A. C. MASON & A. T. STURT.

SPRING.

APPLICATION FILED DEC. 14, 1914.

1,166,615.

Patented Jan. 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

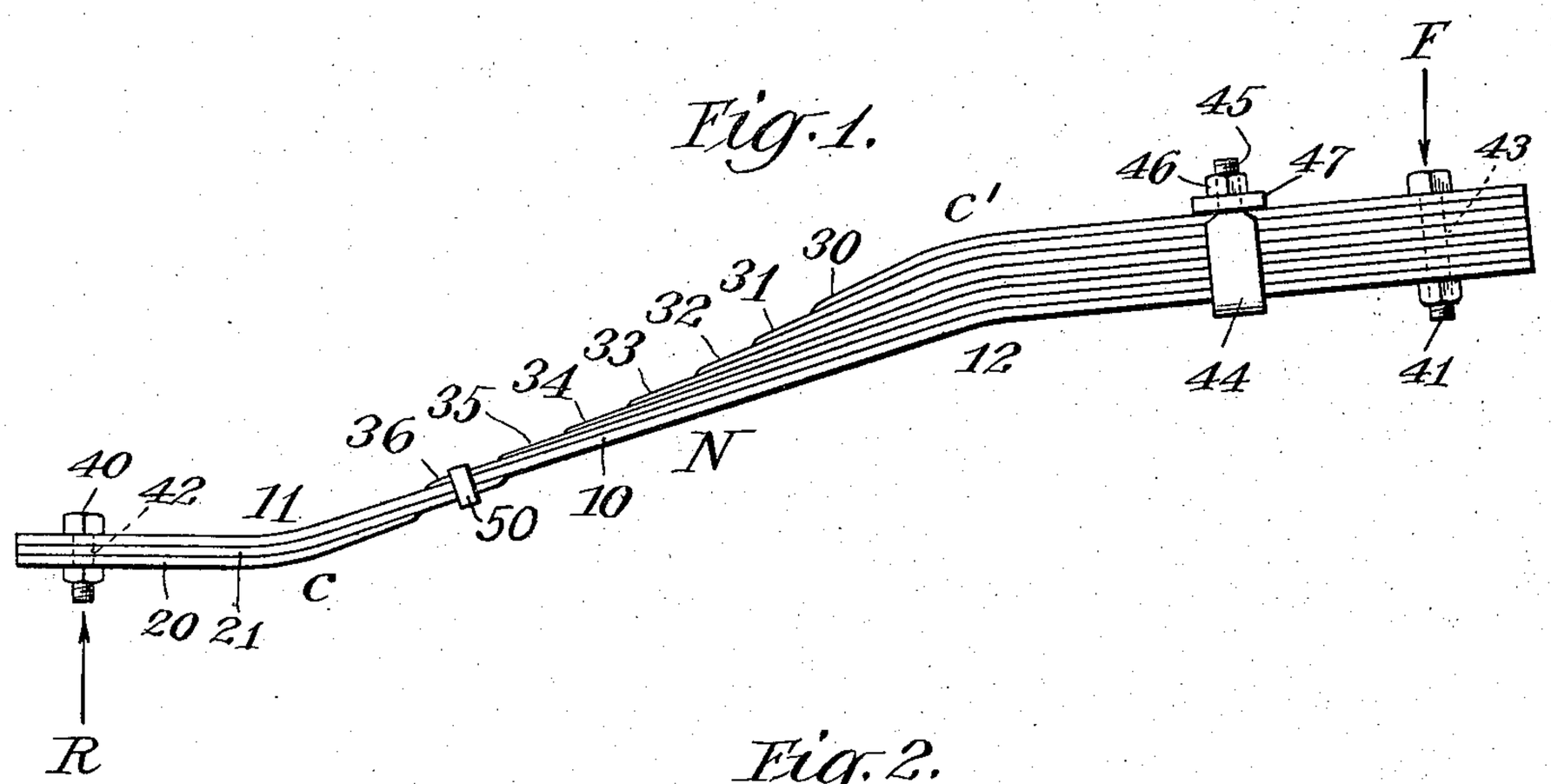


Fig. 2.

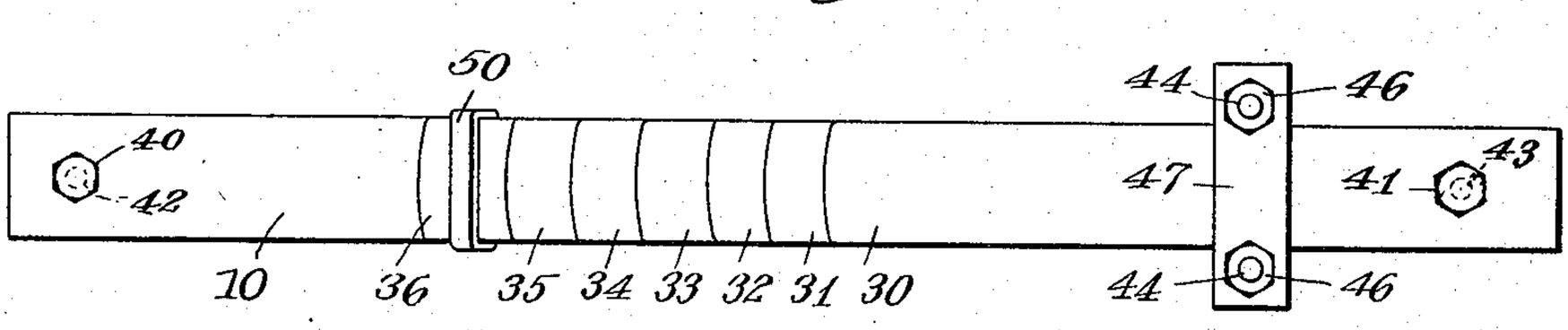
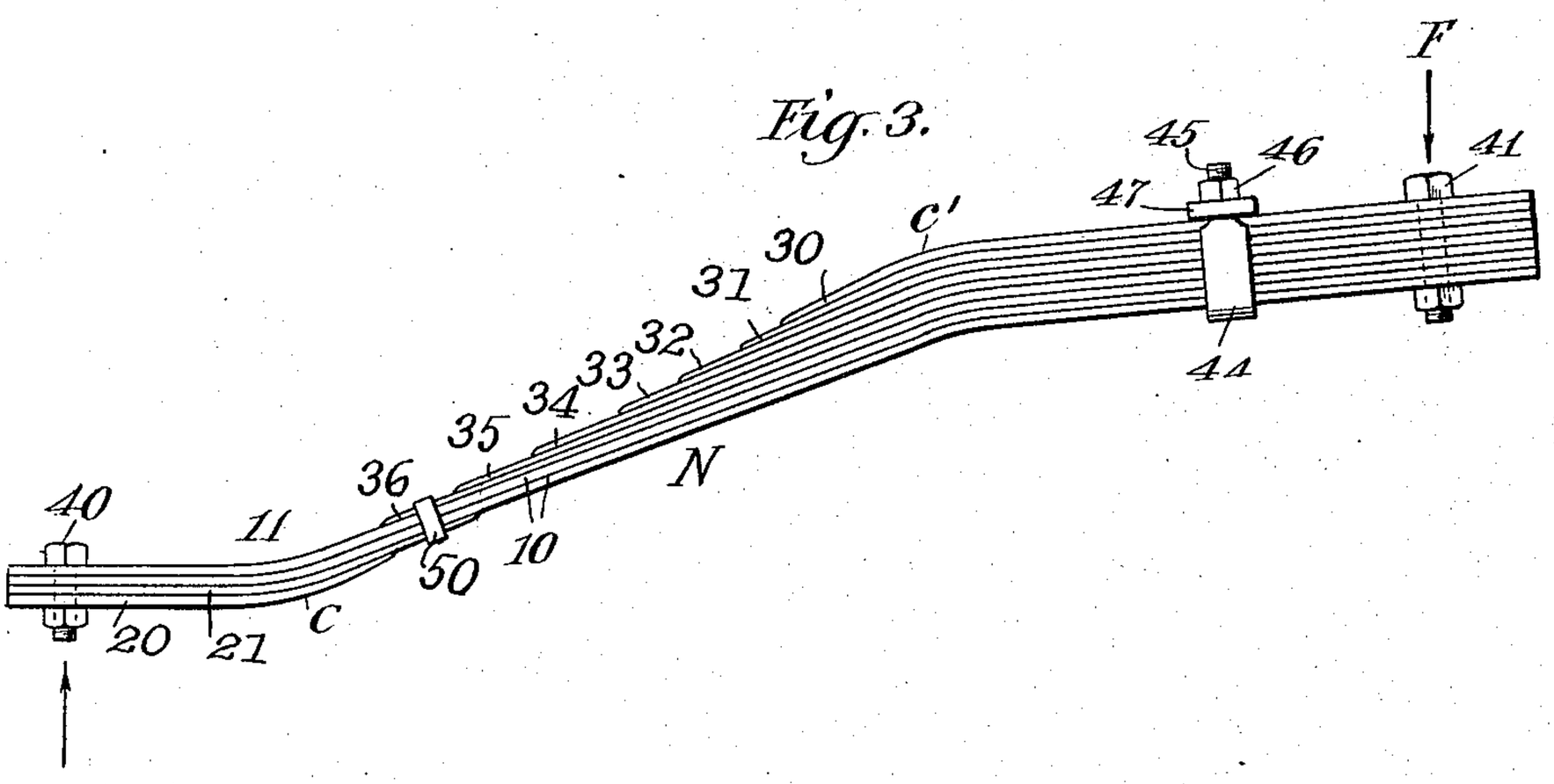


Fig. 3.



WITNESSES

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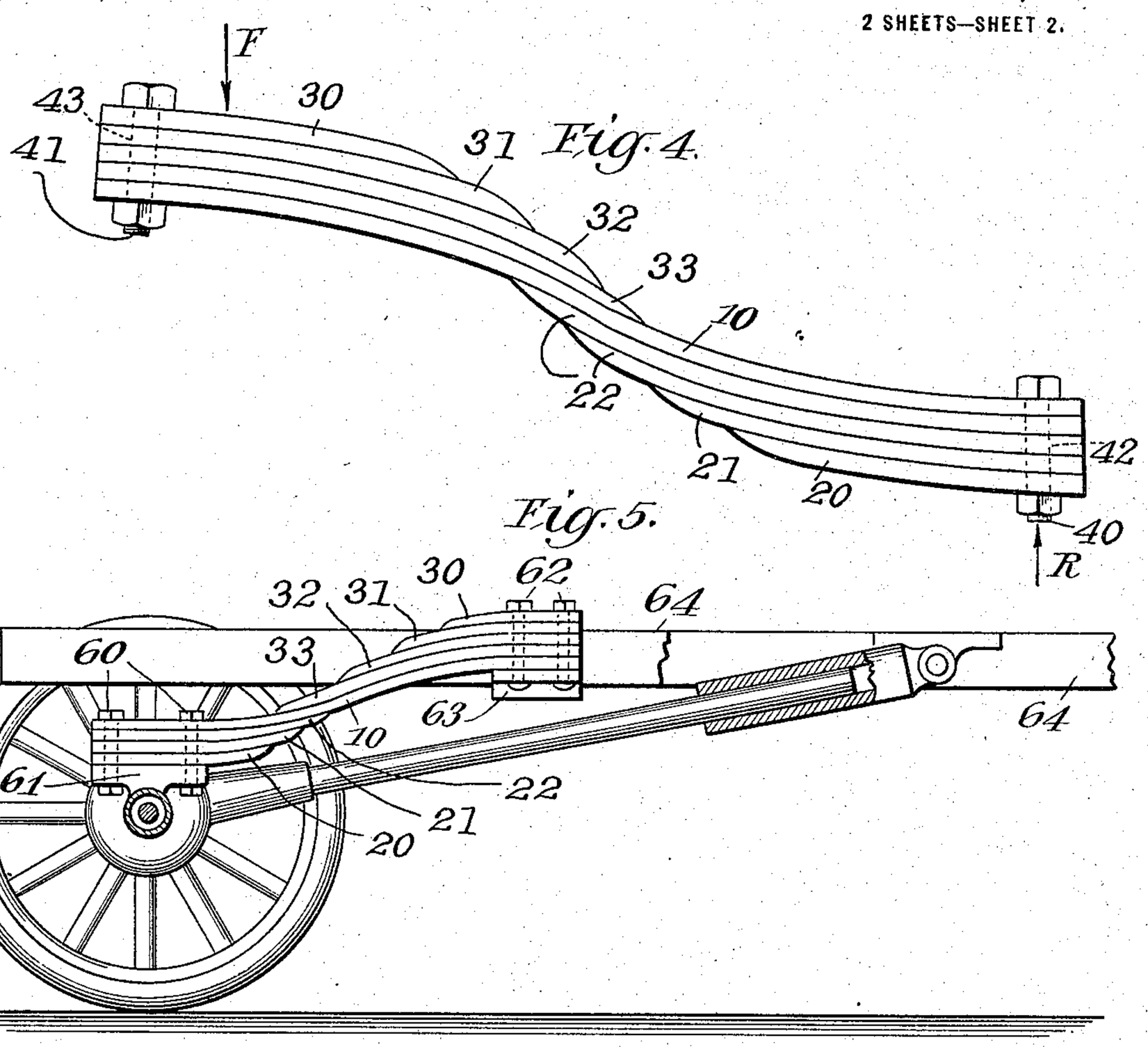

Fig. 4.

Fig. 5.

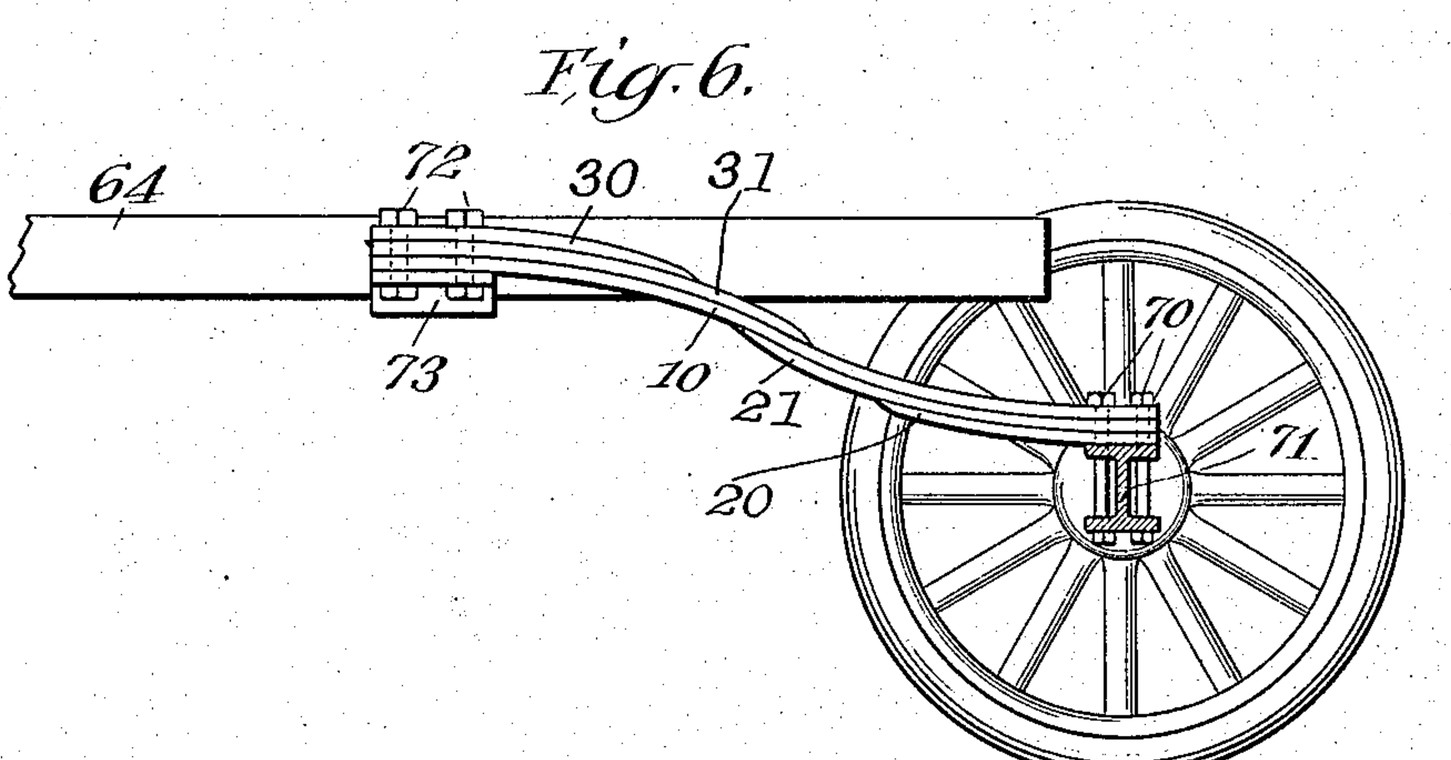

Fig. 6.

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UNITED STATES PATENT OFFICE.

ARTHUR C. MASON AND ALFRED T. STURT, OF FLINT, MICHIGAN, ASSIGNORS TO CHEVROLET MOTOR COMPANY OF NEW YORK, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SPRING.

1,166,615. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed December 14, 1914. Serial No. 877,008.

To all whom it may concern:

Be it known that we, ARTHUR C. MASON and ALFRED T. STURT, citizens of the United States of America and residents of the city of Flint, county of Genesee, State of Michigan, have jointly invented certain new and useful Improvements in Springs; and we do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to springs especially adapted for use in vehicle construction.

One of the objects of this invention is to provide a flat spring with each of its ends reinforced, and curved in opposite directions, so arranged that when in operation it has a neutral point of no deflection between its ends. In use the ends are respectively fixed upon the axle and the carriage frame.

Other objects will appear from the following description and claims.

Referring to the drawings;

Figure 1 is a side view of one form of our spring. Fig. 2 is a plan view of the same. Fig. 3 is a side view of another form of our spring. Fig. 4 is a side view still of another form of our spring. Fig. 5 is a side view showing a conventional way of applying our spring to the rear of a motor vehicle. Fig 6 is a side view showing a conventional way of applying our spring to the front of a motor vehicle.

In the drawings, similar reference characters indicate like parts.

The spring consists of one or more continuous plates 10 running the full length of the same curved at each end in opposite directions as at 11 and 12. These plates and the entire spring structure may be described as sinuous in shape. The center plate or plates running the full length of the spring are reinforced at each end by progressively shorter plates receding both in length and in thickness toward their ends in order that each end of the spring may be made strongest at its points of greatest bending moment. The reinforcing plates at the supported or resisting end are indicated by the numerals 20, 21 and 22 and the reinforcing plates at the load end are indicated by 30, 31, 32, 33, 34, 35 and 36. Bolts 40 and 41 are provided at each end respectively to hold the spring together, which bolts pass through holes 42 and 43 in the plates of the spring as shown. If desired a clamp yoke 44 may be used to hold the plates together as shown in Figs. 1 and 2. This clamp is U shaped in construction, and each end of the upright portions is screw-threaded at 45 which screw-thread co-acts with nuts 46 binding upon a cross bar 47. A spring clip 50 may be used in the center of the spring to hold the ends of the inner reinforcing plates in place.

The spring is constructed of any suitable material, such as steel.

In operation, the spring is used to support a load where the downward force (F) is applied at one heavy end and acts against a resistance (R) at the other heavy end; (N) indicating the neutral point of no deflection. It is contemplated that by this arrangement the stress and resistance will act in a direction approximately parallel to each other at a distance apart equal to the span of the spring. When the load is applied at (F), the curves (*c*) and (*c'*) are both straightened, the deflection being in opposite directions.

Referring to Fig. 5, the spring in use may be bolted at 60 at one end to a rigid perch 61 on the rear axle housing and at the other end it is bolted at 62 to a rigid bracket 63 on the frame 64 of the chassis.

Referring to Fig 6, the spring in use may be bolted at 70 at one end directly to the beam of the front axle 71 and at the other end it is bolted at 72 to a bracket 73 on the frame of the chassis at 64.

In practice we may use another spring parallel to the one shown and secured rigidly at one end by bolts to the under side of the bracket 73 and rigidly secured at its other end to the under side of the axle 71, thereby utilizing a pair of parallel springs in place of the single spring as shown in Fig. 6.

While we have shown certain features of our invention in the accompanying drawings, it is to be understood that said drawings are merely illustrative, and that we are not confined to what is there shown and herein described in connection therewith, except as may be specifically set forth in the claims.

Having now described our invention what we claim as new and desire to secure by Letters Patent, is:—

1. A spring consisting of a plate running through its entire length, each end of said plate being curved in opposite directions and provided at each end and at opposite sides

thereof with reinforcing spring plates receding toward the ends thereof.

2. A spring consisting of a main plate running through its entire length, each end of said plate being curved in opposite directions and provided at each end and at opposite sides thereof with reinforcing spring plates receding toward the ends thereof, the reinforcing plates at each end being secured together and to the main plate.

3. A spring construction consisting of a main plate running from end to end, shorter plates on opposite sides of each end of the main plate constructed to take deflections in opposite directions, the main plate having a neutral point intermediate the ends thereof.

4. A spring plate reinforced at each end on its opposite sides having the greatest bending moments near each end and provided with a neutral point between the points of greatest bending moments.

In witness whereof we have hereunto set our hands at the borough of Manhattan, city and State of New York, this 12th day of December, 1914.

ARTHUR C. MASON,
ALFRED T. STURT.

In presence of—
FRED W. HOHENSEE,
JOHN J. RANAGAN.