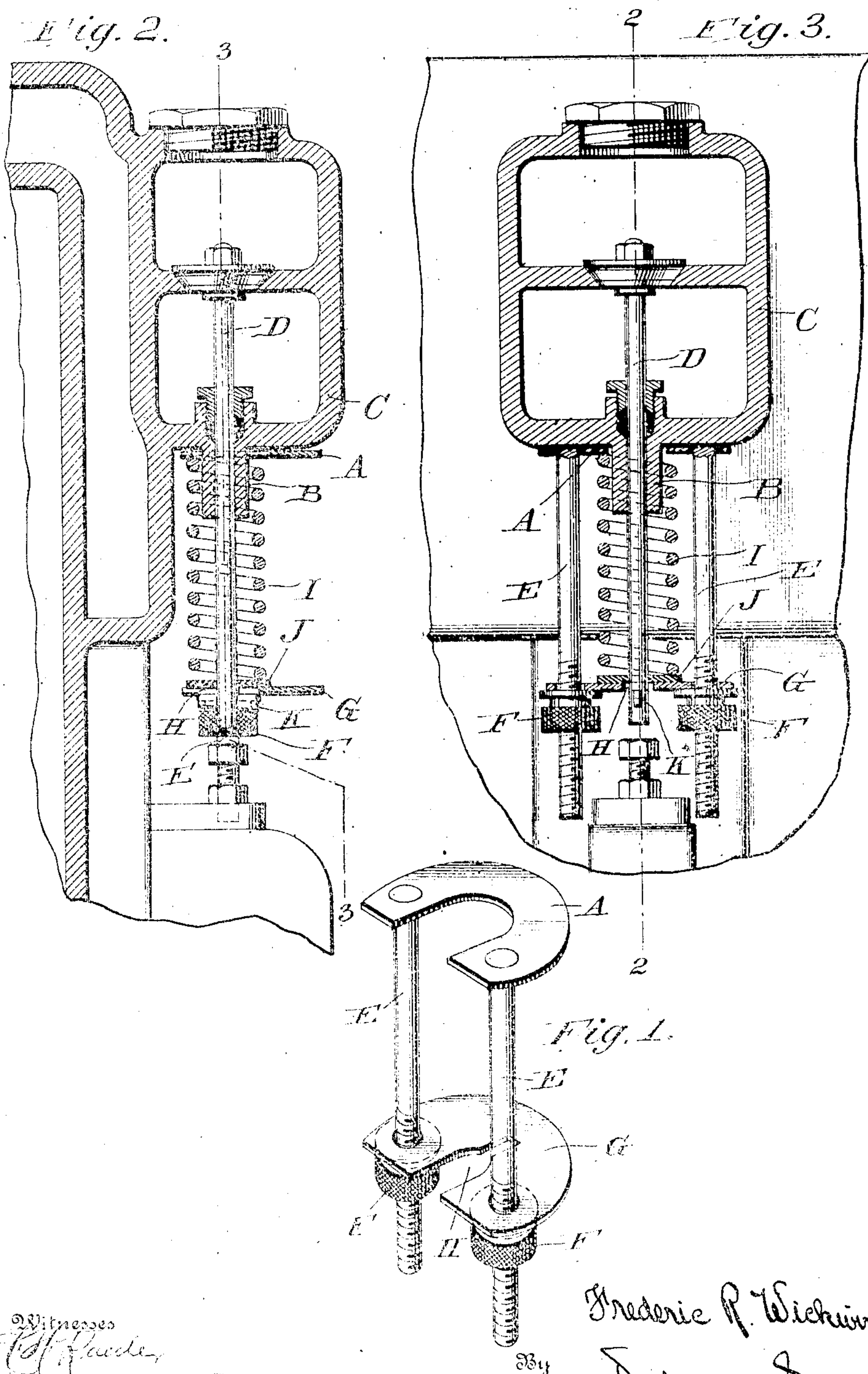


No. 875,761.

PATENTED JAN. 7, 1908.

F. R. WICKWIRE.
CLAMP FOR COMPRESSING SPRINGS.
APPLICATION FILED SEPT. 12, 1907.



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UNITED STATES PATENT OFFICE.

FREDERIC R. WICKWIRE, OF CORTLAND, NEW YORK.

CLAMP FOR COMPRESSING SPRINGS.

No. 875,761.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed September 12, 1907. Serial No. 392,533.

To all whom it may concern:

Be it known that I, FREDERIC R. WICKWIRE, a citizen of the United States, residing at Cortland, in the county of Cortland and State of New York, have invented certain new and useful Improvements in Clamps for Compressing Springs, of which the following is a specification.

My present invention pertains to clamps for compressing and holding springs, the structure being more especially designed for use in conjunction with springs employed to draw valves to their seats such as are now commonly found in gas engines and the like.

The invention is illustrated in the accompanying drawings wherein:

Figure 1 is a perspective view of the clamp; Fig. 2 a vertical sectional view taken on the line 2—2 of Fig. 3 of a valve shell or casing, the clamp being shown in operative relation with the spring; and Fig. 3 a similar view taken on the line 3—3 of Fig. 2.

The object of the present invention is to provide a simple and efficient device whereby the spring which is employed to draw the valve to its seat may be compressed in order that the cotter-pin or key which passes through the valve stem may be removed, and the valve with its stem withdrawn from the valve casing or the valve and its stem freed from the spring, so that the valve may be rotated upon and periodically lifted from its seat to grind the valve and the seat if so desired.

In the drawings, A designates a U-shaped plate or bearing member, preferably formed of a thin sheet of steel, the opening between the arms being made sufficiently large to pass around the ordinary nipple or projection B which extends downwardly from the valve casing C, and through which the valve stem D passes as is usual in vapor engines.

Extending downwardly from each arm of the plate A is a rod or stem E, each stem being threaded at its lower end. A thumb-nut F is mounted upon each of said threaded rods, and a movable plate or abutment G is mounted upon the rods above the nuts. The holes in the plate G are made such size that the plate may be moved readily up and down upon the rods.

Plate G will preferably be formed as shown in Fig. 1; that is to say, it will be semi-circular in contour and will be provided with an opening or slot H, the opening occupying a position between the openings

through which the rods E are passed. The innermost portion of the opening may be slightly reduced being made of sufficient size to receive one end of the cotter-pin or key therein when the clamp is positioned upon the valve stem in the act of compressing the spring.

As will be seen upon reference to Figs. 2 and 3, the plate A is passed inwardly above the upper end of the spring I, while the movable abutment G is passed beneath the washer J which is commonly employed in conjunction with the spring. The lower end of the valve stem passes into the enlarged or outer portion of the slot or opening H, while one end of the cotter-pin or key K occupies a position in the reduced portion of the slot or opening H.

When the parts are positioned as shown in the sectional view, the thumb-nuts may be screwed up, and in so doing the washer J will be elevated by the movable plate G, and the spring placed under compression, the upper end of the spring bearing upon the under face of the fixed plate A. After the cotter-pin or key has been relieved of any pressure thereon the key may be withdrawn, and the valve and its stem moved outwardly from the valve casing while the spring and washer are held within the clamp. Thus the spring and the washer may be entirely removed from the engine while the spring is maintained under full compression. Furthermore, the washer is at all times held securely against the spring, thus allowing the valve stem to move freely in the opening in the nipple or valve casing, which is essential when the valve is being reground. Also a new or an old spring may be positioned upon the engine while under compression in the clamp, and the washer and the lower end of the spring may be freely moved in any direction in order to receive the incoming valve stem.

The clamp being small and compact may be readily positioned, and may be employed where other spring-compressing devices may not be used by reason of the levers and like parts which interfere with other portions of the machine.

Having thus described my invention what I claim is:

1. In combination with a relatively thin plate or bearing member adapted to receive the upper end of a spring, a pair of threaded rods extending downwardly therefrom; a relatively thin member mounted upon said

rods adapted to pass between the lower end of the spring or the washer against which the spring bears and the retaining device for the spring; and a nut mounted upon the lower end of each of said rods.

2. In a clamp comprising a U-shaped plate, a pair of threaded rods extending downwardly from said plate; a second plate loosely mounted upon the lower end of said rods, said plate being provided with a slot or opening through which a valve stem may pass; and a nut mounted upon the lower end of each rod below said movable plate.

3. In a clamp, the combination of a plate adapted to afford a bearing for one end of a spring which is to be compressed; a pair of rods extending downwardly from said plate, the lower ends of said rods being threaded; a second plate loosely mounted upon said rods, said plate being semi-circular in outline and provided with a slot or opening adapted to receive the lower end of a valve stem, and to permit the passage of a cotter-pin carried by the valve stem into said opening; and a nut mounted upon each of said stems.

4. A clamp for placing a spring under compression comprising a relatively fixed plate against which one end of the spring is designed to bear said plate being relatively thin and adapted to pass between one end of the spring and the member against which it bears; a pair of draw-rods extending from said plate; a movable abutment against which the opposite end of the spring rests, said abutment being relatively thin, and held in its proper position with reference to the spring by said rods; and means for moving the abutment and placing the spring under a state of compression.

5. A clamp for placing a spring under com-

pression comprising a U-shaped plate, the opening therein being of a size sufficient to embrace a projection upon a valve shell or casing; a pair of threaded rods extending downwardly from the outer arms of said U-shaped member and at substantially right angles thereto; a second U-shaped plate, the opening in which is somewhat smaller than that in the upper plate; and a nut mounted upon each of said threaded rods below said second plate.

6. A clamp for compressing springs and maintaining them in such state, comprising two relatively thin U-shaped plates adapted to be passed over the respective ends of the spring and between the ends of the spring and the members against which the spring bears; and means for drawing said plates together and maintaining them in such position with the spring clamped between them.

7. In a clamp for compressing springs, the combination of a pair of draw-rods; fixed means carried at one end of the rods, said means being adapted to be passed between one end of the spring and the member against which it normally bears; movable means also carried by the rods, said movable means being adapted to pass between the end of the spring and the member which retains it in position; and means to advance said movable means toward the fixed means and to thereby compress the spring.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERIC R. WICKWIRE.

Witnesses:

A. W. EDGCOMB.

O. K. GEORGE.