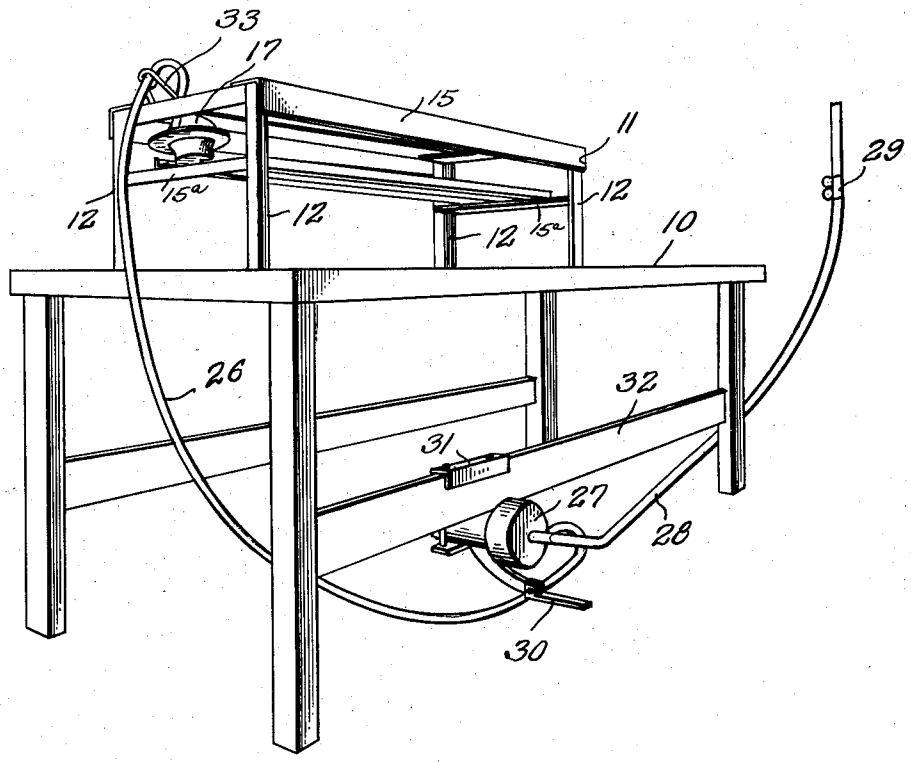
July 21, 1959 G. H. KILLEEN, JR 2,895,213

DEVICE FOR COMPRESSING SPRING VALVES

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Fig. 1.



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Fig. 2.

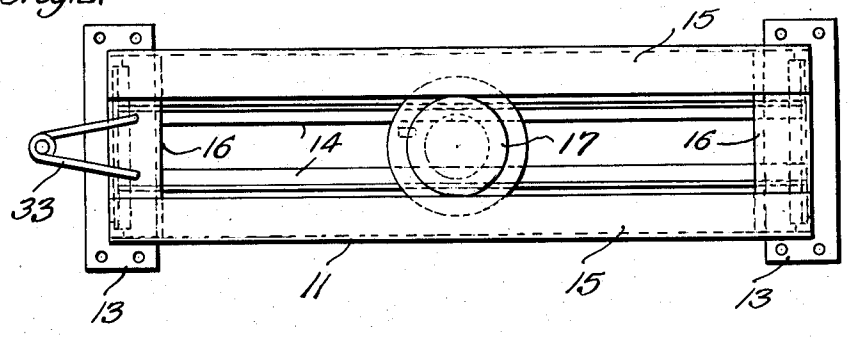


Fig. 3.

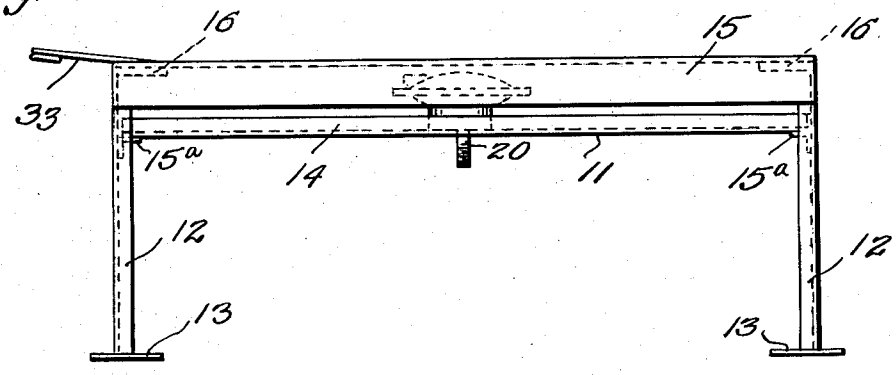


Fig. 10.

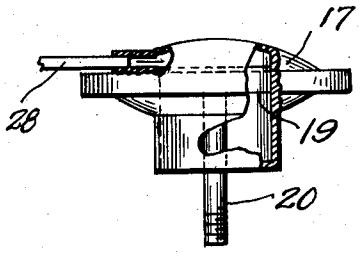
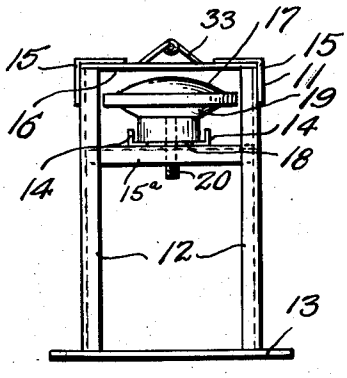


Fig. 4.



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Fig. 5.

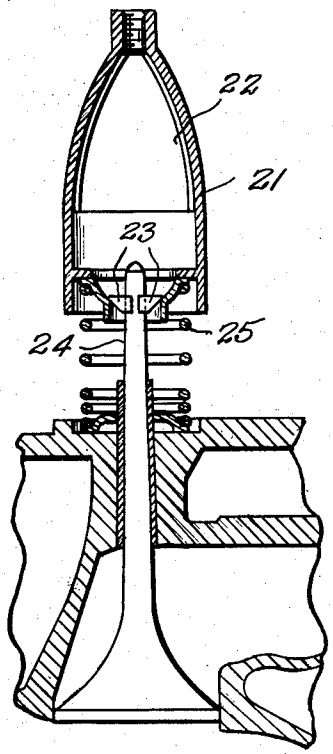


Fig. 7.

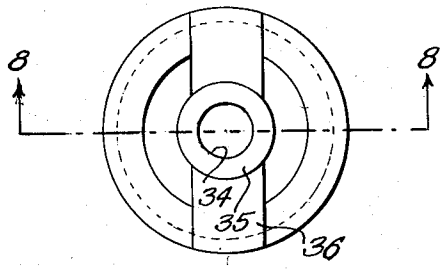


Fig. 8.

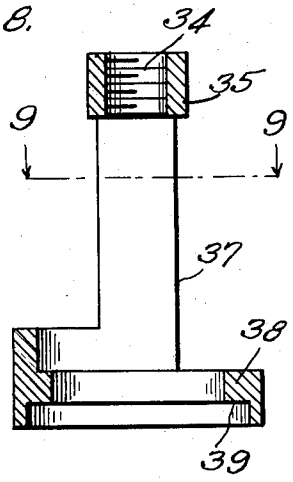


Fig. 6.

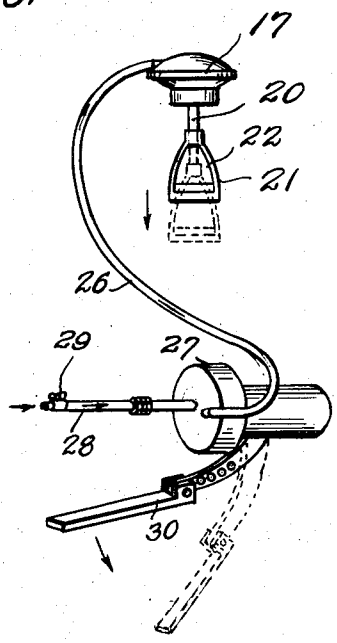
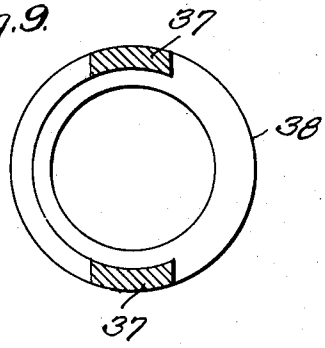


Fig. 9.



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DEVICE FOR COMPRESSING SPRING VALVES

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Application December 1, 1955, Serial No. 550,314

2 Claims. (Cl. 29—213)

This invention relates to a device for compressing spring valves, and has for one of its objects the production of a simple and efficient means for compressing a valve spring to facilitate the removal of the valve locks or keys.

A further object of this invention is the production of a means for compressing a valve spring from a foot control pedal.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawings:

Figure 1 is a perspective view of the invention;

Figure 2 is a top plan view of the air brake chamber supporting frame or stand;

Figure 3 is a side elevational view;

Figure 4 is an end elevational view;

Figure 5 is an enlarged vertical sectional view showing the valve spring retainer engaging a valve spring;

Figure 6 is a perspective view of the foot pedal, air control valve and air brake chamber assembly;

Figure 7 is a top plan view of a modified type of the spring engaging attachment;

Figure 8 is a sectional view taken on line 8—8 of Figure 7;

Figure 9 is a transverse sectional view taken on line 9—9 of Figure 8;

Figure 10 is a side elevational view, partly in section of the air chamber or air brake chamber.

By referring to the drawings in detail, it will be seen that **10** designates a work bench or table upon which an air brake chamber supporting frame or stand **11** is mounted. The frame **11** preferably is rectangular and comprises the supporting legs **12** which rest upon base plates **13**. These base plates **13** in turn rest upon the top face of the work bench or table **10** to provide stability. Angle iron track rails **14** defining a trackway are supported by transverse angle braces **15***a* at the ends of the frame **11**, and these track rails **14** extend longitudinally of the frame **11** in longitudinal spaced relation, as shown in Figures 2 and 4. Longitudinally extending top side angle rails **14** connect the pairs of end legs at the respective ends of the frame **11**, and transverse plates **16** brace the legs at the ends of the frame **11**, as shown.

An air brake chamber **17** of a conventional type having a flat base **18** which base slidably rests upon the track rails **14**, is shown in Figure 4. The chamber **17** is adjustable longitudinally of the frame **11**, so that the chamber **17** may be moved to a selected position to accommodate the work. The chamber **17** is provided with a suitable piston **19** which carries a depending stem **20** to the lower end of which is connected a spring engaging attachment **21** by being threaded thereon, or otherwise connected thereto. The attachment **21** is preferably substantially cone-shaped and is provided with a side opening **22** to facilitate access to the interior of the

attachment to remove valve locks or keys **23** from the valve stem when tension on the valve spring is released. The attachment **21** is of a suitable shape to receive the upper end of the valve **24** and valve spring retainer of the spring **25** of the conventional type, as shown in Figure 5.

As is shown in Figures 1 and 6, an air hose **26** is connected to the air brake chamber **17**, and the opposite end of the air hose is in turn connected to an air control valve **27** of the conventional type, the valve **27** being connected to a compressed air intake pipe **28**. The intake pipe **28** is provided with a control valve **29** to permit the air supply to be cut off when not in use. A foot pedal **30** of the conventional type opens and closes the air control valve **27** to control the passage of air through the air hose **26**. The air control valve **27** is preferably hung by a bracket **31** from a longitudinal rail **32** of the work bench or table **10**, as is shown in Figure 1. A spring guide **33** is carried at one end of the frame **11**, through which guide the air hose **26** extends, leading to the chamber **17**. This spring guide **33** extends outwardly beyond one end of said frame **11**, and is inclined slightly upwardly as is shown in Figures 2, 3 and 4. The spring guide **33** is provided with an air hose receiving eye at its outer end outwardly of said frame and spreading legs connected to the end of said frame to yieldably support and permit the air hose **26** to freely slide therethrough at a point outwardly and above the frame **11**, as the hose **26** passes upwardly from the air control valve **27**, which valve is located under the support, such as the work bench or table **10**. In this way the air hose **26** will at all times be held upwardly and out of entanglement with the track rails **14**, as the air brake chamber **17** slides longitudinally back and forth on the track rails **14**. The air brake chamber **17** may therefore be moved longitudinally on the track rails **14** without fear of breaking the air hose **26** or pinching the air hose between the bottom of the air brake chamber **17** and the track rails **14**.

In carrying out the invention, the work such as the cylinder head of any overhead valved engine is placed upon the bench or table **10**, and the chamber **17** is positioned upon the rails **14** so that the attachment **21** overhangs the spring and valve where the spring is to be removed. The attachment is then moved into an overhanging position with respect to the valve and spring, as shown in Figure 5. The pedal **30** is operated to open the control valve **27** and thereby cause compressed air to pass through the air hose **26** to operate the stem **20** of the air brake chamber **17** through the piston **19**. The attachment **21** will then be forced downwardly thereby compressing the spring **25**, and when tension is relieved from the spring **25**, the operator may reach through the opening **22** and easily remove the locks or keys **23**. The valve may then be removed for grinding, or may be replaced if desired, or other repairs or adjustments may be made which may be found necessary. By noting the pressure required to compress the spring, the operator may check the tension of the spring or determine the extent of depression.

In Figures 7 and 8, there is shown a modified form of attachment which may replace the attachment **21** if desired. In this attachment, a stem similar to the stem **20** is threaded into the threaded aperture **34** of the collar **35** which is carried by the bridge **36**. The bridge **36** carries a pair of depending arms such as the arm **37** shown in Figure 8, and the lower ends of the arms carry a horizontal ring **38** which is provided with a work engaging shoulder **39** to facilitate spring compression. The area between the arms is open to facilitate access to the locks or keys of a valve stem after spring compression.

It should be understood that certain detail changes in the construction and arrangement of parts may be employed without departing from the spirit of the invention, so long as such changes fall within the scope of the appended claims.

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

1. An apparatus of the class described comprising a support, a frame mounted upon said support, longitudinal track rails carried by said frame, an air brake chamber mounted for longitudinal sliding movement upon said track rails, a spring engaging attachment actuated from said air brake chamber, an air control valve carried by said support below said frame, a spring guide carried at one end of said frame and projecting beyond the end of said frame and being inclined slightly upwardly, said spring guide having an air hose receiving eye, and an air hose extending from said air control valve below said frame and extending through said air hose receiving eye and connected to said air brake chamber carried by said frame, said spring guide holding said hose above said air brake chamber and out of entanglement with said air brake chamber and track rails to avoid pinching of said hose between the bottom of said air brake chamber and said track rails as said air chamber is moved longitudinally of said track rails.

2. An apparatus as defined in claim 1, wherein said spring guide comprises spreading legs connected to said frame to yieldably support said hose receiving eye outwardly of and away from the end of said frame.

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