April 12, 1949. B. D. MONTEITH 2,467,332

TOOL FOR STRAIGHTENING SAGGING SPRING SEATS

Filed Oct. 16, 1947

FIG. 1.

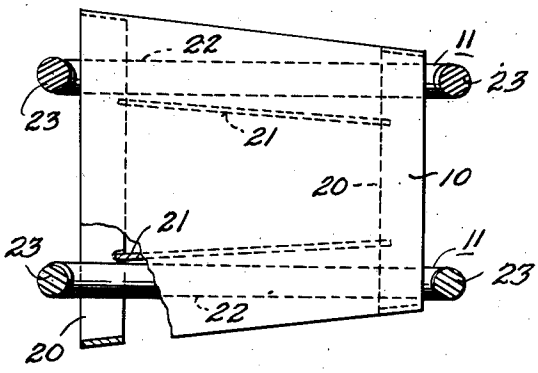


FIG. 2.

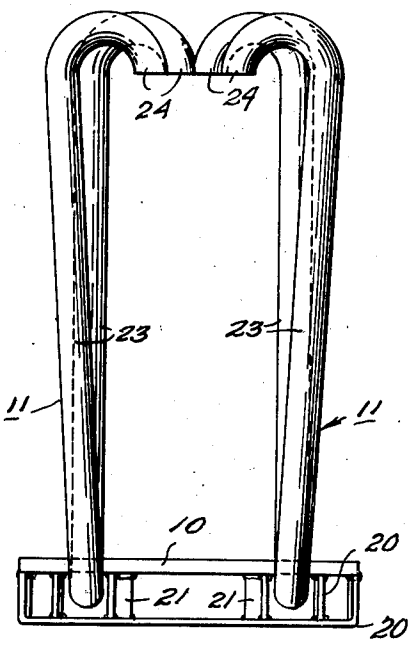


FIG. 3.

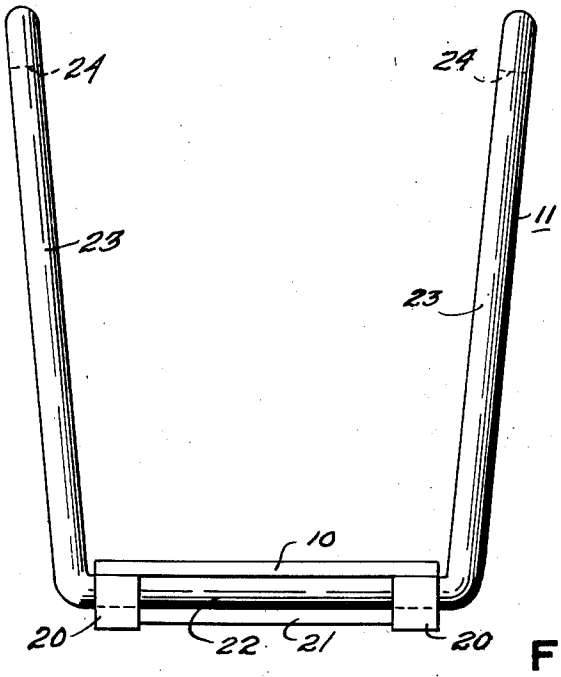


FIG. 5.

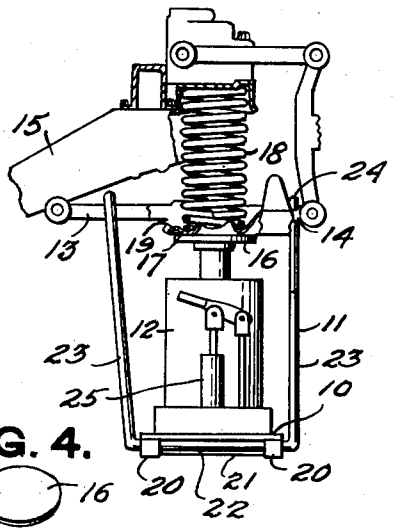


FIG. 4.

FIG. 6.

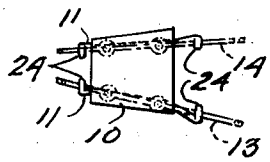
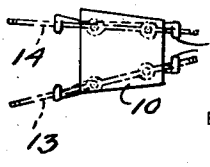


FIG. 7.



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TOOL FOR STRAIGHTENING SAGGING SPRING SEATS

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Application October 16, 1947, Serial No. 780,181

4 Claims. (Cl. 153—32)

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This invention relates to a tool for straightening sagging spring seats, more particularly for straightening the lower spring seats for coil springs in the front end suspensions of automobiles, wherein the spring seat is mounted on short and long arms forming lower A-frame connections between the ends of the front axle and the front wheel stub axles.

In such coil spring supporting connections the lower spring seats connected with the A-frames frequently become bent down or sagging due to wide A-frame construction, which results in the front end becoming lower, in excess of the amount attributable to the natural spring settle, at either or both ends of the front axle. This not only lowers the vehicle body frame or causes tilting of the body to one side or the other, if one of the coil spring seats is deformed so as to sag but it also throws out both the camber and caster for the front wheel, or wheels if both coil spring seats should sag. In cases of such sagging of the lower coil spring seats it has been necessary to remove the front end assembly from the car and replace the seats and often the springs.

The primary object of the present invention is to provide a tool to save time, labor and expense in repairing such lower coil spring seats, correcting them by pressing them back into place until the vehicle body is brought into proper position and both the camber and caster of the front wheels is corrected by applying the tool so as to act directly on the A-frame and coil spring seat without dismantling of any of the suspension parts.

This tool, in accordance with my invention has many advantages, primarily that of permitting this type of repair to cars to be made quickly, efficiently, and cheaply, saving time, money and replacement parts. Without this tool it is impossible to straighten the sagging spring seats without removing the entire front end assembly. This tool permits the straightening of the lower spring seat without the extra time and attendant expense that necessarily follows the removal of the front end assembly.

Further objects and advantages will be apparent from the detailed description of a highly practical form of tool in accordance with my invention as set forth in the following specification, reference being made to the accompanying drawing forming a part thereof.

In the drawings:

Fig. 1 is a plan view of a jack support for use in straightening the lower coil spring seat in accordance with my invention, parts being broken away and in section.

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Fig. 2 is an end elevation thereof.

Fig. 3 is a side elevation thereof.

Fig. 4 is a perspective view of a plate for engaging the upper end of the jack and under surface of a front coil spring seat.

Fig. 5 is a side elevation, parts in section and parts broken away, to illustrate the application of the tool for straightening the seat, and

Figs. 6 and 7 are diagrammatic plan views illustrating the flexibility of the tool for application to the right and left side A-frames respectively for the ends of the front axle of the vehicle.

In general the tool for straightening sagging spring seats in accordance with my invention comprises, as shown in Fig. 5, a saddle base 10 with two pairs of supporting hook arms 11 for supporting a jack 12 below long and short arms 13 and 14 respectively, of an A-frame on the front axle 15 of an automobile. A round thick plate 16 is also provided to fit the indentations 17 for the lower end of a coil spring 18, made in the seat plate 19 which is connected to arms 13 and 14 and constitutes therewith the A-frame assembly. This round plate 16 rests on the top of the upper end of jack 12 when the tool is set up for straightening a sagged spring seat of the front end assembly of a car or the like.

As best shown in Figs. 1, 2 and 3 the jack saddle base 10 comprises a heavy flat iron or similar material plate of trapezoidal formation with elongated strap boxes 20 along under the parallel sides of the base so that the pairs of hook arms 11 can float in the jack saddle base plate and may be readily adjusted and hooked to the car A-frame and the saddle base 10 will be firmly centered on the A-frame arms. At least one stop member is provided, two in the form of ribs 21 are shown secured to the under side of saddle base 10 and strap boxes 20 for limiting inward movement of the pairs of hook arms 11 but allowing inward or outward or angular adjustment of the hook arms in the spaces thus provided as required in mounting the tool on right and left side A-frames as illustrated in Figs. 6 and 7.

While other forms of suitable supporting elements such as flexible chains or lengthwise adjustable members may be provided, preferably the two pairs of hook arms 11 are employed for supporting saddle base 10. The hook arms 11 are preferably made of good cold rolled steel each formed with an intermediate horizontal portion 22 with upwardly extending arms 23 at its ends

bent at different angles with respect to each other as best shown in Figs. 2 and 3, the four upwardly extending arms 23 having inwardly bent hooks 24 at their upper ends so that the hooks can be easily fastened on the A-frame arms 13 and 14 which increase in width from outside inwardly of the car. It will be seen that these arms are preferably formed to operate as pairs, the arms of each pair being integral elements with the intermediate portion 22 so as to swing or otherwise move as a unit.

Jack 12 as indicated is of a conventional type preferably a fluid pressure type in which the pressure may be applied in any desired manner although a hand pump 25 is illustrated for the purpose.

In operation the tool is assembled by placing the front end straightening jack 12 on the jack saddle base 10 and attaching the hooks 24 of the jack saddle arms 11 over the arms 13 and 14 of the A-frame on the car. The round coil seat plate 16 is positioned against the lower spring seat plate 18 of the A-frame assembly. The jack 12 is raised by pressure until it firmly holds the coil seat plate 16. As additional pressure is applied to the jack 12 the force is spread evenly over the A-frame spring seat, straightening the seat to its original shape without distortion, of bending or cracking.

I claim:

1. A tool for straightening sagging seats of A-frame assemblies for automobile front ends and the like comprising, a saddle plate support for a jack, and two pairs of swinging elements pivotally mounted on said plate, each made up of a pair of rigidly connected arms for suspending the saddle plate below the A-frame so that the jack thereon will engage the spring seat, the arms of said elements being provided at their outer ends with means movable into engagement with the A-frame by movement of the arms to suspend the saddle plate as aforesaid.

2. A tool for straightening sagging spring seats of A-frame assemblies for automobile front ends and the like comprising, a jack support saddle plate of trapezoidal conformation, a strap box on the under side of each of the parallel sides of said saddle plate, two pairs of swinging elements each made up of a pair of rigidly connected arms pivotally mounted in said strap boxes on the saddle plate and extending upwardly therefrom, and hooks on the upper ends

of said arms for engaging the A-frame members of an automobile adjacent to their outer ends for suspending the saddle plate below the A-frame in a position so that a jack thereon will engage the spring seat.

3. A tool for straightening sagging spring seats of A-frame assemblies for automobile front ends and the like comprising, a jack support saddle plate of trapezoidal conformation, a strap box on the under side of each of the parallel sides of said saddle plate, intermediate stops on the underside of said saddle plate separating the strap boxes each into two outer sections, two pairs of swinging elements each made up of a pair of rigidly connected arms pivotally mounted in the two outer sections of said strap boxes on the saddle plate and extending upwardly therefrom, and hooks on the upper ends of said arms for engaging the A-frame members of an automobile adjacent to their outer ends for suspending the saddle plate below the A-frame in a position so that a jack thereon will engage the spring seat.

4. A tool for straightening sagging spring seats of A-frame assemblies for automobile front ends and the like comprising, a jack support saddle plate of trapezoidal conformation, a strap box on the under side of each of the parallel sides of said saddle plate, two pairs of swinging elements each made up of a pair of rigidly connected arms pivotally mounted in said strap boxes on the saddle plate and extending upwardly therefrom at different angles with respect to each other, and hooks on the upper ends of said arms for engaging the A-frame members of an automobile adjacent to their outer ends for suspending the saddle plate below either the right or left side A-frame in a position so that a jack thereon will engage the spring seat.

BENNETT D. MONTEITH.

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