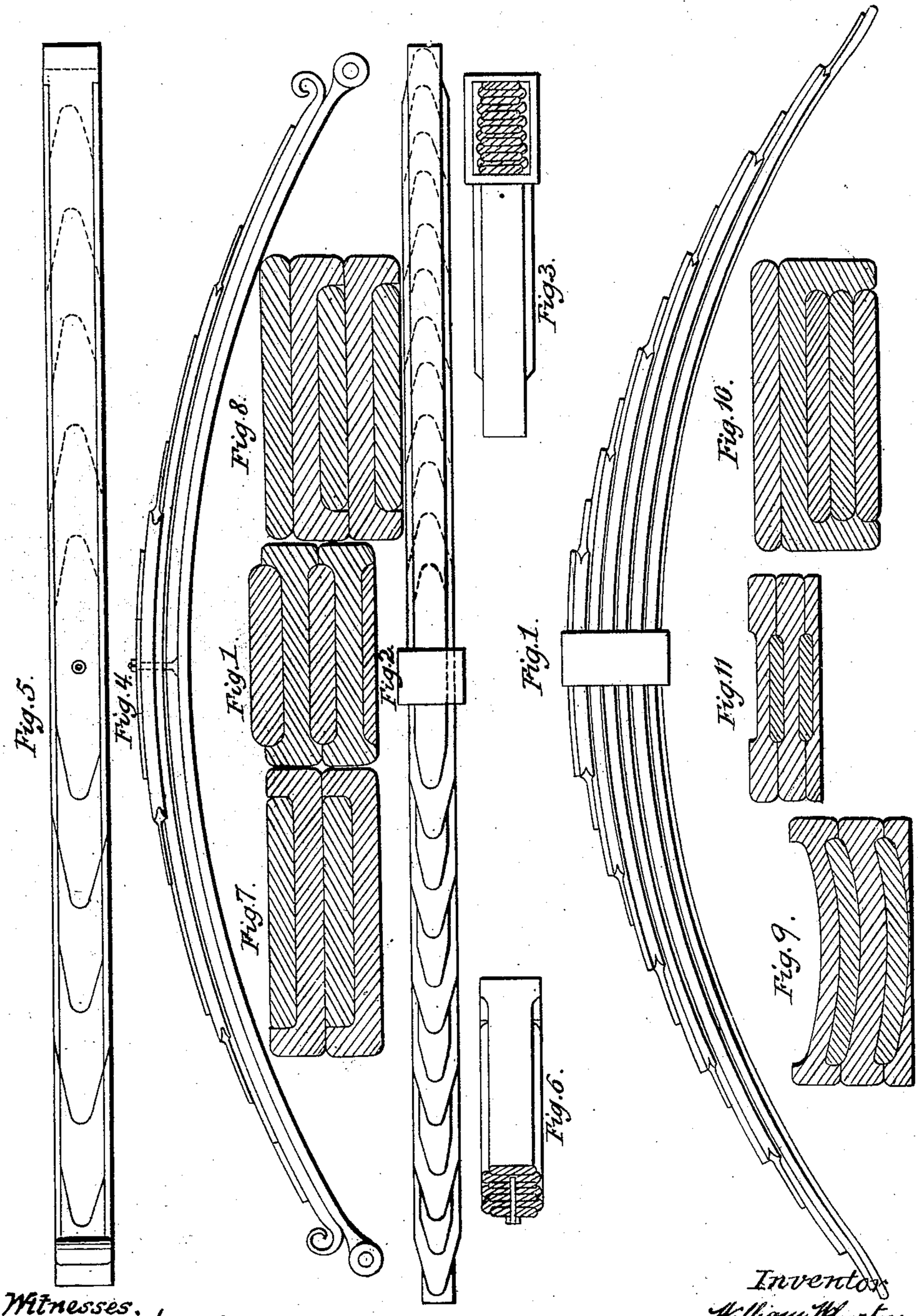
W. WHARTON.

Carriage-Spring.

No. 37,653. Patented Feb. 10, 1863.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM WHARTON, OF BIRMINGHAM, ENGLAND.

IMPROVEMENT IN SPRINGS FOR CARRIAGES.

Specification forming part of Letters Patent No. **37,653**, dated February 10, 1863.

To all whom it may concern:

Be it known that I, WILLIAM WHARTON, of Birmingham, in the county of Warwick, in the Kingdom of England, engineer, have invented Improvements in the Manufacture or Construction of Springs for Railway or other Vehicles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the sheet of drawings hereunto annexed, and forming part of this my specification, and to the figures or diagrams drawn thereon, showing several different formations of spring and combinations of plates used in their construction.

The object of my invention is to produce springs which, while capable of the same resisting or supporting power, shall be, considering the weight or traction, much lighter and more secure than those hitherto in use, as buffing, bearing, or other description of springs. For example, I construct a spring according to my improvements as follows: I first take a bed-plate of suitable material of the full length of the spring required, its ends being turned into a solid or rolled eye or loop suitable for the ordinary attachments. I then take a second plate, which overlaps or turns downward, inclosing the edge of the bed or bottom plate, and upward to receive and infold the edges of the upper or third plate, forming a T-edge on both sides of the plate. All the additional plates used in making this spring are fitted consecutively, as just explained; or, in the same manner, the length of each of the plates used in making the spring is governed by the ordinary calculations.

The various combinations I make of spring-plates in the construction of my improved springs will be better understood by reference to the drawings than by any further detail; but I would here mention that the slot and pin used on or in springs of ordinary construction are dispensed with in springs constructed according to my improvements. Thus, my springs play longitudinally to any required extent, and are held in position laterally by the peculiar formation of their edges only, and not by any extraneous means, no securing contrivance being necessary, except, as in the case of buffer and other springs, at their centers, in order to attach the spring to the framing or other part of the vehicle.

In the drawings, Figure 1 is a side elevation of a buffer-spring, showing the plates with their edges turned up and down in the form of a T; Fig. 2, a plan view, one-half being plan of inverted spring; Fig. 3, a transverse vertical section taken through the center of Fig. 1; Fig. 1ª, a transverse section through center of spring, drawn to an enlarged scale; Fig. 4, a side elevation of bearing-spring; Fig. 5, a plan view of the same, one-half being inverted; and Fig. 6, a transverse vertical section taken through the center of Fig. 4. Figs. 7, 8, 9, 10, and 11 are transverse sections of various arrangements of plates constituting springs, drawn to an enlarged scale.

Figs. 1, 3, and 1ª show buffer-springs formed of plates having their edges turned in the shape of a T, so that the inner plates fit within the bent edges and slide therein, instead of the old method of pins and slots or grooves, the whole of the plates being kept in their places by a center band, as shown.

The bearing-spring, Fig. 4, is arranged in a similar manner to the buffer-spring, the upper and longest plate being provided with eyes at its extremities; but in this instance the plates are secured together by means of a bolt passing through the center of each, as at Fig. 6.

Figs. 7 and 8 show sections of springs having the edge of the plates turned only on one side, the sides thereof forming recesses or trays, into which other plates are inserted, the sides of the trays representing the letter L.

Fig. 10 shows another form of spring, the plates of which are partially inclosed by an inverted tray, the edges being turned only one way, L-shaped. A similar tray may also be placed beneath the plates, or both trays may in some cases be used, where great strength is required, thus inclosing the whole of the inner plates, as it were, in a box.

Fig. 9 shows a spring of T-edges, but having their upper surfaces slightly concaved or dished.

Fig. 11 shows another arrangement of narrow T-edges, the inner plates between each being only half the substance of the edges of

the outer plates, the centers of these outer plates being of the same substance as the inner ones, as shown.

I claim as of my invention—

A combination of spring-plates, secured together or embedded with each other by the peculiar form or forms of the edges thereof, such plates not being dependent on slots and pins or studs to secure them in position laterally, essentially as hereinbefore described.

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