To all whom it may concern:

Be it known that I, ARCHIBALD F. WEISE, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Leaf-Spring Spreaders, of which the following is a full, clear, and exact specification.

This invention relates to improvements in spreaders for leaf springs for the introduction between several leaves thereof of a lubricant, preventing the rusting together, and for insuring their freedom of movement upon each other.

The prime object of my invention, broadly stated, is to provide a spreader for separating leaf spring structures, which is adjustable with reference to springs differing in width, and also for separating said springs a predetermined distance apart, and thereby preventing their being fractured or unduly strained, for the introduction of a lubricant between them.

In other words, my invention has for its object a spreader that may not only be adjusted to spring structures differing in width, but that the distance of separation of the springs of the same width may be predetermined and so fixed that the spreading stroke and pressure of the spreading devices are accordingly limited.

Another object of my invention is to have a spreader for the several leaves of a spring structure so constructed that the spreading thereof may be operated with but a single stroke of the actuating means in any position to which the jaws may be adjusted, and incidentally that the jaws will be automatically moved to their open position and away from the springs on the return stroke of the actuating means therefor.

With these ends in view, my invention finds embodiment in certain features of novelty in the construction, combination and arrangement of parts by which the said objects and certain other objects are attained, all as hereinafter fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In said drawings:

Figure 1 is a detailed perspective view of a leaf spring structure with the spreader of my invention in its operative position thereon when separating the springs.

Fig. 2 is an enlarged side elevation of the spreader, partly in sections.

Fig. 3 is a longitudinal sectional view on the line 5—5 of Fig. 2.

Similar characters of reference indicate the same parts in the several figures of the drawings.

In the drawings 4 indicates a bar provided with screw-threads 5 extending a substantial portion of its length, to which is rigidly secured by any suitable means, and may be by pinion 6, the shank 7 of a fixed jaw 8, which jaw, as shown in the drawings, is dove-tailed into the shank, as indicated at 9, for the purposes of removal for substitution and repairs as may be.

Upon the screw-threaded portion 5 of the bar or rod 4 is a post 10, which is provided with a slot 11 therethrough, confining a thumb-nut 12, screw-threaded on the bar 4 for adjusting the post 10 back and forth thereon.

The post 10 has therein toward one end a transverse perforation, through which is projected a barrel or cylinder 13, one end of which is provided with a rectangular slot 14, but otherwise closed, the other end 15 of which is open and externally screw-threaded, as indicated at 16, and provided with a shoulder 17, whereby it is tightened against, but free to turn in the post by means of a perforated nut 18 screwed thereon, for the operation of the lever 29 from any angle desirable or most convenient.

Fitting the barrel 13 is a plunger 19, the rod 20 of which projects through the nut 18, a retracted spring 21 surrounding the rod 20 and abutting against the nut at one
end and at its other end against the plunger 19, for normally maintaining the piston at the limit of its outward stroke.

Screw-threaded or otherwise secured to the outer end of the rod 20 is the shank 22 of a movable jaw 23 which, like jaw 8, is for the purpose of its removal dove-tailed, as indicated at 24, in the shank 22.

Screw-threaded or otherwise secured to an adjacent and lower end of the shank 22 is a rod 25, slideable in a perforation 26 in the post 10 for maintaining the jaw 23 in its operative position throughout the movement of the movable jaw 23 toward and from the fixed jaw 8.

Fulcrumed between the walls of the slot 14 by means of a pivot 27 is a cam 28 provided with a lever 29 and adapted to engage the convexed end 30 of the plunger, and through the plunger move the fixed jaw 8 toward the jaw 8, and to a position forcing both jaws between and separating the leaf springs 31 against the resistance of the coil spring 21, as shown in Fig. 2.

When the cam 28 and lever 29 are in the position indicated in Fig. 1 and clearly shown in Fig. 2, the cam is locked against accidental movement, and in this connection it is proper to observe the length of stroke of the jaw 23 produced by the cam is always the same throughout the adjustment of the jaws now to be described.

For adjusting the device to springs varying in width the movable jaw is moved back or forth, as may be, by turning the thumb-nut 12 on the screw-thread 5 of the bar 4, and likewise for so restricting the movement of the jaw 23 toward and from the spring structure while the jaw 8 is in contact therewith, as to limit the spreading action of the springs to a degree corresponding to the tendency to unduly strain or fracture any of the springs from the forcible projection of the separating jaws between them, substantially for the introduction of a lubricant.

In other words, the opposing surfaces of the jaws 8 and 23 are flat, converged to a knife-edge, and are supported and moved in one and the same plane, so that when the edge of the jaw 8 is held in registered contact between any two springs of a leaf spring structure the jaw 24 may be so adjusted as to have lost motion before being moved to similar contact with the opposite side of the same springs, with the result that the distance between which the springs are separated is accordingly reduced, when for any reason a slight separation is desirable or necessary; but on the other hand, when a wide separation is preferred the jaw 22 is moved to unpinched contact with the springs before the cam has moved to the limit of its stroke against the plunger.

Among the advantages of a spreader for leaf springs, in which my invention finds its embodiment, is that it is adjustable to leaf spring structures differing in width, and for varying the distance of their separation as a means for preventing their being strained or fractured; that when the spreader is in an operative position one stroke of the lever is required to operate the spreading jaws and lock them against accidental detachment; that it provides for the use of knife-edge spreading jaws, preventing the concentration of a spreading force otherwise straining or breaking the springs; and that following the spreading and lubrication of the springs the jaws are automatically released concurrently with the retraction of the operating lever for forcing them between the springs.

In this connection it should, however, be observed that my invention is therefore not limited to the specific details of construction, that is to say, to supporting the movable jaw by means of the sliding rod 29, or the spring for retracting the movable jaw from its opposite position, or the removal of the spreading jaws from their shank, or other analogous support, and the adjustability of the post by means of a nut screw-threaded on the bar from which the fixed jaw is supported, and the substitution of other devices adapted to the same purposes, and especially when it is observed that these details are but a means for carrying out my invention, as hereinafter set forth in the claims.

Having described my invention what I claim and desire to secure by Letters Patent is:

1. A leaf spring spreader comprising in combination a movable jaw, a fixed jaw, means for actuating the movable jaw, a post therefor adjustable upon said support, means for directing the movement of the movable jaw toward and from the fixed jaw in the same plane, and a cam provided with a hand lever for actuating the movable jaw.

2. A spreader for leaf springs comprising in combination a fixed jaw, an externally screw-threaded support therefor, a movable jaw, a post therefor adjustable upon said support, means for directing the movement of the movable jaw toward and from the fixed jaw in the same plane, and a cam provided with a hand lever for actuating the movable jaw.

3. A leaf spring spreader comprising in combination a fixed jaw, a movable jaw, a support for said jaws, a post for the movable jaw adjustable on said support, a plunger for the movable jaw, a cam lever adapted to
engage said plunger for moving the movable jaw to and locking it in its operative position.

4. A leaf spring spreader comprising in combination a fixed jaw, a screw-threaded support therefor, a movable jaw, a post therefor adjustable on said support, a guide rod projecting from the movable jaw through said post, a piston and a cam for spreading the movable jaw, and a spring for retracting the movable jaw from its operative position.

In witness whereof, I have hereunto set my hand and affixed my seal, this 29th day of November, A. D. 1916.

ARCHIBALD F. WEISE. [l. s.]

Witnesses:

CARRIE E. BARKER,

JNO. G. ELLIOTT.