May 12, 1959 J. E. BROWN 2,885,769

HOOD SPRING TOOL

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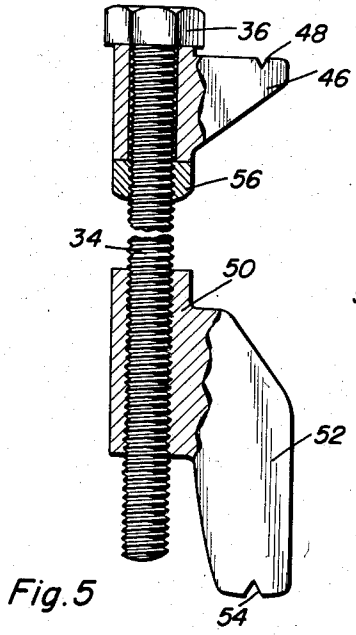


Fig. 5

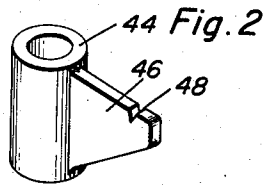


Fig. 2

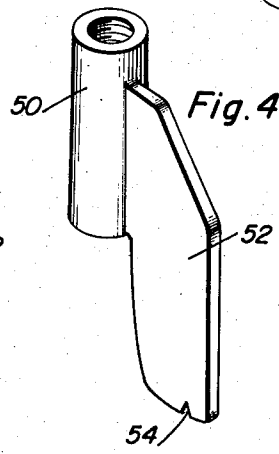


Fig. 4

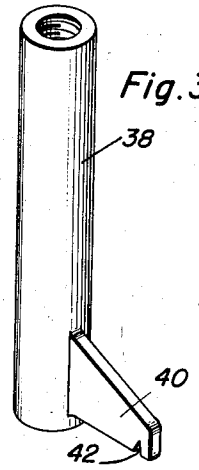


Fig. 3

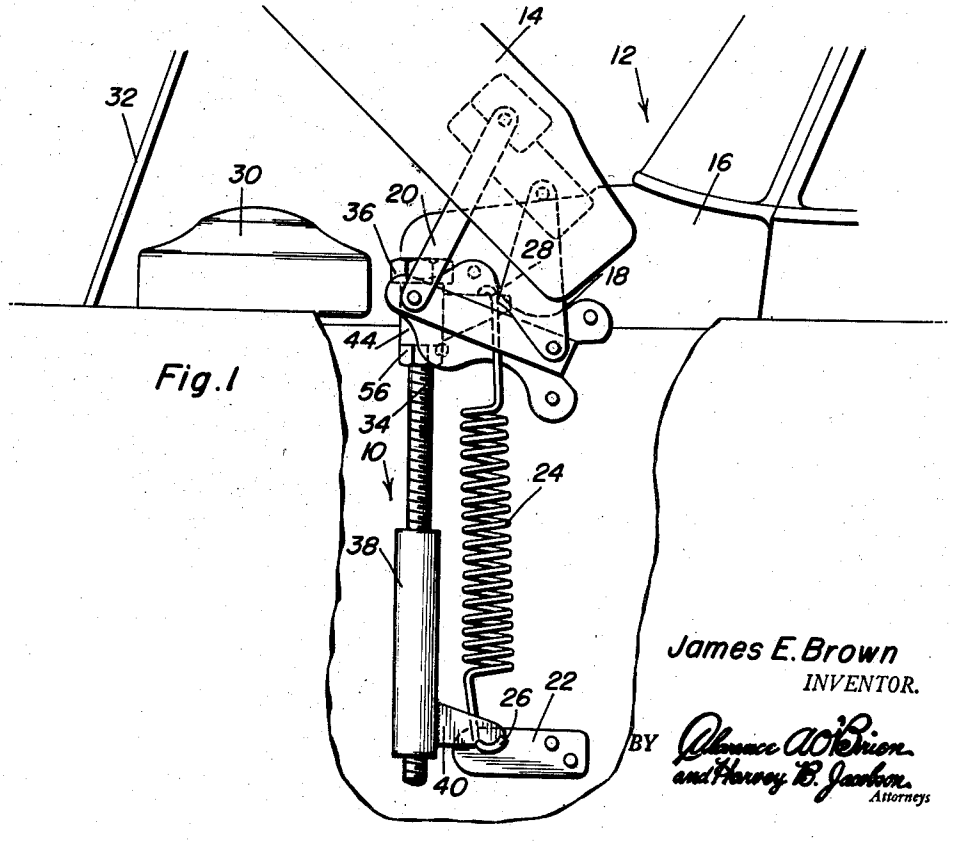


Fig. 1

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HOOD SPRING TOOL

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1 Claim. (Cl. 29—227)

This invention relates to hood spring tools and more specifically comprises improvement in a tool for removing the tensioned coil spring customarily employed for holding alligator type hoods in position by counter-balancing the weight of such hoods wherein the spring may be expanded by the tool of the present invention for removal in a most efficient manner without danger to the mechanic.

At the present time, the so-called alligator type of hoods are commonly used on automobiles and these hoods are formed from a single piece of material which forms the complete hood structure. These hoods are hinged at their rear portions to the body and are swingable upwardly from the front portion to permit access to the motor and other accessories normally found under the hood. The hoods are sufficiently weighty and bulky to present handling difficulties and if left partially open may form a hazard due to the accidental closing of the hood while mechanics perform various operations on the motor. The weight of the hood is counter-balanced by relatively strong springs and it is normally very difficult to mount and dismount the springs with the use of lever type tools or the like. When using the known type tools, there is danger of injury to the mechanic as a result of sudden contraction of the spring or due to slippage of the lever devices. Accordingly, it is the primary object of the present invention to provide a novel hood spring tool for expanding these springs in a most efficient and safe manner wherein the spring may be easily removed from or placed in position between the hood and body thereby eliminating much of the work normally expended in removing these springs and also eliminating the danger to the mechanics from such springs if they accidentally become disengaged from the tools.

Another object of the present invention is to provide a hood spring tool including expanding means contactable with remote ends of the spring thereby permitting the spring to be expanded and easily removed and replaced.

A further object of the present invention is to provide a hood spring tool that is simple in construction, efficient in operation, safe and easy to use, well adapted for its intended purposes and relatively inexpensive to manufacture.

These, together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the construction of the hood and hood mounting means together with the hood spring tool of the present invention in position for expanding the spring for removal thereof; and

Figure 2 is a perspective view showing one of the elements slidably mounted on the elongated threaded member of the hood spring tool of the present invention;

Figure 3 is a perspective view showing the elongated sleeve screw threadably attached to the elongated threaded member;

Figure 4 is a perspective view showing a modified form of spring engaging member for use in conjunction with the hood spring tool of the present invention; and

Figure 5 is a vertical, longitudinal sectional view of the hood spring tool of the present invention showing the details of construction thereof.

Referring now specifically to the drawings, it will be seen that the numeral **10** generally designates the hood spring tool of the present invention for use in conjunction with an automobile generally indicated by the numeral **12** having an alligator type hood **14** pivotally secured to the vehicle body **12** adjacent the cowl **16** by links **18** and **20** respectively. Secured to a bracket **22** on the body of the vehicle **12** is an elongated tension spring **24** having a hook end **26** on the lower end thereof and a hood end **28** on the upper end thereof for engagement with the linkage **20** thereby counter-balancing the weight of the hood **14** thereby retaining the hood **14** in any adjusted position thereby permitting persons to have access to various parts of the motor as indicated by the numeral **30** without fear of the hood **14** dropping on them. In the use of the hood spring tool **10** of the present invention, it is necessary to utilize a prop or brace **32** to prop the forward end of the hood **14** in an open position thereby preventing accidental dropping of the hood **14** downwardly onto persons removing the spring **24**. The spring **24** is normally a tension coil spring and is a relatively strong spring thereby making it extremely dangerous to remove the spring **24** by use of the usual prying tools inasmuch as the spring **24** will tend to slip off of these tools and fly in any direction at a very high velocity which will cause bodily injury upon contact therewith.

The hood spring tool of the present invention generally includes an elongated externally threaded member **34** having a polygonal head **36** integrally formed at one end thereof. Threadably connected with the outer end of the elongated externally threaded member **34** is an elongated internally threaded tubular sleeve **38** having a lateral projecting arm **40** adjacent the outer end thereof and the arm **40** is provided with an inwardly extending V-shaped notch **42** on the outer edge thereof for engaging the hook **26** of the spring **24**.

Slidably received on the upper end of the elongated threaded member **34** and contacting the under surface of the polygonal head **36** is a tubular sleeve **44** in slidable engagement with the externally threaded member **34**. The tubular sleeve **44** is provided with a lateral projection in the nature of an arm **46** having an inwardly extending V-shaped notch **48** in the upper surface thereof. It will be noted that the V-shaped notches **48** and **42** are on the remote edges of the respective plates **40** and **46** for engaging under the hood ends **26** and **28** of the coil spring **24**. It is noted in Figures 1–3 that the plate **40** on the outer tubular sleeve **38** is formed substantially flush with the lower end of the tubular sleeve **38** and this particular construction will fit certain type of vehicles normally utilizing the spring **24** for counter-balancing the hood **14**.

However, in some types of automobiles, it is necessary to provide a different shape lateral arm for engaging the spring **24** when the lower hook **26** is inaccessible to the form of the arm **40** as shown in Figures 1–3. In order to provide a hood spring tool for this type of automobile, a tubular sleeve generally indicated by the numeral **50** and including a laterally and longitudinally extending plate **52** is provided and the plate **52** is provided with an inwardly extending V-shaped notch **54** in its outer end. It will be noted that the longitudinally extending portion of the plate **52** is substantially parallel to the longitudinal centerline of the externally threaded member **34** thereby positioning the spring engaging V-shaped notch **54** below the outer end of the externally threaded member **34** there-

by permitting springs having inaccessible lower ends to be removed by utilization of the spring tool of the present invention.

In each case, an internally threaded nut **56** is provided on the externally threaded member **34** in rotatable bearing engagement with the lower or inner edge of the short sleeve **44** thereby retaining the short sleeve **44** between the headed portion **36** and the nut **56** on the externally threaded member **34** and the nut **56** will permit adjustment between members **34** and sleeve **44**.

When the hood spring tool **10** of the present invention is utilized, the notches in the laterally extending plate are engaged with the hook ends **26** and **28** of the spring **24** and by manipulation of the headed portion **36** with a suitable wrench or tool, the relative distance between the V-shaped notches **42** and **48** may be extended inasmuch as nut **56** will rotate with member **34** thereby extending the spring **24** and permitting the hood ends **26** and **28** thereof to be removed from their respective seats. Whether the spring tool of the present invention is utilized with the tubular elongated sleeve **38** as shown in Figures 1–3 or the relatively shorter internally threaded sleeve **50**, the operation of the device remains the same and all of the objects of the present invention are carried out by each type of tubular sleeve. It will be understood that once the spring **24** has been tensioned by manipulation of the headed end **36** of the externally threaded member **34**, the spring **24** will be securely retained thereon due to the relationship of the notches **42** and **48**. Obviously, the device of the present invention may be constructed of any suitable material and will perform the desired function in a most expeditious and efficient manner.

From the foregoing, the construction and operation of the device will be readily understood and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A tool for removing a tensioned coil spring extending between a bracket on the body of a vehicle and a supporting linkage for a hood with the bracket, linkage and spring located in a confined area, said tool comprising an elongated rod externally threaded throughout its length and having an enlarged polygonal head on one end thereof with the length of the rod being substantially equal to the distance between the points of attachment to the bracket and linkage, a first sleeve slidably and rotatably disposed on the rod with one end abutting the head, a threaded nut on said rod for abutting engagement with the other end of the first sleeve for limiting the sliding movement of the first sleeve, a longitudinally extending flat plate projecting radially from the first sleeve, said plate including one end edge adjacent the head of the rod disposed perpendicularly to the longitudinal axis of the rod, the other end edge of the plate being inclined in relation to the longitudinal axis of the rod thereby forming a pointed plate, said one end edge of the plate including an inwardly extending notch for engagement with one hooked end of a spring, a second sleeve, said second sleeve being internally threaded for free threaded engagement with the rod, a longitudinally extending flat plate projecting radially from the second sleeve, said plate including one end edge remote from the head of the rod disposed in perpendicular relation to the longitudinal axis of the rod, said one end edge having an inwardly extending notch therein in opposition to the notch in the plate on the first sleeve for engagement with the hook ends of a spring for stretching the spring upon rotation of the head and rod in one direction for removing the spring from engagement with the bracket and linkage, said sleeves and nut being disposed within the confines of the cross-sectional area of the head with the thickness of the plates being less than the diameter of the rod.

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