April 15, 1930. B. D. VICKREY 1,755,088

SPRING JACK

Filed Jan. 25, 1929

Fig. 2.

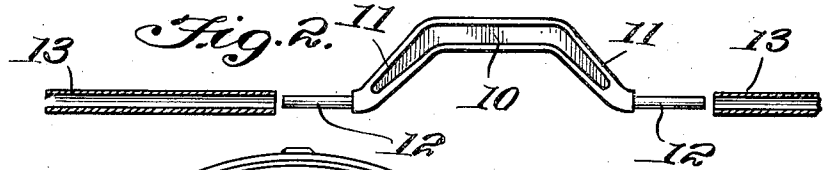


Fig. 1.

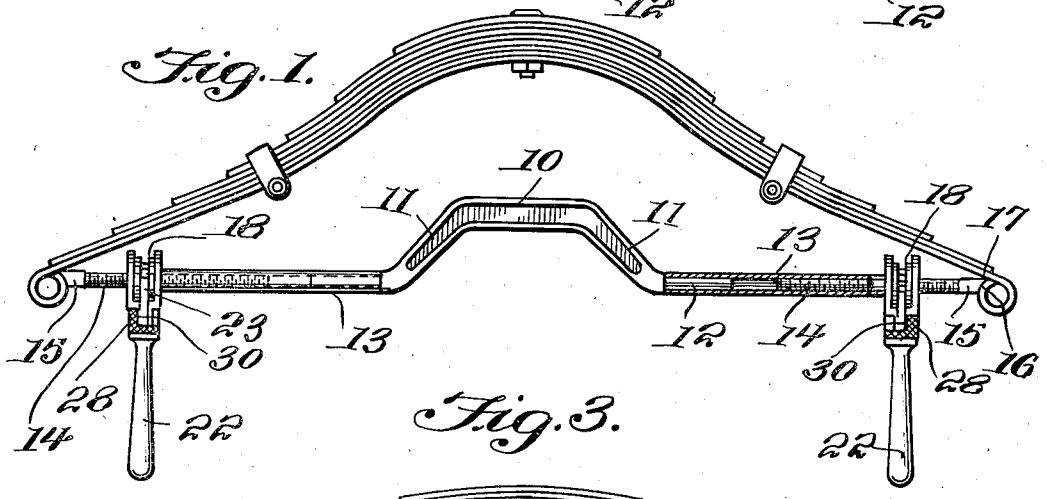


Fig. 3.

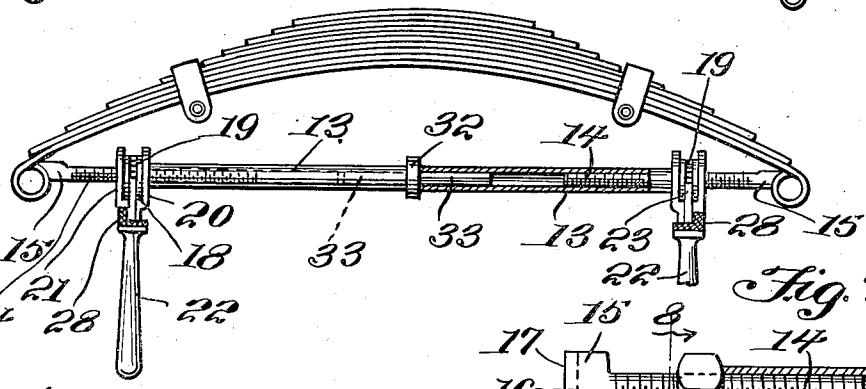


Fig. 7.

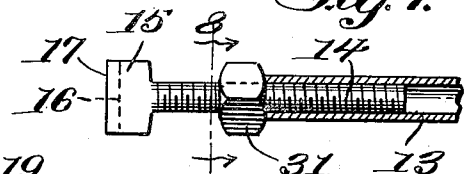


Fig. 4.

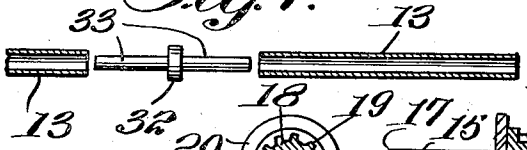


Fig. 5.

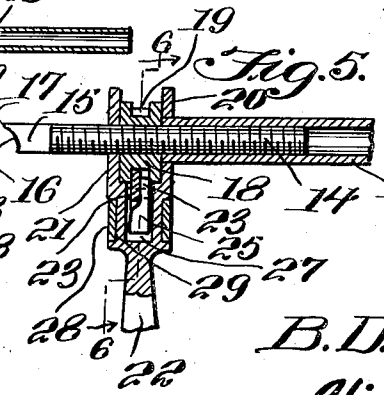


Fig. 8.

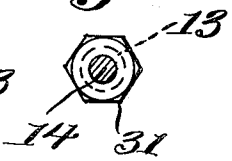


Fig. 6.



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Patented Apr. 15, 1930 1,755,088

UNITED STATES PATENT OFFICE

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SPRING JACK

Application filed January 25, 1929. Serial No. 335,129.

This invention relates to new and useful improvements in jack construction primarily designed for application upon vehicle leaf springs to spread the sleeve ends thereof and to align same with ears, perches etc., to facilitate accommodation of shackle bolts and the like.

Another object of the invention comprises extensible elements for the jack shaped to engage the sleeve ends of the springs.

Another object of the invention resides in the arrangement and employment of adjusting elements upon the extensible elements to extend same appreciable distances beyond the jack structure per se whereby the sleeves may be effectively spread apart to easily accommodate the shackle bolts.

A further object of the invention consists of interchangeably arranged bodies for the jack whereby the tool may be effectively employed for use upon the front and rear transverse springs of motor vehicles.

More specifically stated the adjusting elements are provided with ratchet handles operable in either direction to extend and retract the extensible elements.

With the above and other objects in view, the invention further consists of the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawing and pointed out in the appended claims.

In the drawing:—

Figure 1 is a side elevation of a rear transverse spring employed in both the models "T" and "A" of the Ford motor car.

Figure 2 is an elevation of the frame of the jack construction shaped to clear the differential housing, with extension tubes in section.

Figure 3 is a view similar to Figure 1 illustrating the application of a modified form of the invention upon the front spring of the aforementioned types of vehicles and which is common to all other types.

Figure 4 is a view similar to Figure 2 illustrating a straight form of jack frame.

Figure 5 is an enlarged sectional view taken through the adjacent portions of the extension tubes, extensible element, and ratchet handle with the adjusting element.

Figure 6 is a sectional view taken on line 6—6 of Figure 5.

Figure 7 is a fragmentary longitudinal sectional view taken through the adjacent portions of an extensible element and extension tube illustrating the application of the common form of nut for the adjusting means.

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

Referring to the drawing in detail wherein like characters of reference denote corresponding parts, the reference character 10 indicates generally that which may be termed a frame member pursuant to its specific employment. It has been found that the frame must flex to an appreciable extent while in use and for this reason said frame is preferably of cross section I-beam shape. Arms 11, carried by and obliquely disposed in opposite directions from the ends of the frame, terminate to provide reduced extensions 12 disposed in alignment with each other and in parallelism with the major portion of the frame proper. Tubular extensions 13 are adapted to receive the reduced extensions 12 within the adjacent ends of their bores in the manner shown in Figures 1 and 3 of the drawing.

Extensible elements in the nature of exteriorly threaded shafts 14 threadedly engaged within the bores of the tubular extensions 13 and extended from the outermost ends thereof terminate to provide enlarged laterally disposed heads 15 upon the outermost extremities thereof. The heads 15 provide seats 16 of arcuate-shape to engage the adjacent portions of the sleeve like extremities of the springs and which are in communication with projections 17 adapted for interposition between the intersections of the extremities of the main leaf of a spring and the adjacent side thereof whereby displacement of the extensible elements or threaded shafts 14 will be prevented. In other words, the projections 17 will bitingly engage the main leaves.

Adjusting elements 18, threadedly engaged for traveling movement upon the shafts 14 and abutting the adjacent ends of the tubular extensions 13, are each provided with countersunk spur gear teeth 19, the purpose of

which will be presently apparent. Disk members 20 and 21 respectively, having large and small openings therein to accommodate the tubular extensions 13 and shaft 14, enclose the opposite sides of the adjusting elements 18 in the manner shown in Figure 5 of the drawing. A handle member 22 carries the disks.

Companion dogs or pawls 23, having a common pivot 24 between the disks, are adapted for selective engagement at their ends with the teeth 19 of the adjusting elements 18 in a manner presently obvious. Extensions 25 carried by each of the dogs 23 are adapted for connection with the adjacent ends of a companion spring 26 to normally spread same apart and relatively contract the working ends of the dog.

The springs and extensions 25 for the dogs are arranged within pockets 27 between the disks and below the adjusting elements therebetween. An annulus or ferrule 28, rotatably mounted within a groove 29 in the ratchet handle construction, is provided with a cut-out portion 30 adapted to permit selective outward shifting movement of either of the extensions 25 to dispose the working end of the prticular dog into engagement with the teeth 19 of the adjacent adjusting element.

However, if desired, the ordinary type of nut, such as indicated at 31, in Figures 7 and 8 of the drawings, may be employed in place of the adjusting elements 18.

In Figures 3 and 4 of the drawing, I have illustrated a modification of my invention primarily designed for application upon the front transverse springs of the old and new types of Ford cars, the spring construction being conventional to that employed in many other types of motor vehicles. The modification consists of a frame embodying a disk 32 having reduced extensions 33 laterally projecting in opposite directions from diametrically opposite sides thereof and axially aligned for reception within the adjacent ends of the tubular extensions.

To equip an up to date shop with the present type of spring expanding jack to service all types of vehicles having the different shapes of springs, the equipage of the shop will consist of one frame member 10, one frame member 32, two of the tubular extensions 13, two of the extensible elements or shafts 14 and it will remain optional with the particular mechanic or shop, according to price range whether the ratchet construction is to be included or the ordinary type of nut for the adjusting means.

The invention is susceptible of various changes in its form, proportions and minor details of construction, and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having thus described the invention, what is claimed is:—

1. A jack construction for leaf springs comprising a frame, reduced extensions carried thereby, tubular extensions receiving the reduced extensions, extensible elements adjustably mounted within the outer ends of the tubular extensions, and adjusting elements mounted upon the extensible elements and abutting the adjacent ends of the tubular extensions to spread the sleeve extremities of the leaf springs apart to facilitate registration and insertion of shackle bolts therefor.

2. A jack construction for leaf springs comprising a frame, reduced extensions carried thereby, tubular extensions receiving the reduced extensions, extensible elements adjustably mounted within the outer ends of the tubular extensions, adjusting elements mounted upon the extensible elements and abutting the adjacent ends of the tubular extensions to spread the sleeve extremities of the leaf springs apart to facilitate registration and insertion of shackle bolts therefor, and the outermost extremities of said extensible elements being shaped to provide seats and projections engageable with the adjacent portions of the sleeve extremities of the springs and the sides of the spring proper.

In testimony whereof I affix my signature.

BENJAMIN D. VICKREY.