July 6, 1926. 1,591,301

J. FORD

COIL SPRING COMPRESSING DEVICE

Filed March 2, 1925

Fig. 1

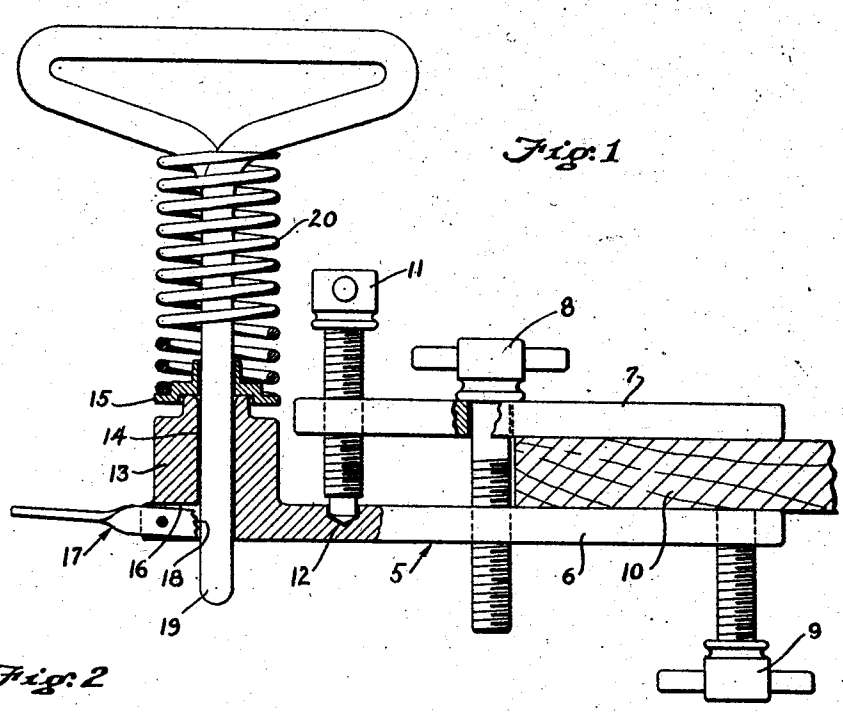


Fig. 2

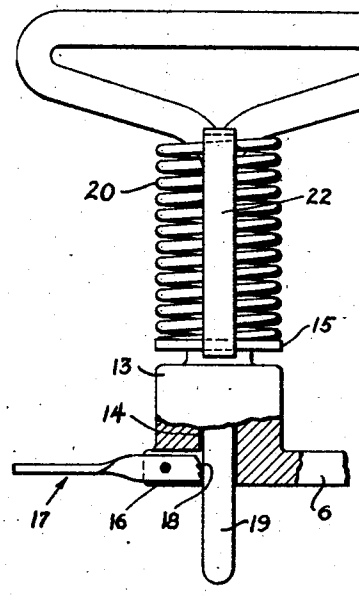


Fig. 3

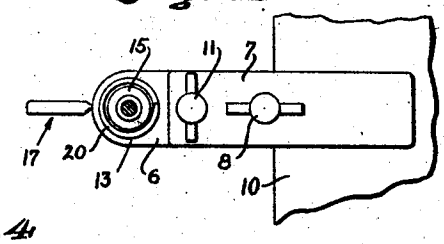
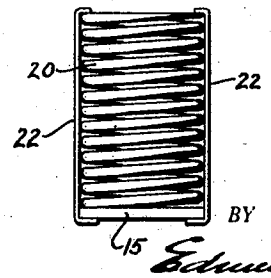


Fig. 4



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Patented July 6, 1926. 1,591,301

UNITED STATES PATENT OFFICE.

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COIL-SPRING-COMPRESSING DEVICE.

Application filed March 2, 1925. Serial No. 12,756.

This invention has relation more specifically to a device for compressing coiled valve springs of explosive engines.

In regrinding the intake and exhaust valves of explosive engines, and refacing their seats, it is necessary to remove the coiled compressing springs. After the valves have been reground and the seats refaced the springs have to be compressed in order to again mount the same on the valve stems. This spring compressing operation not only involves the expenditure of considerable time on the part of the mechanic, but oftentimes bends the valve stems if the same are compressed thereon.

By means of my spring compressing device coiled valve springs may be quickly compressed to the desired extent, and held by retainers in such condition until the same are properly seated and secured on the valve stems, thus not only effecting a considerable saving in time on the part of the mechanic, but obviating all danger of bending the valve stems, and rendering their adjustment a comparatively simple operation.

It is therefore a main object of this invention to provide a simple device that may be instantly clamped to a suitable support, having means connected thereto for quickly compressing coiled springs to the desired extent, and means for holding the springs in their compressed condition until reassembled in connection with their operating mechanism.

A further object is to provide a device that is simple in construction, inexpensive to manufacture, and highly efficient in operation.

This disclosure is to be regarded as descriptive only, and not as restrictive or limitive of the invention, of which obviously an embodiment may be constructed including many minor modifications without departing from the general scope herein indicated and hereinafter claimed.

Other objects and advantages of this invention, not at this time particularly enumerated, will be clearly understood from the following detailed description of the present invention, in connection with the drawings hereto attached, in which:

Fig. 1 is a side elevation of the device partly in section, showing the same clamped to a support, a coiled spring being mounted thereon in its normal condition.

Fig. 2 is a partial side elevation partly in section of the device showing a coiled spring in a compressed condition, with the spring retainers in place thereon.

Fig. 3 is a plan view of the device clamped to a support, the spring compressing rod being in cross section.

Fig. 4 is a side elevation of a coiled valve spring in a compressed condition, and the spring retaining members secured thereto for holding the same in such condition.

Referring now more specifically to the drawings, 5 designates a clamping member preferably consisting of horizontally disposed flat clamping members 6, 7, having the usual adjusting screws 8, 9, for clamping the device securely to a stationary support 10. The outer end of clamping member 7 is provided with an adjusting screw 11, the end thereof bearing in a recess 12 formed on the upper face of clamp member 6, whereby to adjust the upper clamping member in relation to the lower clamping member, and to effectively secure the clamp against movement.

Clamping member 6, is of greater length than the upper member 7, in order to provide space for an upstanding lug 13, formed integral with the lower clamp member at the outer end thereof. This lug is provided with a vertically disposed bore 14, and its upper end is reduced in diameter to form a seat for the reception of the spring seat member 15, of a valve. Clamp member 6 at its outer rounded end is provided with a radial slot 16 that opens into bore 14 of the lug 13, and pivotally mounted in the slot is a lever 17, having a cam shaped serrated end 18 for gripping the spring compressing rod 19, and holding the same in a depressed condition against the action of the spring, being compressed until the retaining members are applied to the compressed spring, as will be more fully described further on.

The operation of the device will be readily understood from the following description. The mechanic who is engaged in repairing the intake and exhaust valves of an explosive engine of the auto-vehicle type, first clamps the device to a stationary support 10, in this instance the support being one of the running boards of the vehicle whose valves are being repaired. The coiled valve springs are disconnected from the engine valves in the usual manner. After the valves have been repaired and adjusted, it becomes necessary to compress the various coiled

springs before the valve mechanism can be reassembled. A spring 20, together with its apertured seat member 15, is placed on the upper reduced end of lug 13, and the valve compressing rod 19 provided with a handle 22 on the upper end thereof is inserted through the spring 20 and bore 14 of the lug and forced downwardly against the action of the spring. When the spring has been compressed to the desired extent as shown in Fig. 2, the lever 17 is pushed slightly down to force its serrated end into engagement with the shaft of the compressing rod 19 to hold the spring in a compressed condition. The operator then applies a pair of spring retaining clamps 23 having hooked ends to the spring and its seat member 15 to hold the spring in its compressed condition. The end of lever 17 is then disengaged from contact with the shaft of rod 19, to permit of its disengagement from the bore of the lug formed on the clamping members. The compressed spring (see Fig. 4) may now be removed from the device in a compressed condition, thus enabling the mechanic to quickly mount the springs upon the valve mechanisms.

As the length between the hooked ends of the spring retaining clamps determine the extent of spring compression, a number of pairs of various lengths may be provided in order to provide for different degrees of compression.

What I claim is:

1. A coiled spring compressing device comprising a member having a bored lug formed on the outer end thereof, the upper end of said lug constituting a seat for a spring, said member adapted to be secured to a stationary support, a spring compressing member slidingly mounted in the bore of said lug for compressing a coiled spring when mounted on the seat of said lug, and means mounted on said lug for engaging and holding the compressing member from upward movement after a spring compressing operation.

2. A coiled spring compressing device comprising a horizontally disposed member adapted to be secured to a support having an apertured spring seat formed on one end thereof, a spring compressing rod passing through the aperture in the spring seat adapted to compress a coil spring when mounted on said seat, and means connected to said apertured member for holding the rod in its depressed position.

3. A coiled spring compressing device comprising a flat metal member having means for securing the same to a support, an apertured seat formed on the free end of said member for the reception of a coiled spring, a headed rod passing through said apertured seat adapted to compress a spring when mounted thereon on a downward movement of said rod, and means secured to said member and engaging said rod to hold the rod against an upward movement and to maintain the spring mounted on the apertured seat in compression.

4. A coiled spring compressing device comprising a pair of clamping members and means for adjusting the same to a support, an apertured spring seat formed on one of said members, a handled rod passing through the seat formed on said member for compressing a spring interposed between the handle of the rod and the spring seat, and means on said clamping member and extending into the aperture for engaging said rod to hold the same in its adjusted position and the spring in compression.

In witness that I claim the foregoing I have hereunto subscribed my name this 10th day of February, 1925.

JAMES FORD.