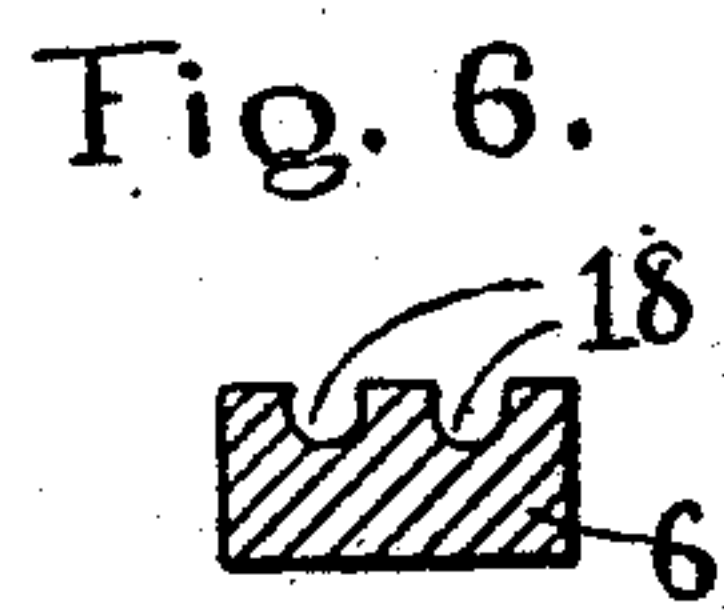
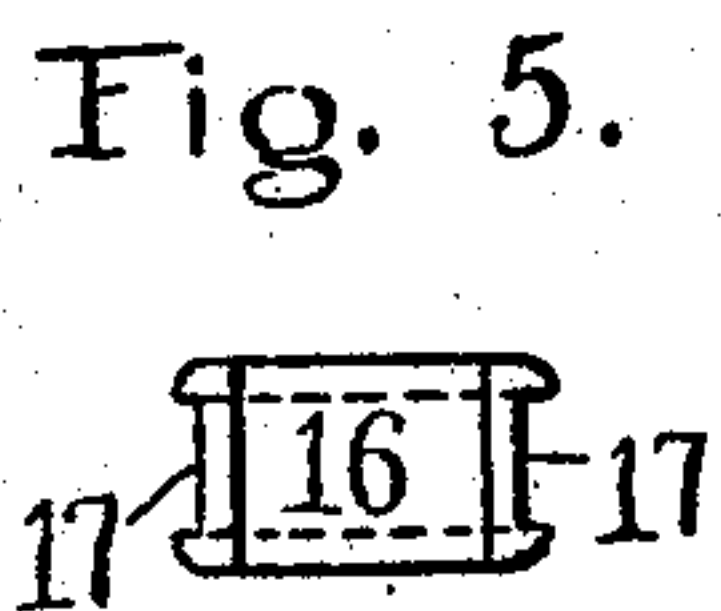
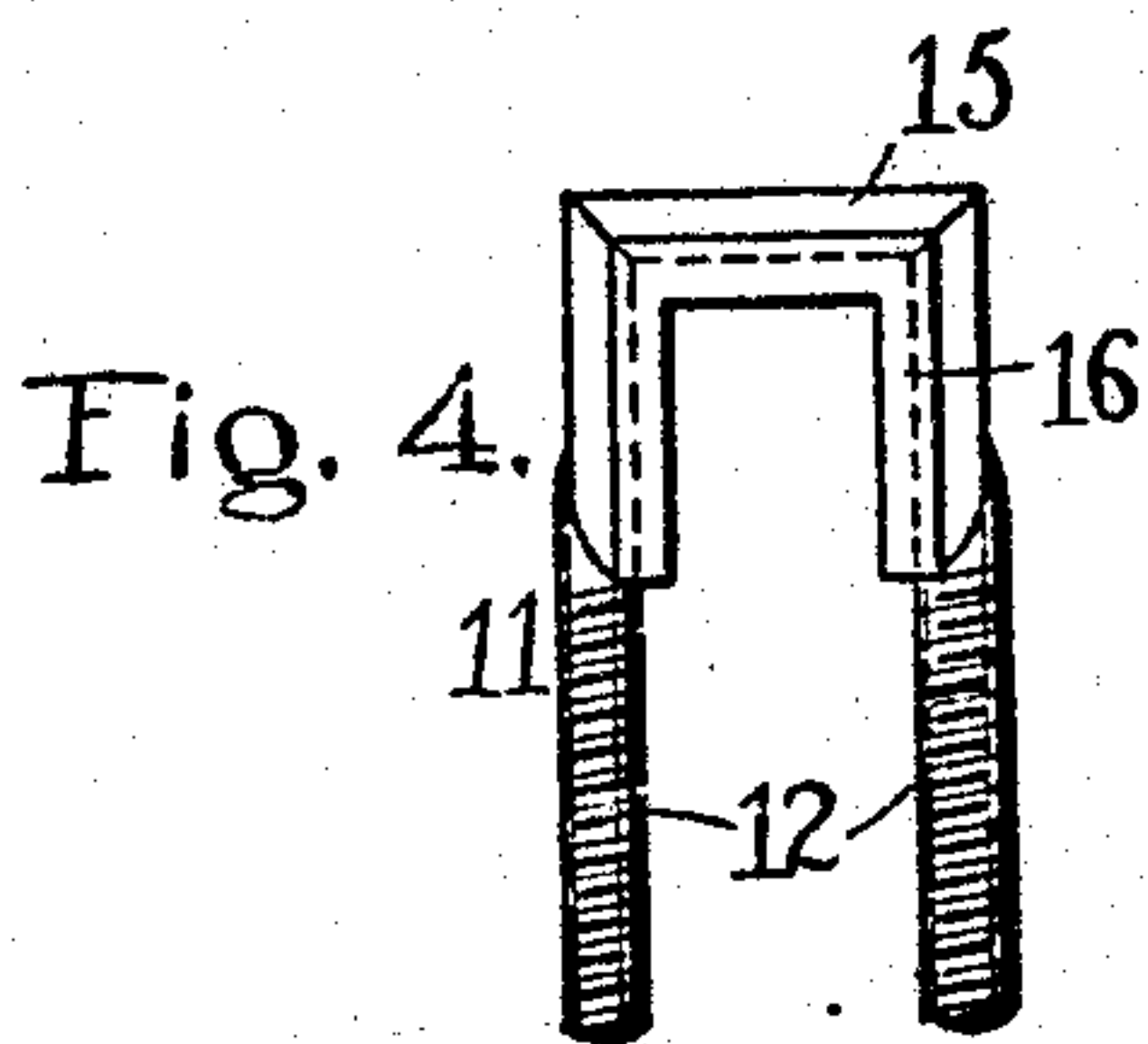
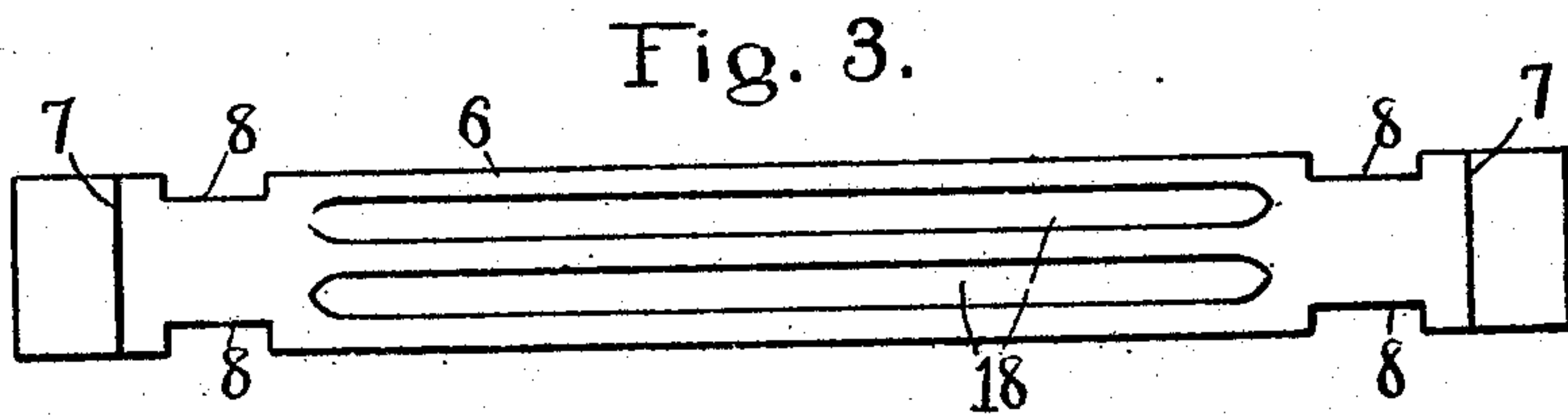
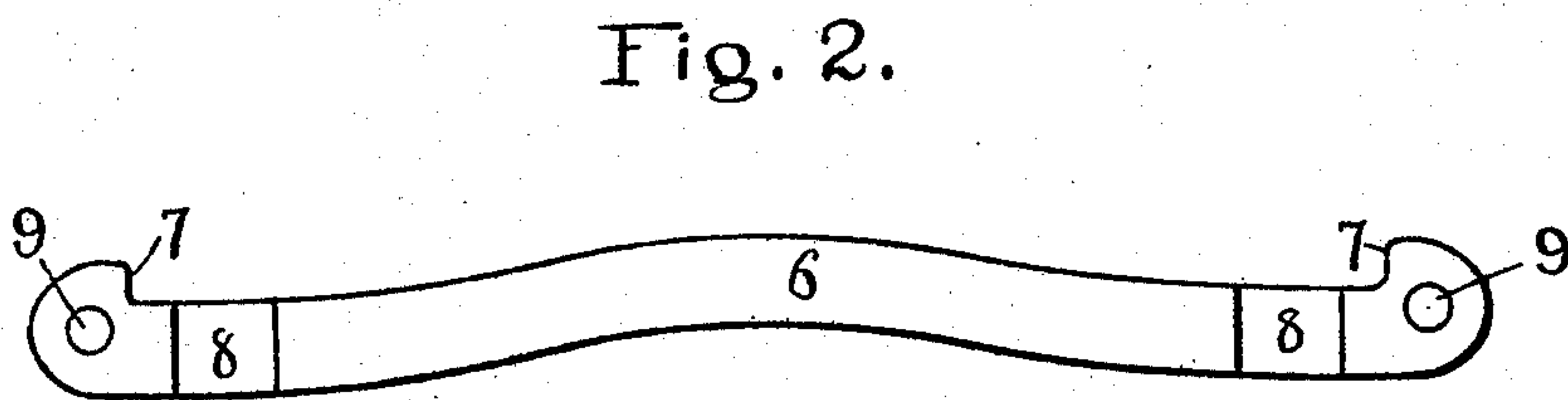
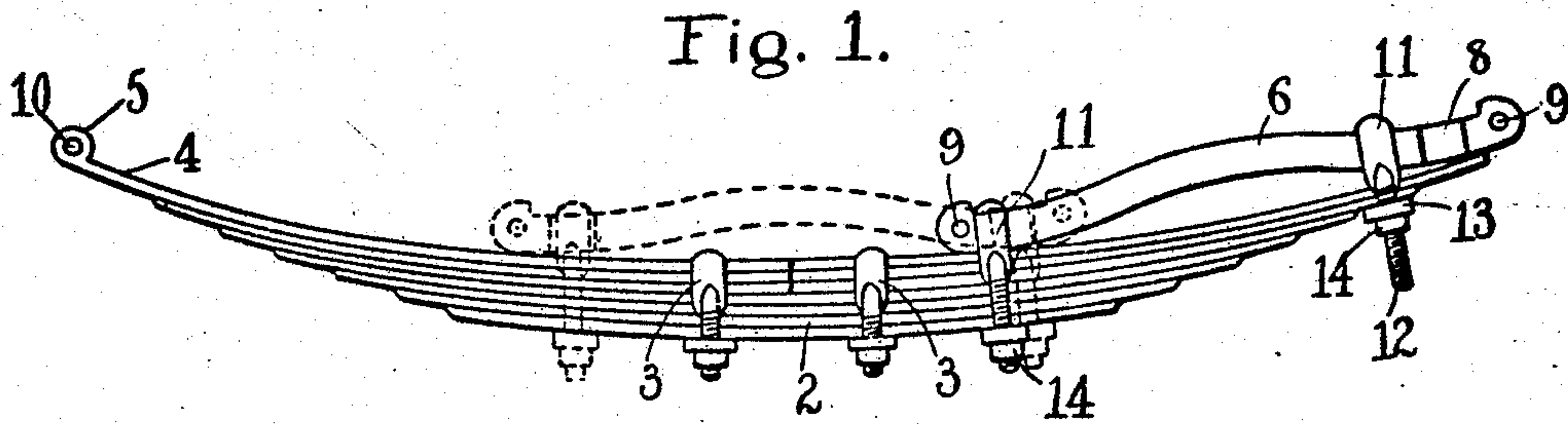


W. R. PETZE.
 SPRING REPAIRER.
 APPLICATION FILED SEPT. 5, 1907.

899,468.

Patented Sept. 22, 1908.



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UNITED STATES PATENT OFFICE.

WILLIAM R. PETZE, OF BROOKLYN, NEW YORK.

SPRING-REPAIRER.

No. 899,468.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Original application filed February 16, 1907, Serial No. 357,715. Divided and this application filed September 5, 1907.
Serial No. 391,478.

To all whom it may concern:

Be it known that I, WILLIAM R. PETZE, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Spring-Repairers, of which the following is a specification.

This invention relates to a device for repairing semi-elliptic vehicle springs, and particularly the springs of motor-cars and similar motor vehicles, and the main object of the invention is to provide a device which can be readily applied to such a spring to reinforce the same and permit the continued use of such car or vehicle should a spring be fractured or broken at any point in the length thereof.

It frequently happens that one of the semi-elliptic springs of such a motor-car or vehicle becomes broken while the car is in use and at a considerable distance from any point where it is possible to make permanent repairs, and the chief purpose of such a device as that described herein is to make a temporary repair which will permit continued use of the car without removing the damaged or broken spring and substituting a new one. Such a device in order to be of practical value must be capable of repairing any break that is likely to occur in such a semi-elliptic spring. These springs usually consist of a plurality of leaves of different lengths superimposed one upon the other, and a fracture or breakage of one or more of such leaves may take place at any point in the length of the spring. A device adapted to repair all breaks that may occur should therefore be so constructed that it may be applied to the spring at any point in the length of the spring and secured firmly thereto adjacent to the break in such a manner as to serve at least temporarily either as a means for strengthening portions of the spring adjacent to a fracture or break, or as a substitute for a portion of the spring completely broken off. Such a device should be so constructed as to permit the usual play of the different parts of the spring as it is put under tension or released, and it should also be so formed as to oppose a very great resistance to the forces tending to break it when the car containing the spring to which it is applied is in use. As such a device may frequently have to be used to repair a break at or near the end of the spring as well as at or near the center

thereof, the preferred construction is that in which the device is so formed as to be capable of connection to a vehicle by substantially the same means ordinarily employed to connect the carriage and one end of the spring.

In the drawings accompanying this specification and forming part of the present application, Figure 1 is a side elevation of a semi-elliptic vehicle spring having my device for repairing a break in the same applied thereto. Fig. 2 is an enlarged side elevation of the main portion or tie-piece of the spring repairing device. Fig. 3 is a plan of the same. Fig. 4 is a side elevation of a two-part clip for securing the tie-piece to the spring. Fig. 5 is an end elevation of one part of said clip. Fig. 6 is a transverse section of the tie-piece shown in Figs. 2 and 3.

Similar characters designate like parts in all the figures of the drawing.

Referring first to Fig. 1, 2 indicates a semi-elliptic vehicle spring of well-known construction usually employed as a means for supporting the body of a motor-car or similar vehicle, the spring consisting of a series of superimposed leaves of different lengths held together in the usual manner by clips. In a spring of this type the upper leaf 4 is ordinarily bent over at its ends to form eyes by means of which the spring is connected to the body of the vehicle. One of these eyes is shown at 5. The other, in the view shown in Fig. 1, is not present, it being assumed that the eye at the right-hand end of the spring has been broken off. This is one of the various points at which a break in the spring may occur. The main element of the means I employ for repairing a break in such a vehicle spring is a tie-piece considerably shorter than the spring itself and adapted to be applied to the spring in such a manner as to permit free play of the spring as it is tensioned and released. For this reason the tie-piece is preferably arched, its curvature when in its operative position being the reverse of that of the spring itself. Thus when in place said tie-piece forms an arch which is clear of the spring except at two points substantially at the ends of the tie-piece, and all that portion of the spring between such points is free to move substantially as in the case of a perfect spring. The tie-piece employed by me is itself a spring and an exceedingly strong one, for the reason that when in place its curvature is the opposite of that of

the spring. The tie-piece which I prefer to employ is indicated at 6. Near one or both of its ends it is so constructed as to permit it to be firmly secured to the spring 2 in a fixed position lengthwise of said spring. Preferably means will be provided for fastening it to the spring at a plurality of points adjacent to a break in the spring. In the case of a break at or near the center of the spring, as indicated for example by the dotted lines in Fig. 1, the tie-piece will be secured to the spring by means located at opposite sides of the break; whereas, when it is fastened to the spring in such position as to repair a break at or near the end of the spring, as indicated for example in full lines in Fig. 1, the two points of connection to the spring may be at the same side of the break in the spring. At or near one or both of its ends the tie-piece 6 should have a stop or stops, such as the walls 7. These serve to locate endwise of the spring the means for fastening the tie-piece to the spring, which means will ordinarily be clips adapted to straddle both the spring and the tie-piece and firmly bind them together. Any suitable clip may be employed for this purpose, though I prefer to use a type which will be hereinafter more fully described.

At or near one or both ends thereof the tie-piece 6 will preferably be of two different widths. The larger dimension in this case is represented by the width of the main portion and ends of the tie-piece. The smaller dimension is formed in this case by rectangular recesses in the edges of the tie-piece, near the ends thereof. These recesses are indicated at 8. The provision of a tie-piece of different widths at its ends permits the connection of said tie-piece to springs of different widths found on different types of motor-cars.

A tie-piece constructed as described up to this point is capable of repairing most of the breaks that occur in semi-elliptic vehicle springs, but there are other breaks, to wit, those occurring at or near the eye 5 of the spring, which can not be repaired unless the tie-piece is so formed as to be capable of connection at one or both of its ends to the body of the vehicle. In order that the tie-piece may be so connected, I have shown the tie-piece as so constructed that it may be connected to the body of such a vehicle substantially at the point that the eye 5 of the spring is ordinarily so connected. Moreover, the specific features of the connection will preferably be as much as possible like those of the end of the spring, in order that the same means may be employed for making connections between the vehicle body and the end of the tie-piece that is ordinarily employed for making a connection between the vehicle body and the eye 5. For this reason said tie-piece at one or both of its ends will preferably be of the same width as the end of the

leaf 4 adjacent to the eye 5, and will have a transverse journal opening, such as 9, at one or both of its ends, of the same diameter as the opening 10 in the eye 5, in order that the same connecting device may be used in the opening 9 that is ordinarily used in the opening 10 passing through the eye at the end of the upper leaf of the spring.

The tie-piece will generally be secured to the spring by devices located at or near opposite ends of the tie-piece. Two clips 11 are shown in Fig. 1 for this purpose, these clips having two posts 12 and a cross-piece 13, which may be held in any adjusted position by stop-nuts 14. In Figs. 4 and 5 I have illustrated in detail a type of clip which may be applied to the tie-piece at either the wide or the narrow portion thereof, according as the spring 2 is narrow or wide. The clip shown is substantially of the ordinary type except that the main portion 15 of the clip incloses a similar but smaller saddle portion 16 which has longitudinal guide-grooves 17 fitting the inner walls of the main saddle portion 15. When the clip is intended to fit the wide portion of the tie-piece for application to a wide spring, this auxiliary saddle-piece 16 is removed and the main portion of the clip is used in the ordinary manner. When, however, the tie-piece is to be applied to a narrow spring the auxiliary saddle-piece 16 is placed in position as shown in Fig. 4, and the two-part clip is placed over the tie-piece at the narrow part of the tie-piece adjacent to the recesses 8. By the use of such a clip a single two-part clip may be employed for either width of spring, and it will be unnecessary to provide two sets of clips of different sizes to fit springs of different widths.

Surplus metal may be dispensed with and the weight of the tie-piece reduced by longitudinally grooving the tie-piece, as illustrated at 18.

This application is a division of an application by me, Serial No. 357715, filed February 16th, 1907.

What I claim is:

1. A device for repairing semi-elliptic vehicle springs, consisting of a tie-piece shorter than said spring and having its major portion spaced away from said spring and having means near one of its ends for attachment to a vehicle, and means for fastening said tie-piece to said spring at one side of a break in the spring.
2. A device for repairing semi-elliptic vehicle springs, consisting of a tie-piece shorter than said spring and having its major portion spaced away from said spring and having means near one of its ends for attachment to a vehicle, and means for fastening said tie-piece at a plurality of points to said spring adjacent to a break in the spring.
3. A device for repairing semi-elliptic vehicle springs, consisting of a tie-piece shorter

than said spring and having its major portion spaced away from said spring and having means near both of its ends for attachment to a vehicle, and means for fastening
5 said tie-piece at a plurality of points to said spring adjacent to a break in the spring.

4. A device for repairing semi-elliptic vehicle springs, consisting of a tie-piece shorter than said spring and having its major portion
10 spaced away from said spring and having at one of its ends a transverse journal opening, and means for fastening said tie-piece to said spring at one side of a break in the spring.

15 5. A device for repairing semi-elliptic vehicle springs, consisting of a tie-piece shorter than said spring and having its major portion spaced away from said spring and having at each of its ends a transverse journal
20 opening, and means for fastening said tie-

piece to said spring at one side of a break in the spring.

6. A device for repairing semi-elliptic vehicle springs, consisting of a tie-piece shorter than said spring and of two different widths
25 near one end thereof, and means for fastening said tie-piece to said spring at one side of a break in the spring, said means embodying a two-part clip the main portion of which
fits said larger dimension of the tie-piece and
30 the other part of which fits the main portion of the clip and also fits said smaller dimension of the tie-piece.

Signed at New York, in the county of New York, and State of New York, this 3d day of
September, A. D. 1907. 35

WILLIAM R. PETZE.

Witnesses:

R. CHAMPION,

JOHN A. JONES.