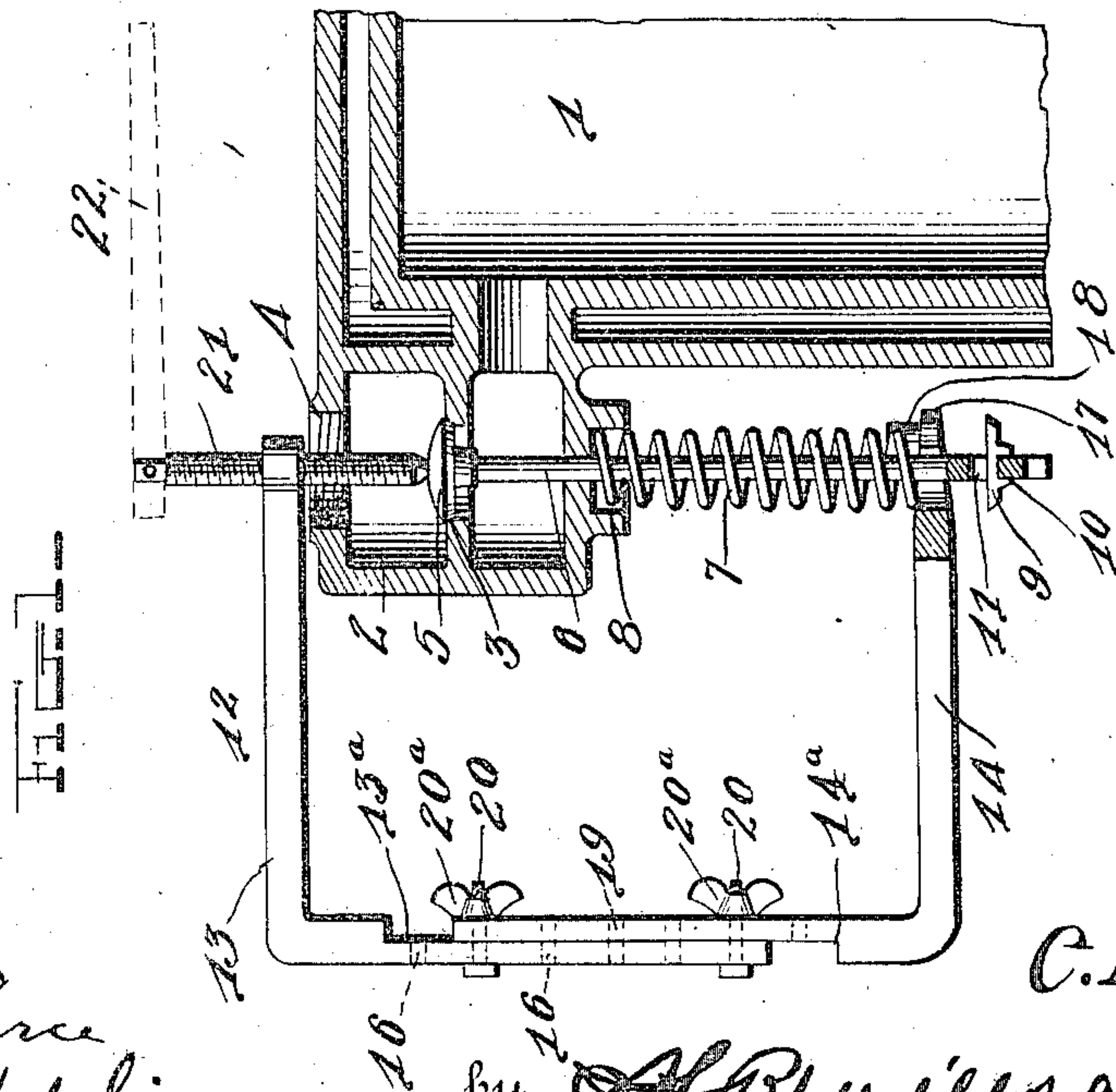
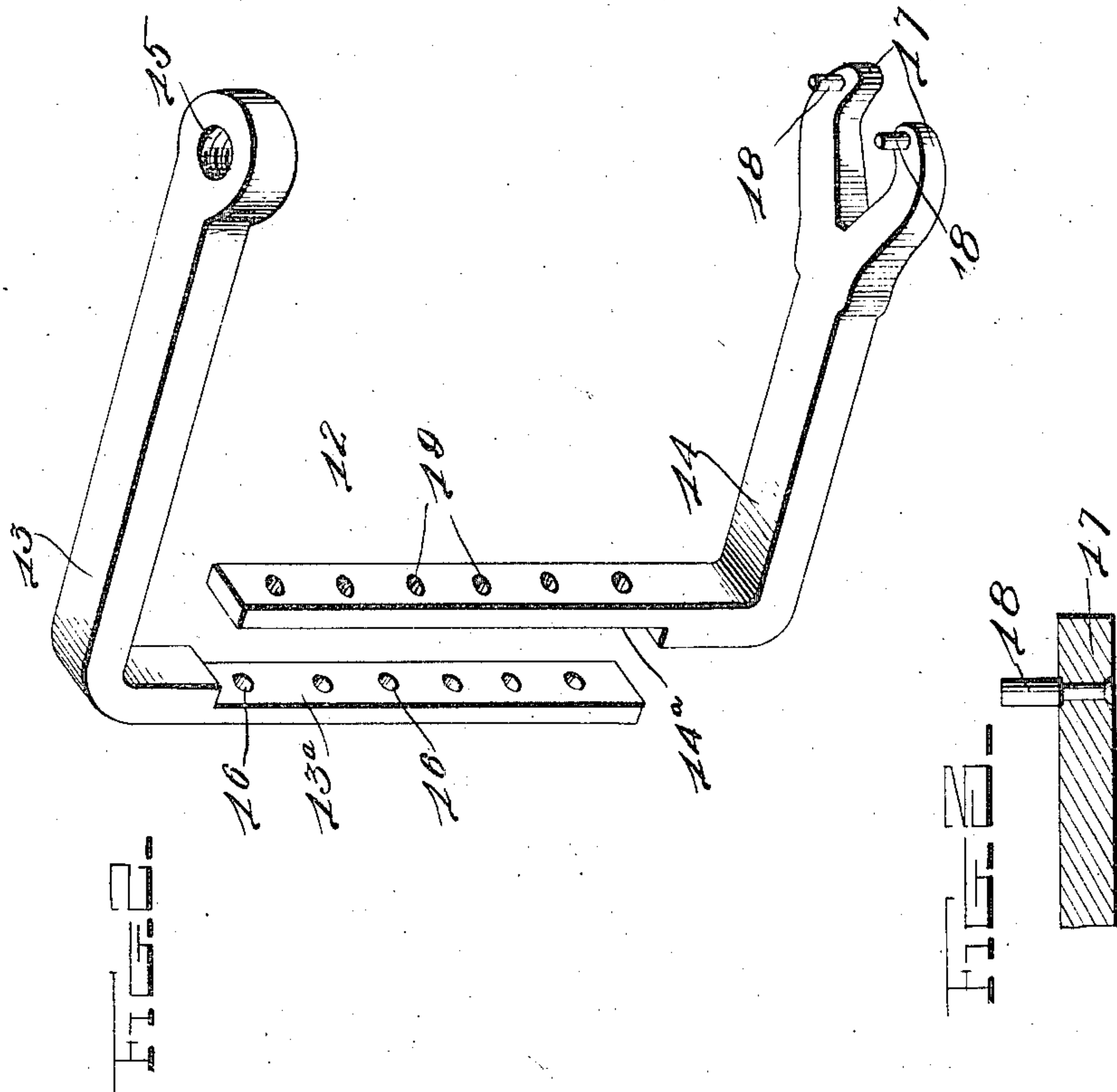


C. LE R. HAHN.
 DEVICE FOR COMPRESSING VALVE SPRINGS.
 APPLICATION FILED JAN. 16, 1911.

995,595.

Patented June 20, 1911.



Witnesses
 J. R. Pierce
 O. B. Hopkins

by *A. B. Wilson & Co.*
 Attorneys

Inventor
 C. L. Hahn

UNITED STATES PATENT OFFICE.

CLARENCE LE ROY HAHN, OF BALTIMORE, MARYLAND.

DEVICE FOR COMPRESSING VALVE-SPRINGS.

995,595.

Specification of Letters Patent. Patented June 20, 1911.

Application filed January 16, 1911. Serial No. 602,961.

To all whom it may concern:

Be it known that I, CLARENCE LE ROY HAHN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Devices for Compressing Valve-Springs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in devices for compressing valve springs.

One object of the invention is to provide a compressing device whereby the springs of gas engine valves may be compressed to permit the removal of the stop pin or plate and the subsequent removal of the valve for cleaning or grinding.

Another object is to provide a device of this character which may be adjusted to fit valves of various sizes.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a vertical sectional view of a portion of a gasoline engine cylinder showing the application of my improved spring compressing device; Fig. 2 is a detail perspective view of the device showing the parts separated; Fig. 3 is a detail vertical sectional view showing the construction and arrangement of the spring holding pins.

Referring more particularly to the drawing, 1 denotes the engine cylinder on which is arranged a valve casing 2 having a valve seat 3 and the usual threaded opening 4 through which the valve 5 is inserted and removed, said opening being normally closed by the usual plug (not shown). The valve 5 is provided with the usual stem 6 which projects through the lower side of the casing to a considerable distance as shown.

On the projecting end of the stem is arranged a coiled valve seating spring 7 the upper end of which is seated in a recess 8 formed in the lower end of the valve casing. The lower end of the spring engages a stop plate 9 arranged transversely through the lower end of the stem. The spring when thus arranged on the stem holds the valve in

engagement with its seat. The stop plate 9 is provided with a notch 10 which engages the lower wall of the slot 11 in the end of the stem and thus prevents the casual removal of the pin when the spring is engaged therewith.

In order to remove the stop plate 9 and thereby permit the valve to be removed it is necessary to retract or compress the spring 7 and to hold the same out of engagement with the plate. For this purpose I have provided my improved spring compressing device 12 comprising upper and lower members 13 and 14 in the form of right angular bars. The upper bar or member 13 has formed on the end of its upper horizontal arm a threaded socket 15 and in its vertical arm is formed a series of transverse bolt holes 16.

The lower member 14 has formed on the end of its lower horizontal arm outwardly curved spring engaging lugs 17 on the ends of which are secured upwardly projecting spring holding pins or studs 18. The pins or studs 18 are preferably provided with reduced shanks which are riveted into the ends of the lugs 17 as shown in Fig. 3. In the vertical arm of the lower member 14 is formed a series of transverse bolt holes 19.

The vertical arm of the upper member 13 is recessed on its inner side as at 13^a while the vertical arm of the lower member 14 is recessed as at 14^a. In assembling the members 13 and 14 the recessed sides of the vertical arms thereof are brought together and adjusted to bring the upper and lower horizontal arms to the proper distance apart to fit the valve mechanism with which the same are to be engaged as shown in Fig. 1 of the drawings. The parts when thus assembled are securely bolted together through the bolt holes therein by clamping bolts 20, having thereon thumb nuts 20^a.

In the threaded socket 15 is arranged an operating screw 21 having a pointed lower end adapted to be engaged with a central depression in the valve. The upper end of the screw is reduced and squared to receive a wrench or may have pivotally connected thereto an operating lever or handle 22 as shown in dotted lines in Fig. 1 of the drawings. When the screw 21 is thus engaged with the valve the curved lugs are engaged beneath the lower end of the spring after which the screw 21 is turned in the proper

direction to draw the device upwardly there-
by compressing the spring and disengaging
the same from the stop plate in the end of
the stem. When the spring is thus com-
5 pressed the stop plate may be removed and
the screw 21 unscrewed from the socket 15 to
a sufficient extent to permit the device to be
disengaged from the valve whereupon the
latter may be readily removed for cleaning
10 or grinding. When the lugs 17 are engaged
with the stem and end of the spring the pins
or studs 18 engage the opposite sides of the
spring and hold the same and the lower por-
15 tion of the device from slipping or becoming
disengaged. When the valve is to be re-
placed the spring is again retracted or com-
pressed on the stem of the valve in the same
manner as hereinbefore described thus per-
mitting the insertion of the stop plate.
20 From the foregoing description taken in
connection with the accompanying draw-
ings, the construction and operation of the
invention will be readily understood without
requiring a more extended explanation.
25 Various changes in the form, proportion
and the minor details of construction may be
resorted to without departing from the prin-
ciple or sacrificing any of the advantages of

this invention, as defined in the appended
claim.

Having thus described my invention what
I claim is:—

A compressing device for valve springs
comprising right angularly formed bars
having in their reduced overlapping engag- 35
ing vertical arms series of bolt holes, clamp-
ing bolts arranged in said holes whereby
said bars are adjustably secured together
outwardly curved arms formed on the end of
said lower bar and adapted to be engaged 40
with the end of the valve spring, pins on the
extremities of said arm to engage and hold
the spring against slipping on said arms, a
threaded socket on the end of said upper 45
bar and an operating screw arranged in said
socket and adapted to be screwed into engage-
ment with the valve whereby the device is
drawn upwardly and the spring compressed.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 50
nesses.

CLARENCE LE ROY HAHN.

Witnesses:

CHAS. E. LENZ,

JNO. J. THORNTON.