

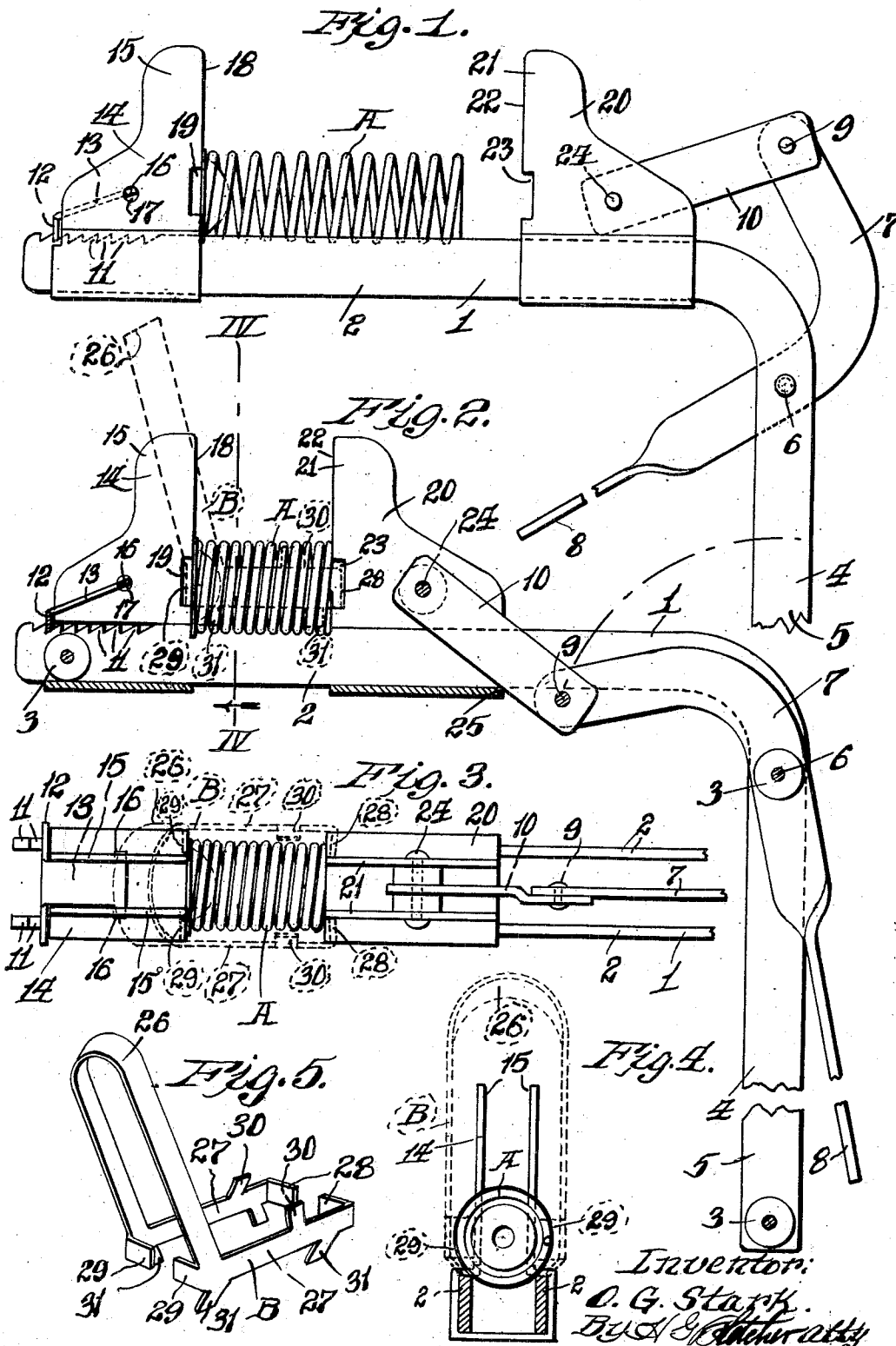
April 5, 1932.

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1,852,863

SPRING COMPRESSING TOOL

Filed Feb. 9, 1928



## UNITED STATES PATENT OFFICE

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## SPRING COMPRESSING TOOL

Application filed February 9, 1928. Serial No. 252,950.

This invention relates to improvements in a spring compressing tool and has for its primary object the purpose of providing the tool with improved means for automatically locking the jaws in compressing position.

Another object of the invention is in providing one of the jaws of the tool with improved adjusting means.

A further object of the invention is to provide a spring compressing tool which is simple in its construction, efficient in its use and can be quickly operated.

A still further object of the invention is in providing an improved spring holding cage which is used in conjunction with the spring compressing tool.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had in the accompanying drawings, exemplifying the invention, and in which:—

Figure 1 is a side elevation of this improved spring compressing tool having a portion of the operating lever and the handle broken away.

Figure 2 is a side elevation similar to Fig. 1 but showing the tool in a compressing position.

Figure 3 is a plan view of Fig. 2 having a portion at one end of the tool broken away.

Figure 4 is a transverse vertical section taken approximately on the line IV—IV of Fig. 2.

Figure 5 is a perspective view of the spring holding cage.

Referring by numerals to the accompanying drawings 1 designates a frame or support which is comprised of a pair of spaced paralleling members 2 which are made from a metallic strap material, said members being held in their spaced positions by the spacer members 3. Each of the members 2 is provided with a right angular bent portion 4, said portion forming a handle 5, and pivoted at 6 between the portions 4 is an approximate L shaped lever 7, said lever being mounted between the portions 4 and having a hand engaging portion 8 formed at one end, the opposite end of said lever being pivoted at 9 to a link 10.

Formed on the upper edge of each of the members 2 adjacent one end is a series of teeth 11 and cooperable with said teeth is the transversely extending portion 12 of a pawl 13, said pawl being borne by a jaw 14 which is mounted on the members 2. The jaw 14 is made of a single piece of sheet metal which is bended in a shape so as to underengage the members 2 at their under sides and to extend upwardly and over said members so as to provide a pair of spaced upwardly extending portions 15. The pawl 13 is provided with a pintle 16 on each side, each pintle being mounted in respective openings 17 formed on each extending portion 15. Formed in the vertical edge 18 of each portion 15 is a recess 19, said recesses being in horizontal alinement.

Slidable upon the members 2 is a jaw 20, said jaw having a pair of upwardly extending portions 21 and formed in the vertical face or edge 22 of each portion 20 is a recess 23, said recesses 23 being in horizontal alinement and pivoted at 24 to said jaw is one end of the link 10 which is pivoted at 9 to the lever 7.

In the operation of this improved spring compressing tool which is used for compressing springs for mounting them in their holding cages or retainers so that they can be prepared for mounting in operative positions in explosive engines and the like, the jaw 20 is moved to the position shown in Fig. 1 and the spring A to be compressed is mounted on the upper edges of the members 2, said members by reason of being spaced apart providing a seat on which the spring will rest as shown in Fig. 4. The hand engaging portion 8 of the lever 7 is engaged and swung towards the handle 4 to the position shown in Fig. 2, this moving of the lever 7 forcing the link 10 and the jaw 20 forward into engagement with one end of the spring A and the opposite end of the spring will be forced against the jaw 14 and the spring is compressed between the jaws as shown in Fig. 2. In the travelling of the link 10, when the pivot 9 of the link and lever 7 is moved beyond a center line between the pivots 6 and 24, said link and lever

will provide a lock to the jaw 20 in which the compressed energy in the spring cannot force the jaw 20 rearward. In this position of locking the link 10 is held in abutting position with the portion 25 of the jaw 20.

said movable jaw, said lever and said link forming a lock for said movable jaw when said link is moved against the abutting portion of said movable jaw.

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After the compressing of the spring as shown in Fig. 2, the arched portion 26 of the spring retaining cage B is engaged astride the jaw 14, and the horizontal portions 27 of said cage B are engaged over opposing sides of the compressed spring as shown in Figs. 2 and 3, said side portions 27 being moved apart by reason of the cage B being made of a resilient material. The transversely projecting portions 28 and 29 of the cage are then each introduced into respective recesses 23 and 19 and the inwardly inclining portions 30 and 31 which project upwardly and downwardly respectively will be moved towards the spring in a confining position thereto. The inward positioning of the portions 28 and 29 in respective recesses 23 and 19 places them in alinement with the ends of the spring as shown in Fig. 3 and while they are held in this position by the operator bringing inward pressure to bear against the side portions 27 of the cage B, the lever 7 of the tool is manipulated to withdraw the jaw 20 from engagement with the spring A, thus releasing the spring, and the pressure thereof is received by the portions 28 and 29 of the cage B and the cage is then removed from the tool bearing the spring A therewith. The spring while being held by the cage can then be readily mounted in its seating position adjacent to the valve or part with which it is to cooperate. After the spring is mounted and held in its operating position, the cage is then manipulated by spreading the portions 27 thereof so that the cage can be dismounted from the seated spring.

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What I claim is:

1. A spring compressing tool having an adjustably held jaw and a movable jaw, a support for said jaws having a portion formed at right angles thereto forming a handle, an actuating lever pivoted to said support, and a link connected to said lever and said movable jaw, said movable jaw having a portion against which said link abuts for holding said jaw in locked position.

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2. A spring compressing tool having an adjustably held jaw and a movable jaw, a support for said jaws, an actuating lever pivoted to said support, a link connected to said lever and said movable jaw, said movable jaw having a portion against which said link abuts for holding said link in locked position.

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3. A spring compressing tool having an adjustably held jaw and a movable jaw having an abutting portion, a support for said jaws, an actuating lever pivoted to said support, and a link connected to said lever and

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