June 2, 1931. R. D. BARNHART 1,808,625

SPRING SPREADER

Filed Oct. 23, 1929

Fig. 1.

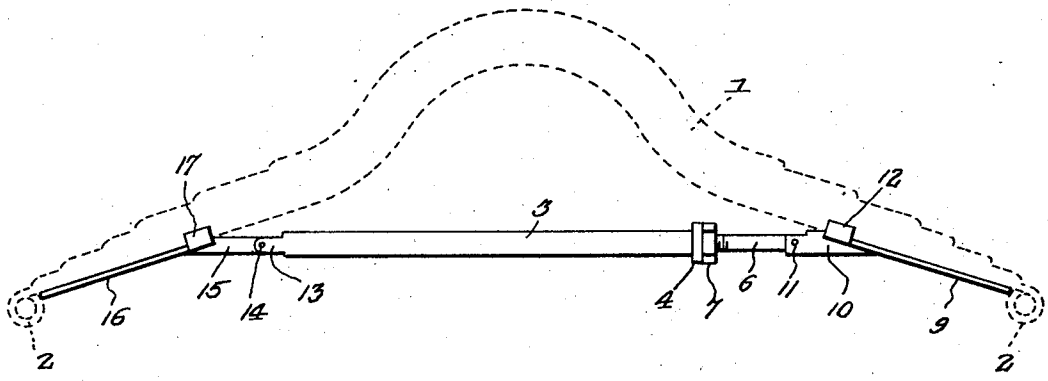
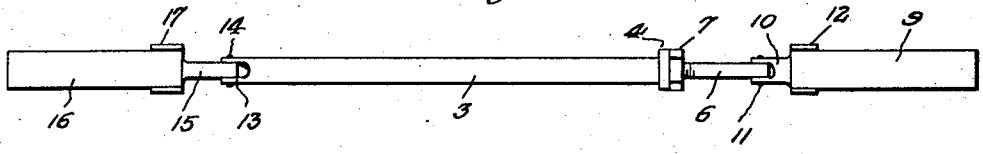


Fig. 2.



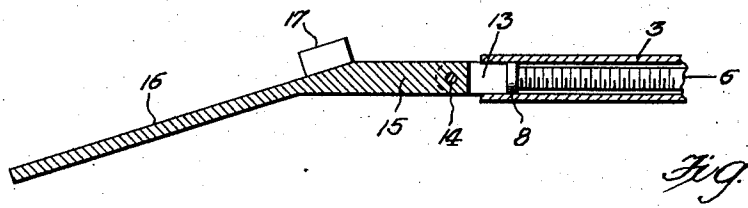
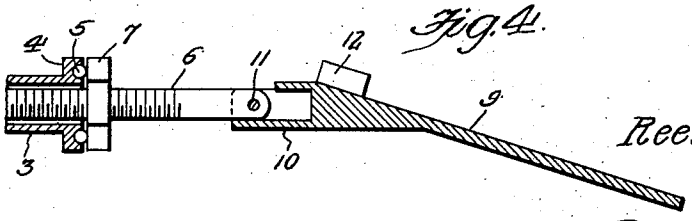


Fig. 3

Fig. 4.



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UNITED STATES PATENT OFFICE

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SPRING SPREADER

Application filed October 23, 1929. Serial No. 401,736.

This invention relates to spring spreaders and more particularly to devices of this character which are adapted for use on vehicle leaf springs of the transverse type with which the Ford automobile is equipped but it is to be understood that a tool constructed in accordance with this invention may be utilized for any purpose for which it is found adapted.

An important object of the invention is to provide, in a manner as hereinafter set forth, a spring spreader of the aforementioned character which may be expeditiously applied in position on a spring for the purpose of spreading the ends thereof in a manner to bring the eyes provided on said ends into alignment with the bores in the spring perches of the vehicle to permit the insertion of the shackle bolts or to spread the ends of the spring when the same is mounted on the vehicle in a manner to relieve the tension of the eyes against the shackles bolts when it is desired to remove the latter.

Another important object of the invention is to provide, in a manner as hereinafter set forth, a spring spreader of the aforementioned character which will remain mounted in position on the spring after the eyes thereof have been detached from the perches while the said spring is left in position on the vehicle or is detached entirely therefrom.

Other objects of the invention are to provide a spring spreader of the character set forth which will be simple in construction, strong, durable, efficient in its use and which may be manufactured at low cost.

Other objects and advantages of the invention are to provide a spring spreader of the character set forth having screw actuated spring engaging elements which engage said spring in such a manner as to prevent the accidental displacement of the tool from the spring when the same is in use with consequent injury to the operator.

A still further object of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a front elevation of a spring spreader constructed in accordance with this invention showing the same in position on a spring, the latter being shown in dotted lines.

Figure 2 is a top plan view thereof.

Figure 3 is a fragmentary longitudinal sectional view of one end portion of the tool.

Figure 4 is a fragmental longitudinal sectional view of the opposite end portion of the tool.

Referring to the drawing in detail, the reference character 1 designates a leaf spring of the type provided on Ford automobiles having, at its opposite end, the eyes 2 through which the shackle bolts of the vehicle are disposed for connecting the opposite ends of the spring to the spring perches.

The device constituting this invention comprises an elongated tubular sleeve 3 provided, at one end with an annular flange 4 in the forward face of which are mounted a circular series of bearing balls 5 which project from said forward face. A screw shaft 6 extends longitudinally through the sleeeve 3 and projects outwardly therefrom at the flanged ends thereof, and has threaded thereon a nut 7 adapted for engagement with the ball bearing 5. The end of the screw shaft which is disposed within the sleeve 3 is provided with a guide collar 8 for sliding engagement with the inner walls of said sleeve when the screw shaft is moved longitudinally therein.

A downwardly inclined spring engaging foot 9 is pivotally connected to the free end of the screw shaft 6 through the medium of the horizontally disposed socketed shank 10 which extends over the end portion of said screw shaft and is coupled thereto through the medium of the pivot pin 11. As seen most clearly in Figure 4 of the drawings, the end portion of the upper wall of the socketed shank 10 is removed to permit the foot 9 to pivot on the screw shaft. On its opposite side and adjacent its upper end, the

foot 9 is provided with the vertically disposed opposed lugs or flanges 12 adapted to receive the spring 1 therebetween.

The opposite ends of the sleeve 3 is provided with longitudinally extending diametrically opposed ears 13 and pivotally mounted therebetween through the medium of the pivot pin 14 is the shank 15 of another spring engaging foot 16, provided with the spring engaging ears 17 and similar in construction to the foot 9.

In the use of the invention, the feet 9 and 16 are positioned beneath the lower or main leaf of the spring 1 adjacent the opposite ends thereof and in such a manner that the free ends of said foot portion will engage the eyes 2 in the manner shown in Figure 1 of the drawings. The nut 7 is then screwed on the shaft 6 in a direction to engage the ball bearing 5 and thus force said shaft outwardly from the sleeve. Obviously, the foot portions 9 and 16 will thus force the opposite ends of the spring 1 outwardly and upwardly until the same are properly aligned with the bores in the perches of the vehicle, after which the shackle bolts may be inserted. As the ends of the spring move apart the foot portions 9 and 16 are permitted to move therewith through the medium of their pivotal connections with the screw shaft 6 and the sleeve 3. The ears or lugs 12 engage the opposite sides of the spring 1 and prevent lateral movement of the tools thereon. It will also be understood that the tool may be applied to the vehicle spring when the same is entirely detached from said vehicle, and by proper calculation, be spread to the desired points or nearly so, after which the spring may be expeditiously mounted in place.

It is believed that the many advantages of a spring spreader constructed in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction may be had which will fall within the scope of the invention as claimed.

What is claimed is:—

1. A spring spreader of the character described comprising a tubular sleeve, a screw shaft extending longitudinally into said sleeve and projecting from one end thereof, means on the shaft engageable with the sleeve for shifting said shaft longitudinally therein and a pair of spring engaging feet on the free end of the shaft and the opposite end of the sleeeve for engaging and spreading the opposite end portions of said spring, said feet disposed at an obtuse angle with respect to the shaft and sleeve in a manner to parallel the opposite end portions of the spring.

2. A spring spreader of the character described comprising a tubular sleeve, a screw shaft extending longitudinally into said sleeve and projecting from one end thereof, means on the shaft engageable with the sleeve for shifting said shaft longitudinally therein and a pair of downwardly inclined spring engaging feet pivotally connected to the free end of the shaft and the opposite end of the sleeve for spreading the end portions of the spring when the screw shaft is moved outwardly from the sleeve.

3. A spring spreader of the class described comprising a tubular sleeve, a flange on one end of the sleeve, bearing balls mounted in the flange, a screw shaft extending longitudinally into said sleeve and projecting from one end thereof, a nut threaded on the screw shaft engageable with the bearing balls for shifting said shaft longitudinally in the sleeve and a pair of downwardly inclined spring engaging feet pivotally connected to the free ends of the shaft and the opposite end of the sleeve for spreading the opposite ends of said spring when the shaft is moved outwardly from the sleeve.

4. A spring spreader of the character described comprising a tubular sleeve, a flange on one end of the sleeve, bearing balls mounted in the flange, a screw shaft extending longitudinally into said sleeve and projecting from one end thereof, a nut on the shaft engageable with the bearing balls for shifting said shaft longitudinally in the sleeve, a pair of downwardly inclined spring engaging feet pivotally connected to the free ends of the shaft and the opposite end of the sleeve and a pair of upwardly extending ears on the marginal sides of each foot portion for engagement with the side of the spring for preventing lateral movement of the device thereon.

5. A spring spreader of the character described comprising a tubular sleeve, a pair of longitudinally extending ears on one end of the sleeve, an annular flange on the oppoite end of the sleeve, bearing balls mounted in the flange, a screw shaft extending longitudinally into said sleeve and projecting from one end thereof, said screw shaft spaced from the inner walls of the sleeve, a guide flange on one end of the screw shaft within the sleeve and for sliding engagement with the inner walls thereof, a nut on the opposite end of the shaft engageable with the bearing balls for shifting said shaft longitudinally in the sleeve, a socketed shank pivotally connected to the outer end of the shaft, a downwardly inclined spring engaging foot formed integrally with the outer end of the socketed shank, oppositely disposed upwardly extending ears on the marginal portion of the spring engaging foot for engagement with the side of the spring for preventing lateral movement of the foot thereon, the free end of said foot adapted

for engagement with the eye of the spring at its respective end, a shank pivotally mounted between the ears on the opposite end of the sleeve, a downwardly inclined spring engaging foot formed integrally on the shank, the free ends of said foot adapted for engagement with the eye of the spring on its respective end and a pair of opposed upwardly extending ears on the marginal side of the foot for engagement with the opposite side of the spring for preventing lateral movement of said foot thereon, both of the foot portions being adapted for engagement with the opposite end portions of the spring in a manner to spread the same when the screw shaft is moved outwardly in the sleeve.

In testimony whereof I affix my signature.

REESE D. BARNHART.