

A. TISMAN  
 SPRING.  
 APPLICATION FILED JAN. 28, 1920.

1,381,255.

Patented June 14, 1921.

FIG. 1.

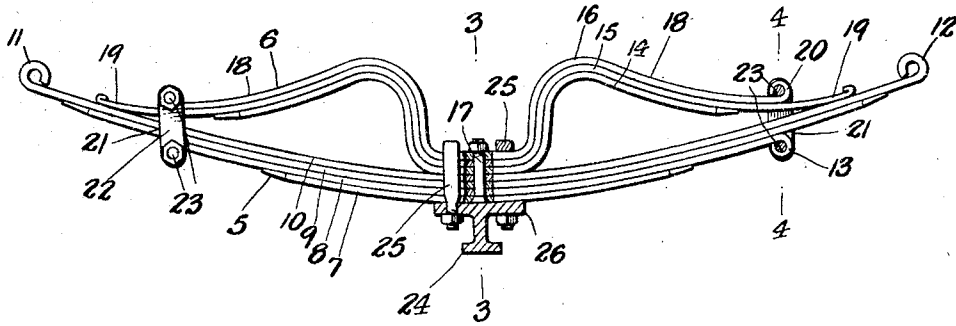


FIG. 2.

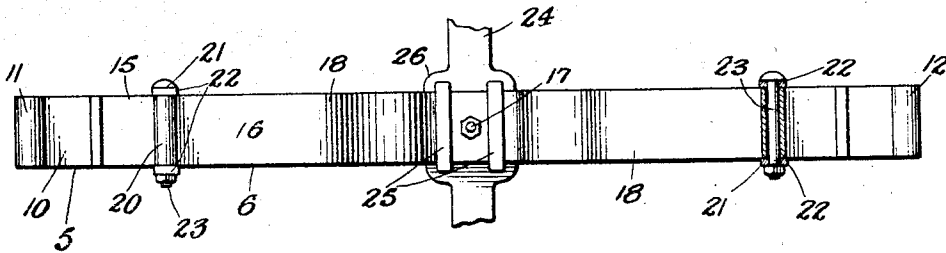


FIG. 3.

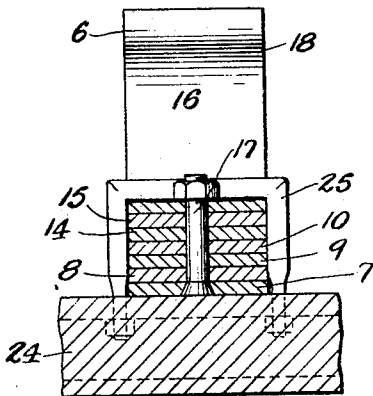
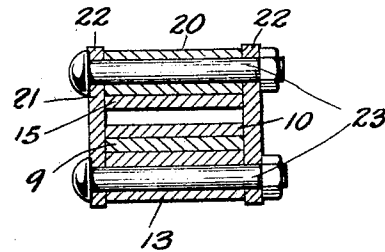


FIG. 4.



Inventor  
 Abraham Tisman,  
 By his Attorneys  
 Edgar & Co.

# UNITED STATES PATENT OFFICE.

ABRAHAM TISMAN, OF NEW YORK, N. Y.

SPRING.

1,381,255.

Specification of Letters Patent. Patented June 14, 1921.

Application filed January 28, 1920. Serial No. 354,555.

*To all whom it may concern:*

Be it known that I, ABRAHAM TISMAN, a citizen of Russia, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Springs, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to springs and particularly to the class of springs known as leaf springs designed for use in connection with motor vehicles, horse driven vehicles and similar apparatus; and the object of this invention is to so construct springs of the class under consideration as to increase the spring qualities thereof as well as to reinforce and strengthen the spring to avoid the possibility of breaking it, or the separate leaves or sections thereof when placed under great strains or sudden shocks; and with this and other objects in view the invention consists in a spring device of the class and for the purpose specified which is constructed and operates as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a side view of my improved spring with part of the construction broken away and in section, and indicating a method of connecting the central portion of the spring with a part of a vehicle or apparatus;

Fig. 2 a plan view of the construction shown in Fig. 1 with part of the construction shown in section;

Fig. 3 a partial section on the line 3—3 of Fig. 1 and on an enlarged scale; and,

Fig. 4 a partial section on the line 4—4 of Fig. 1, and on an enlarged scale.

My improved leaf spring is made up into two independently formed sections 5 and 6, the section 5 being of the general form of leaf springs, as now constructed and, in the construction shown, is composed of four leaves or leaf members 7, 8, 9 and 10. The leaf member 10 is at the top of the section 5 and is longer than the other leaf members, the ends thereof are bent upwardly and in-

wardly to form loops 11 and 12 to permit of the attachment of said leaf member with suitable supports in the usual or any desired manner. The leaf member 9 is slightly shorter than the leaf member 10, and the leaf member 8 is shorter than the leaf member 9, and the ends thereof are bent outwardly and downwardly to form loops 13, one of which is clearly shown in Fig. 1.

The section 6 of the spring is composed of a plurality of leaf members 14, 15 and 16, and these members, or the central portions thereof, rest upon the central portion of the section 5 and are secured thereto by a bolt 17 which is passed through said members and the leaf members of the section 5 and serves to securely hold the separate sections 5 and 6 together. The opposite end portions of the section 5, or the separate leaf members thereof, are fashioned into upwardly, laterally and downwardly directed spring members 18. It will be noted that the leaf member 15 in the separate spring members 18 is longer than the other leaf members 14 and 16, and bears on the top face of the leaf member 10 of the section 5 adjacent to the loops 11 and 12 thereof, as shown at 19. The bottom leaf member 14 of the section 6 is somewhat shorter than the leaf member 15, while the leaf member 16 is shorter than the leaf member 15 and longer than the leaf member 14, and the end portions of the leaf member 16 are bent upwardly and inwardly into loops 20, similar to and in vertical alinement with the loops 13 of the leaf member 8.

The oppositely directed spring members 18 of the section 6, or the free end portions thereof, are held in engagement with the free end portions of the section 5 by suitable spring clips 21 consisting, in the form of construction shown, of plates 22 mounted at the opposite sides of the separate sections 5 and 6 and bolts 23 passed through the top and bottom portions of said plates and through the loops 13 and 20 at the opposite end portions of the separate sections 5 and 6 of the spring.

It will be apparent on a consideration of Figs. 2, 3 and 4 of the drawing that the transverse width of the separate leaf members of the spring sections 5 and 6 is the same, and the plates 22 bear on the side edge

portions of said leaf members and serve to hold the same against lateral movement one upon another.

In Figs. 1, 2 and 3 of the drawing I have shown for illustrative purposes, a part of an axle 24 upon the top of which the central portion of my improved spring rests, and to which said spring is secured by the usual yoke-shaped bolts 25, two of which are preferably employed and which pass through and are secured to an enlarged portion 26 on the axle 24, but it will be understood that my invention is not limited to any specific means of connecting, or attaching the spring to a support, as this may be accomplished in many different ways, and while I have shown a specific number of leaf members in the section 5 of the spring and also a specific number of leaf members in the section 6 thereof, and have shown the end portions of the section 6 bent into spring members of particular form, my invention is not limited to these details and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

In the use of leaf springs, as now constructed, it has been found through long experience that when an extreme shock or load is placed upon such springs, one or more of the leaves thereof, snap or break under the strain and it has also been found that these springs in themselves, regardless of the tension thereof, do not produce the desired result or eliminate the rocking or jolting of a car unless shock absorbers or similar appliances are used in combination therewith. With my improved spring construction, it will be seen that the possibility of breaking or snapping the leaf members of the spring is practically eliminated, and by providing the spring members 18 the resiliency of the spring construction is materially increased to such an extent as to eliminate the use of shock absorbers and like appliances. It will be apparent that in the action of my improved spring construction that the spring members 18 of the section 6 cooperate with the spring section 5 and the strain on the section 5 is taken up through the spring members 18 of the section 6, and in the action of both of the sections 5 and 6, or the depression of the end portions thereof by the load of a vehicle to which said end portions are connected, the load will be supported through the sections 5 and 6 on the support of said sections, namely, the axle 24, and the spring clips 21, as will be apparent, will aid in accomplishing this result in that they hold the end portions of the separate sections 5 and 6 together.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A spring construction of the class described comprising two spring sections, one of said sections being composed of a plurality of leaf members and the other section being fashioned centrally thereof to engage the central portion of the first named section, and the opposite end portions of said last named section being fashioned upwardly, outwardly and downwardly to form independent upwardly directed spring loop members the free ends of which cooperate with the end portions of the first named section.

2. A spring construction of the class described comprising two spring sections, one of said sections being composed of a plurality of leaf members and the other section being fashioned centrally thereof to engage the central portion of the first named section, and the opposite end portions of said last named section being fashioned upwardly, outwardly and downwardly to form independent upwardly directed spring loop members the free ends of which cooperate with the end portions of the first named section, said last named spring section being composed of a plurality of leaf members of different lengths.

3. A spring construction of the class described comprising two spring sections, one of said spring sections being composed of a plurality of leaf members of different lengths and the other section being mounted on top of the first named section and composed of a plurality of leaf members of different lengths, the end portions of said last named section being provided with two upwardly directed spring loop members which form a central downwardly directed U-shaped portion adapted to bear upon the top of the first named spring section and the free end portions of said last named spring section being adapted to bear on the first named spring section.

4. A spring of the class described comprising a downwardly directed central U-shaped portion at the opposite sides of which are upwardly directed spring loop members, and the end portions of said spring loop members being curved downwardly and upwardly.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 23rd day of January, 1920.

ABRAHAM TISMAN.

Witnesses:

C. E. MULREANY,  
H. E. THOMPSON.