

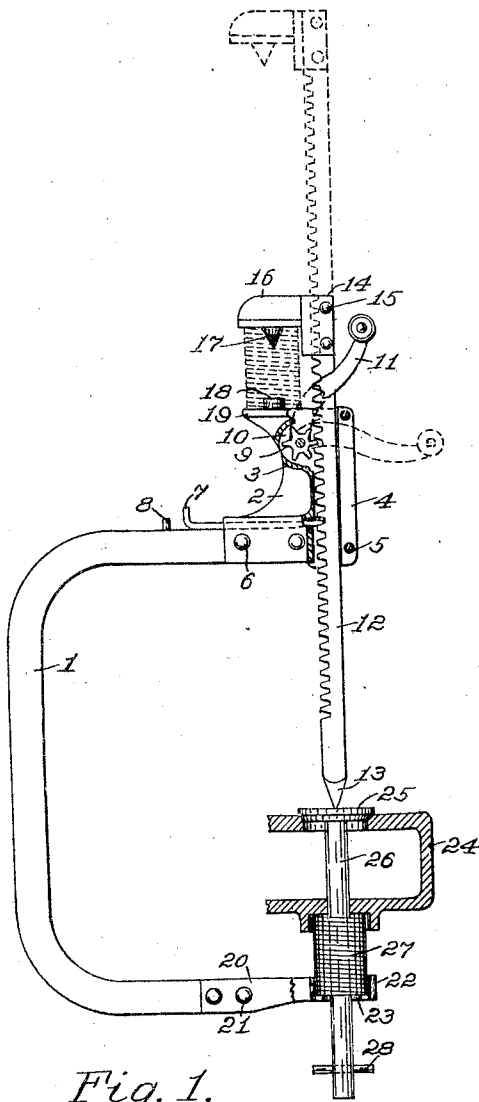
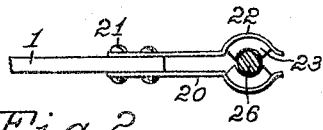
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N. SULENTIC

SPRING COMPRESSOR

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UNITED STATES PATENT OFFICE.

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SPRING COMPRESSOR.

Original application filed October 26, 1923, Serial No. 670,810. Divided and this application filed December 3, 1924, Serial No. 753,713.

My invention relates to improvements in spring compressors, and the object of my improvement is to supply a device having clamping or compressing elements for compressing springs mounted on valve-stems, in which one element is resiliently bifurcated to permit it to be yieldingly removably seated about a valve-stem adjacent a spring to be engaged by it and compressed between it and the opposed clamping element, the first-mentioned element having its coating resilient forks shaped with opposed stop members suitable to prevent accidental lateral displacement of the said element when so seated about the valve-stem.

The subject-matter of this application which is intended to disclose the above improvement is a division of my previous application Serial No. 670,810, filed October 26, 1923.

The device of this application is illustrated in the accompanying drawings, in which Fig. 1 is an elevation of my said improved spring compressor as in operation holding a coiled spring under compression upon a valve-stem, to clear and permit the extraction of a terminal key or stop-pin therein, the dotted lines showing the open position of one of the clamping elements thereof. Fig. 2 is a fragmental upper plan view of the other clamping element with its pair of resilient members seated around the valve-stem and releasably interlocked therewith against sidewise removal.

The numeral 1 denotes a U-shaped frame made of a flat bar and having on one terminal arm a pair of resilient forks whose flat shanks 20 are secured to opposite faces thereof by rivets 21. As shown in Fig. 2, the shanks 20 are shaped with concave forks 22, and the forks 22 have in the same transverse plane like flat arcuate projections 23, their opposed inner edges concave toward each other to provide a circular opening therebetween which is slightly larger in diameter than the valve-stem 26 to be embraced thereby. These concave inner edges of the parts 23 at their terminations approach at a less distance than the diameter of the valve-stem 26, thus providing stops which prevent sidewise displacements in either of opposite lateral directions of said valve-stem, unless sufficient manually exerted force is brought to

spread the forks 22 apart to thus cause them to yield resiliently away from each other to clear the stem 26.

The numeral 24 denotes part of the cylinder block of the cylinder of an internal combustion engine having a valve-seat for a valve-head 25 fixed on said valve-stem 26. A coiled compression-spring 27 is mounted around said valve-stem and is engaged between said block part 24 and a key or pin 28 inserted through a transverse aperture near the opposite end of the stem.

Because of the small clearance afforded in the assembled structures, it is difficult to extract the pin 28 when it is desired to remove the valve-head 25 and stem 26, the spring 27 being in the way of the tools, so the device illustrated or any other equivalent thereto may be used to easily compress the spring while upon the valve-stem so that clearance is given the extracting tool to operate upon the pin 28.

In the device illustrated the other terminal member of the U-shaped frame 1 has a boxing 2 secured thereon by rivets 6 or other means, and this boxing has spaced parts 4 connected by bolts or rivets 5 the interspace 10 of which has a longitudinal passage to receive a slidable rack-bar 12 with a pointed terminal 13 opposed to the center of the forks 22. The interspace 10 is widened to receive and seat a small pinion 9 whose teeth mesh with the teeth of said rack-bar 12, and the shaft of said pinion exteriorly of this boxing has mounted thereon a handled crank 11 for rotating it. A transverse passage is provided in said boxing to seat a slide pawl 7 which may terminally engage roots of teeth on the rack-bar to lock the same in a desired position in the boxing. This pawl is limited in movement outwardly by means of a stop-pin fixed in the frame 1. The boxing has a web 2 and a terminal clamping part 19 with centering stud 18. On the other end of the rack-bar 12 is mounted rigidly by a grooved part 14 and rivets 15 a clamping-member 16 having a conical centering stud 17 opposed to the other centering stud 18. The clamping-members 16 and 19 are employed to re-compress a spring 27 after the latter has been removed from the valve-stem 26 to permit it to be then taken in any suitable clip device and while under

compression re-mounted on said valve-stem before the pin 28 is reinserted.

As indicated by the full lines in the drawing at Fig. 1, the spring 27 is placed in compression between the clamping-members 12—13 and 22—23 by rotating the pinion 9 appropriately, when the terminal 13 is engaged with the center of the valve-head 25 and the resilient forks 22 caused to receive and embrace the valve-stem, with the arcuate flanges 23 engaging the spring 27. Any sudden slip cannot dislodge the fork parts 23 from about the stem 26, so that the device thus is kept conveniently in operative position relative to the valve-stem until the pin 28 is removed.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is:

20 1. A spring compressor, comprising rigid clamping means slidably connected to be moved to and from each other, one means containing resilient arms having terminal flat circularly arcuate transversely spaced
25 forks which resiliently clasp an end part of a coiled spring between them and have in the same transverse plane opposed flanges to

seat the bottom of the spring mounted between said forks.

2. A spring compressor, comprising a hollow housing composed of connected parts to provide between them a seat for a pinion and for a longitudinally reciprocable rack in mesh with the pinion and having a clamping end part, a pinion rotatably mounted in said seat, a rack reciprocably mounted also in said seat and in mesh with said pinion, a clamping member on one end of said rack, a rigid U-shaped frame having one end connected to said housing, and having its other end opposed to the other end of said rack, and provided with flat spaced spring furcations, said furcations being circularly arcuate to yieldingly encircle a coiled spring and an axially disposed valve-stem therein, said furcations having arcuate inwardly disposed flanges to closely encircle the valve-stem, and the furcations being adapted to yieldingly clasp between them the spring while the latter is under compression.

In testimony whereof I affix my signature.

NICHOLAS SULENTIC.