O. WISENANT.

VALVE SPRING LIFTING DEVICE.

APPLICATION FILED FEB. 25, 1911.

1,012,311. Patented Dec. 19, 1911.

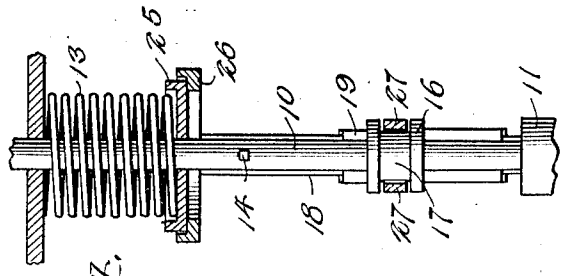

Fig. 4.

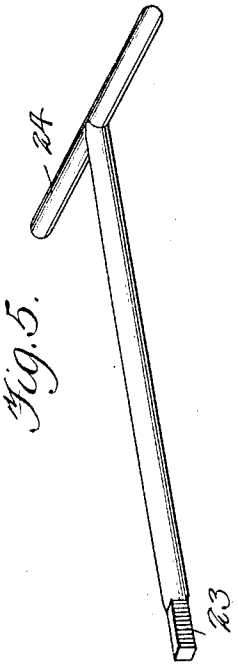

Fig. 5.

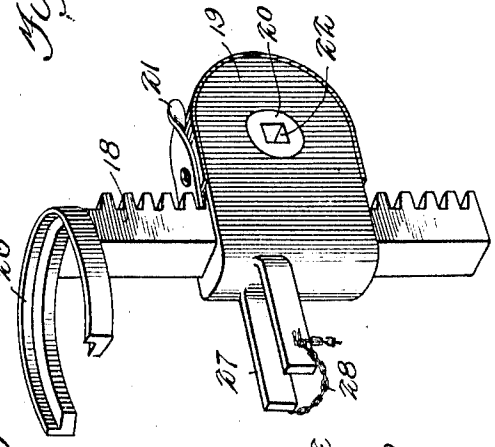

Fig. 2.

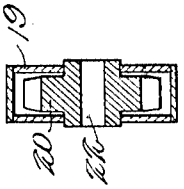

Fig. 3.

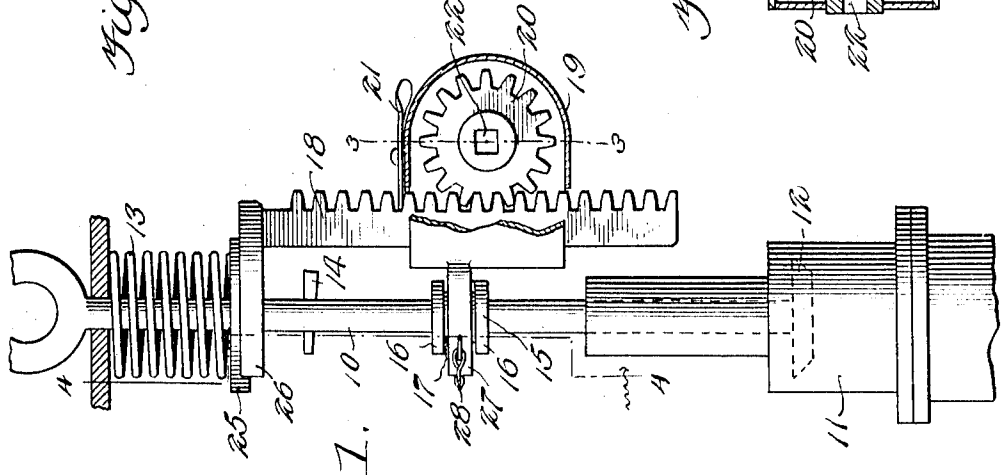

Fig. 1.

Witnesses

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VALVE-SPRING-LIFTING DEVICE.

1,012,311. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed February 25, 1911. Serial No. 610,795.

To all whom it may concern:

Be it known that I, OSCAR WISENANT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Valve-Spring-Lifting Devices, of which the following is a specification.

The invention relates to lifting devices, particularly adapted for valves, and has for an object to provide means for connection with the valve to raise the spring thereof so that the particular means adapted to secure the spring relatively to the valve can be removed therefrom.

For the purpose mentioned, use is made of a rack provided with a frame slidable on the rack, said frame having a pinion mounted therein for engagement with the said rack and locking means mounted on the frame for releasably locking the frame relatively to the rack, a valve spring seat integrally formed on the rack and adapted to engage a valve spring or the cup thereof, means for attaching the rack to the valve rod of a valve and a handle for operating the pinion relatively to the said rack for moving the spring of the valve upwardly from its seat so that the key or other securing member adapted to secure the spring in normal position can be released from connection with the valve rod.

Reference is to be had to the accompanying drawings constituting a part of this specification, in which similar characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side elevation of a portion of the valve and the rod thereof and showing my device applied thereto with the spring of the valve raised from the member adapted to normally position the spring relatively to the valve member, parts being broken away to show the underlying structure. Fig. 2 is a perspective view of my device. Fig. 3 is a sectional view taken on the line 3—3 in Fig. 2. Fig. 4 is a sectional view taken on the line 4—4 in Fig. 1, looking in the direction of the arrow, and Fig. 5 is a perspective view of the handle for operating the pinion of my lifting device.

Referring more particularly to the views, the usual valve rod 10 is shown mounted in the cylinder 11 with a suitable valve 12 secured to one end of the valve rod and a valve spring 13 mounted to encircle the valve rod with a key 14 in engagement with the valve rod and adapted to be engaged by the spring 13 to position the spring relatively to the valve rod. The valve rod 10 is provided with a collar 15 secured to the valve rod and having flanged portions 16 and an intermediate reduced portion 17.

A rack 18 is provided and slidably mounted on the said rack is a casing 19 having mounted therein a pinion 20 for engagement with the said rack and with a locking bar 21 pivotally mounted on the upper side of the casing 19, the said locking bar being adapted to engage the said rack to releasably lock the casing relatively to the rack. The pinion 20 is provided with a centrally disposed square hole 22 adapted to receive the square end 23 of a suitable handle 24. The spring 13 of the valve rod 10 is adapted to seat in the valve spring cup 25, the said cup being adapted to engage the key 14. It will be readily seen that the mentioned cup can be dispensed with and if desired the spring 13 can be mounted to immediately engage the key 14. Integrally formed on the upper end of the rack 18 and extending laterally therefrom is a seat 26 preferably having a shape similar to that of a horseshoe and extended laterally outward from the casing 19 is a fork 27 adapted to engage the reduced portion 17 of the collar 15 with a chain 28 connected to the ends of the fork 27 to releasably dispose the fork in engagement with the collar 15.

In applying my device to the valve rod 10, the fork 27 is mounted to engage the collar 15 as mentioned and the seat 26 is adapted to abut against the under side of the cup 25. Now, by inserting the handle 24 in the square opening 22 of the pinion 20 the said pinion can be operated to move the rack 18 upwardly, thus tending to move the cup away from the key 14 so that the key can be easily removed from connection with the valve rod 10 as is shown in Fig. 1. After the rack 18 has been raised to the desired position, the locking bar 21 is moved to engage the rack, thus locking the casing 19 relatively to the rack, and holding the rack in final position with the cap 25 spaced from the key 14.

Although in my particular description I have shown a key adapted for retaining the spring 13 in proper position on the valve

rod 10 it will be understood that any other suitable method may be employed to position the spring 13 and that my raising device will be applicable for raising the spring 13 with respect to the valve rod 10 when devices other than the key 14 are employed to position the spring 13.

Having thus fully described the invention, what I claim as new, is:—

A valve spring lifting device comprising a rack, a casing slidably mounted on the said rack, the said rack being extended through the casing, a pinion revolubly mounted in the said casing and engaging the said rack, a locking bar mounted to turn on the casing and adapted for releasably locking the said casing relatively to the said rack, a laterally extending horseshoe shaped seat on the said rack, a fork integrally formed on the said casing and extending laterally thereto, a chain having one end connected to the said fork and the other end for releasable engagement with the said fork and a handle for connection with the said pinion to operate the same in the said casing.

In testimony whereof I affix my signature in presence of two witnesses.

OSCAR WISENANT.

Witnesses:
JOEL GRUBB,
EDW. J. MITCHELL.