

R. S. BAINBRIDGE.
VALVE SPRING COMPRESSOR.
APPLICATION FILED OCT. 12, 1920.

1,405,253.

Patented Jan. 31, 1922.

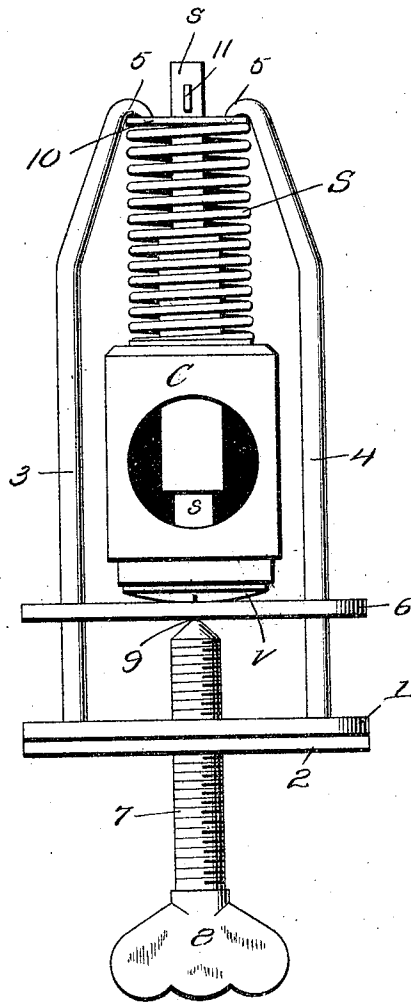


Fig. 1.

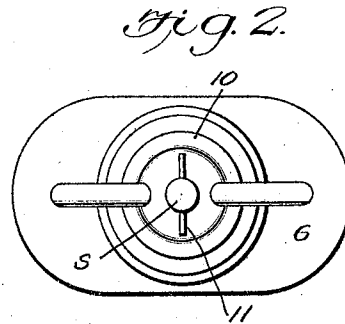
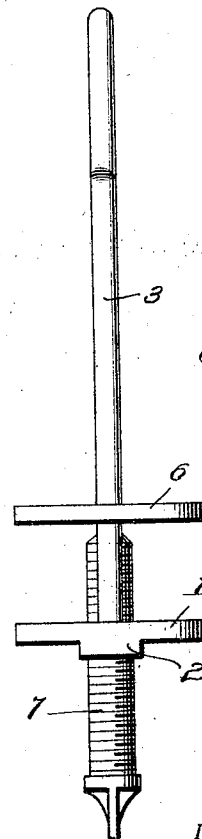


Fig. 3.

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VALVE-SPRING COMPRESSOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROY S. BAINBRIDGE, a citizen of the United States, residing at Augusta, in the county of Butler and State of Kansas, have invented new and useful Improvements in a Valve-Spring Compressor, of which the following is a specification.

This invention relates to valve spring compressors for use especially on Buick cars.

The object of the invention is to provide a simple and efficient device for compressing and retaining under compression the springs of valves for removing and replacing with ease the valve spring cap key and permit the valve to be removed from its cage for the purpose of grinding both the valve and its seat or assembling a new valve.

Another object is to provide a device of this character which is extremely simple and compact having few parts which are readily assembled rendering the tool cheap to manufacture and yet strong and durable and which may be quickly applied and removed.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described, and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention.

In the accompanying drawing:

Figure 1 represents a side elevation of the compressor constituting this invention shown applied.

Figure 2 is an end elevation thereof, and Figure 3 is a side elevation taken in a plane at right angles to Figure 1.

The compressor constituting this invention comprises a pair of complementary plates 1 and 6 which may be of any desired configuration being here shown oval, the plate 1 having on its outer face a longitudinally extending boss 2 through the center of which and plate 1 is a screw threaded opening to receive an operating screw 7, presently to be described.

Secured to the plate 1 at longitudinally spaced points on opposite sides of the threaded opening therein are two rods or fingers 3 and 4, here shown arranged parallel throughout the greater portion of their length with their free ends converging and provided at their terminals with inturned hooks 5 which are designed to engage the

valve spring cap or cup-shaped washer 10 mounted on the outer end of the valve spring S.

The plate 6 is loosely mounted to slide on the fingers or rods 3 and 4 and against the outer face of which the pointed terminal 9 of the screw 7 is designed to abut. This screw 7 has a finger grip or head 8 at its outer end to facilitate the manipulation thereof.

The valve V is shown mounted in a casing or cage C and the stem *s* thereof extends through said casing and through the spring S having a transversely arranged aperture in its outer end to receive a key 11 for holding the spring in compressed position on the stem between the end of the casing C and the pin or key 11.

In the use of this compressor, the plate 6 is positioned to bear on the outer face of valve V while the hooked ends 5 of the fingers 3 and 4 are engaged with the cup-shaped washer 10 at the outer end of the valve spring S. When so positioned, the screw 7 is turned to move inwardly against plate 6 so that the coiled spring S is compressed between the valve casing C and the hooked fingers of the compressor. This turning of the screw is continued until the spring is sufficiently compressed to permit the key 11 to be removed from the valve stem. Screw 7 is then turned in the opposite direction to disengage the compressor from the valve and permit it to be removed from the casing or to be turned loosely therein for grinding both the valve and its seat, it being of course well understood that a grinding compound is inserted between the valve and its seat to accomplish the grinding thereof when the valve is rotated.

After the valve and its seat have been ground, the parts are assembled by placing the valve in the casing C positioning spring S on the stem *s* and then connecting up the clamp-like compressor in the manner above described and compressing spring S sufficiently to permit the insertion of key 11. The casing C may then be replaced in the engine and the compressor on another valve.

The preferred embodiment of the invention is disclosed in the drawings and set forth in the specification, but it will be understood that any modifications within the scope of the claims may be made in the construction

without departing from the principle of the invention or sacrificing any of its advantages.

What is claimed is:

5 1. A valve spring compressor comprising a plate, a pair of parallel laterally spaced arms rigidly fixed at one end to said plate, with a screw operating through the plate between said arms, a plate mounted to slide
10 loosely on said arms in advance of said screw to be engaged thereby, said arms having spring engaging means at their free ends so positioned that the compressing action of the tool is exerted longitudinally thereof be-
15 tween said plate and ends.

2. A compressor of the class described

comprising a pair of complementary plates arranged one over the other, an operating screw threaded through one of said plates, with its end engaged with the other, rods 20 rigidly fixed at one end to the inner face of said screw carried plate and extended loosely through the other plate, said rods having in-turned hooks, at their free ends to engage one end of a coiled spring to be compressed, the 25 member carrying said spring being engaged by the outer face of the movable plate, whereby the compressing action of the tool is exerted longitudinally thereof.

In testimony whereof, I affix my signature 30 hereto.

ROY S. BAINBRIDGE.