April 27, 1954 C. C. SMITH 2,676,647

SEAT SPRING ASSEMBLY

Filed Sept. 29, 1951 2 Sheets-Sheet 1

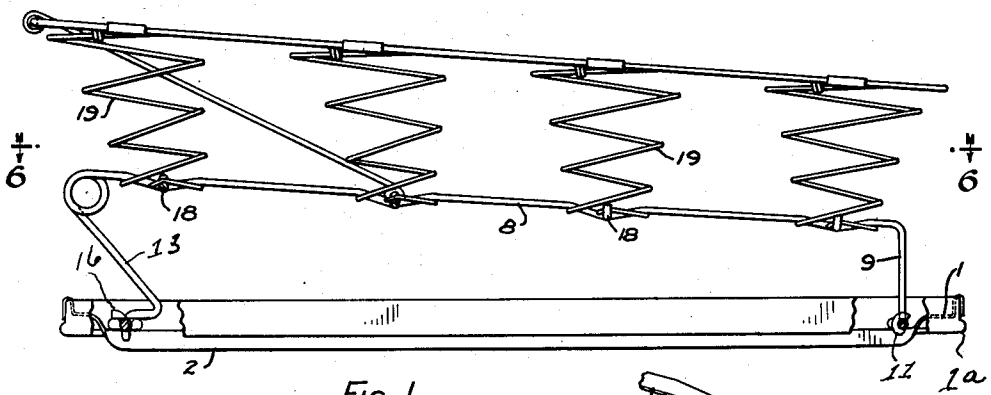


FIG. 1.

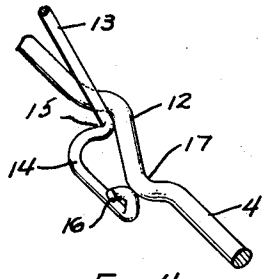


FIG. 4.

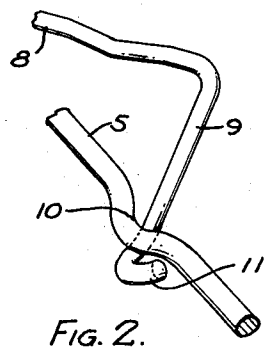


FIG. 2.

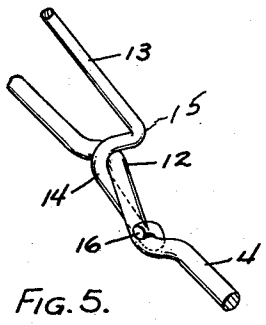


FIG. 5.

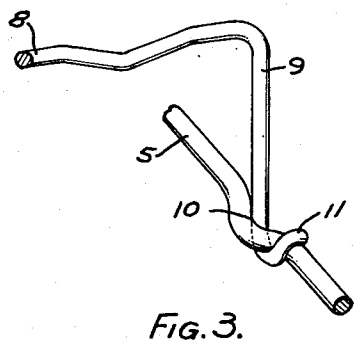


FIG. 3.

INVENTOR.
CHARLES C. SMITH
BY
Barnes, Kisselle, Laughlin & Raisch
ATTORNEYS.

April 27, 1954 C. C. SMITH 2,676,647

SEAT SPRING ASSEMBLY

Filed Sept. 29, 1951 2 Sheets-Sheet 2

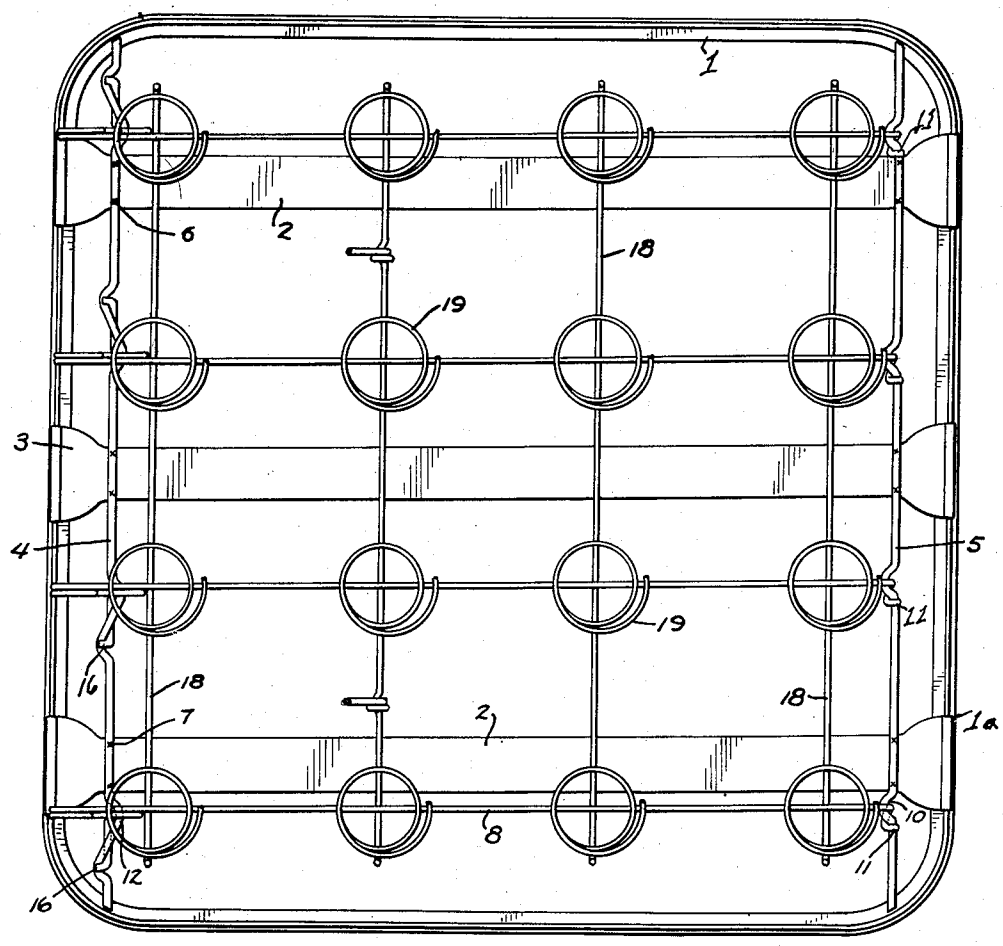


FIG. 6.

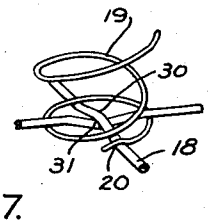


FIG. 7.

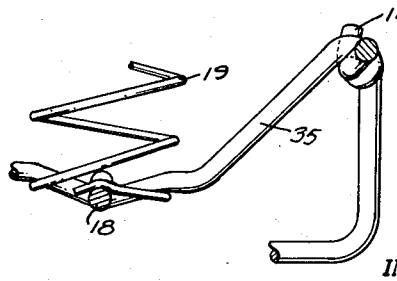


FIG. 8.

INVENTOR.
CHARLES C. SMITH
BY
Barnes, Kisselle, Laughlin & Risch
ATTORNEYS.

Patented Apr. 27, 1954

2,676,647

UNITED STATES PATENT OFFICE

2,676,647

SEAT SPRING ASSEMBLY

Charles C. Smith, Adrian, Mich., assignor to Stubnitz-Greene Spring Corporation, Adrian, Mich., a corporation of Michigan

Application September 29, 1951, Serial No. 248,910

2 Claims. (Cl. 155—179)

1

This invention relates to cushion and back springs for vehicles, particularly automobiles. It is the object of the invention to provide a cheap but a very effective cushion spring which is made up of a set of short coil springs that are only about half the usual length. These springs are supported on a projected or an elevated mat made up of a limited number of spring stringers or beams. At the rear the mat may be supported by a hanger or by means of a jack spring, depending upon the type of cushion used. A spring assembly of this kind has already been proposed in the Stubnitz application, Serial No. 45,175, filed August 19, 1948, now Patent No. 2,642,929, and the Stubnitz application, Serial No. 92,391, filed May 10, 1949.

This present application is not directed to the general assembly of the elevated or projected mat supporting the short economy load supporting coil springs, but it is directed to the assembly of the spring stringers on the supporting frame.

Referring to the drawings:

Fig. 1 is a cross section showing the spring assembly supported on the seat frame.

Fig. 2 is a detail showing how the stringer is interlocked with the rear base wire. This shows the stringer with the hook on the supporting leg about to be twisted in place on the base wire.

Fig. 3 shows the rear supporting leg snapped into locked position on the rear base wire.

Fig. 4 is a detail view showing the front jack spring as it is placed for assembly on the front base wire. The right hand is the front of the spring.

Fig. 5 shows the foot of the jack spring after it has been slid and twisted into place.

Fig. 6 is a plan view of the seat cushion showing the complete assembly.

Fig. 7 is an enlarged detail view showing how the coil springs are screwed into the intersecting stringers.

Fig. 8 is a view showing the use of a hanger or sling at the rear of the stringer.

The seat frame is made of rolled sheet metal 1 which can have a T cross section 1a to give it strength. The cross slats 2 have enlarged ends 3 that are welded to the rolled metal frame. This forms a conventional seat base. To this frame is spot welded the front base wire 4 and the rear base wire 5. The welding is preferably done on the cross slats as at the points 6, for example.

The next thing is to assemble the spring wire stringers 8 to the base wires. The stringer is supported at the rear by a support which can be a jack spring or just a leg 9 (see Fig. 2). This

2

support can be a hanger 35 shown in Fig. 8. We shall call this member a "support" to cover either the hanger form or the jack spring or the plain leg 9.

The base wire at the rear has a plurality of dents 10 into which the hook 11 on the support can be screwed in pigtail fashion (compare Figs. 2 and 3). The support, here shown in the form of a leg 9 (Fig. 2) is laid up against the dent 10 and then the leg is given a turn by twisting the entire stringer. This will cause the hook or pigtail to screw into place as shown in Fig. 3.

The front base wire 4, has a double dent or Z portion 12. The front foot or jack spring 13 has a double pigtail 14. The heel 15 of the jack spring is laid up against the rearwardly facing dent of the Z portion of the base wire as shown in Fig. 4. Then the lower end or foot of the jack spring is lifted to bring elbow 14 over dent 12, and the end or hook is given a slight twist. The hook 16 then snaps over the front facing dent 17 in the Z portion. Thus the stringer wires are assembled on the base frame by providing these dented base wires and then providing the front and rear supporting wire portions of the stringers with pigtails that can be assembled on and then screwed and snapped into the dented portions of the base wires as described. The pigtail at the rear support 9 is a single pigtail and the pigtail at the front is a double pigtail cooperating with the Z portion in the base wire.

After these forwardly and rearwardly running spring stringers have been snapped into position, the end to end running stringers 18 are laid over the forwardly and rearwardly running stringers. The stringers are provided with dents 30 and 31 so that the stringers will be properly seated where they cross. Then the coiled load supporting abbreviated springs 19 (see Fig. 7) are screwed into place. These springs are screwed into the intersecting stringers where they cross. The lowermost whirl of the coil spring has a lip which is adapted to screw over the side stringer and lock in place. When these coiled abbreviated springs are screwed in place they lock the stringers together, and it is impossible, with the stringers so locked together, for the jack springs or supports at the front and rear to become disengaged from their pigtailed assembly.

The value of this spring lies largely in the economy achieved. Only four stringers are used running from front to rear with their accompanying jack springs at the front and jack springs or hangers at the rear. These jack springs or hangers take the place of sixteen half coil springs

which would otherwise be required to have a full depth cushion. At the same time I have found that I get a very desirable snubbing action due to the jack springs or hangers opposing the throw of the coiled load supporting springs. The two kinds of springs have different moments and either due to the different periods of vibration or the friction that takes place where the coiled springs are screwed into the intersecting stringers, there is a snubbing action which is very beneficial preventing violent throwing in the spring action. Furthermore, the elevated or projected spring mat leaves a space which is desirable in a seat back or even in the seat cushion for providing additional storage space.

What I claim is:

1. In a seat spring, an anchor for connecting the spring wire legs of spring wire stringers to a base wire having in combination with the base wire which has two adjoining dents, the dents facing in and out of the seat spring in opposite directions to form a Z-portion of the wire when viewed from above the seat spring, a spring wire stringer with a spring wire leg having a foot portion formed into a sharp elbow forming an arm extending outwardly of the leg and terminating in a second elbow with a run of the spring wire therefrom under the stem of the Z-portion of the base wire and in near alignment with the indented portions of the base wire, the said run

terminating in a sharply bent hook facing outwardly, the said second elbow when the parts are in place engaged in the gullet of the outwardly open dent of the base wire with the elbow on the outside of the base wire and the hook on the end of the wire engaging the gullet on the inside facing dent and the end of the hook engaging over the base wire and pointing outwardly, the said spring wire leg end under distortion to lock the parts in the above recited positions.

2. The combination claimed in claim 1 with a base wire paralleling the first named base wire and provided with an outwardly opening dent opposite the two dents in the first named base wire and the said stringer having at the opposite end a second spring wire leg with the end of the leg bent into a pigtail hooked over the base wire immediately at the side of the dent with the upgoing portion of the leg seated in the dent.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
962,352	Hooker	June 21, 1910
1,859,630	Oldham	May 24, 1932
1,884,230	Reed	Oct. 25, 1932
2,061,725	Wesley	Nov. 24, 1936
2,570,409	Van Hove	Oct. 9, 1951