J. J. C. SMITH.

Car Spring.

No. 50,850. Patented Nov. 7, 1865.

Fig. 1.

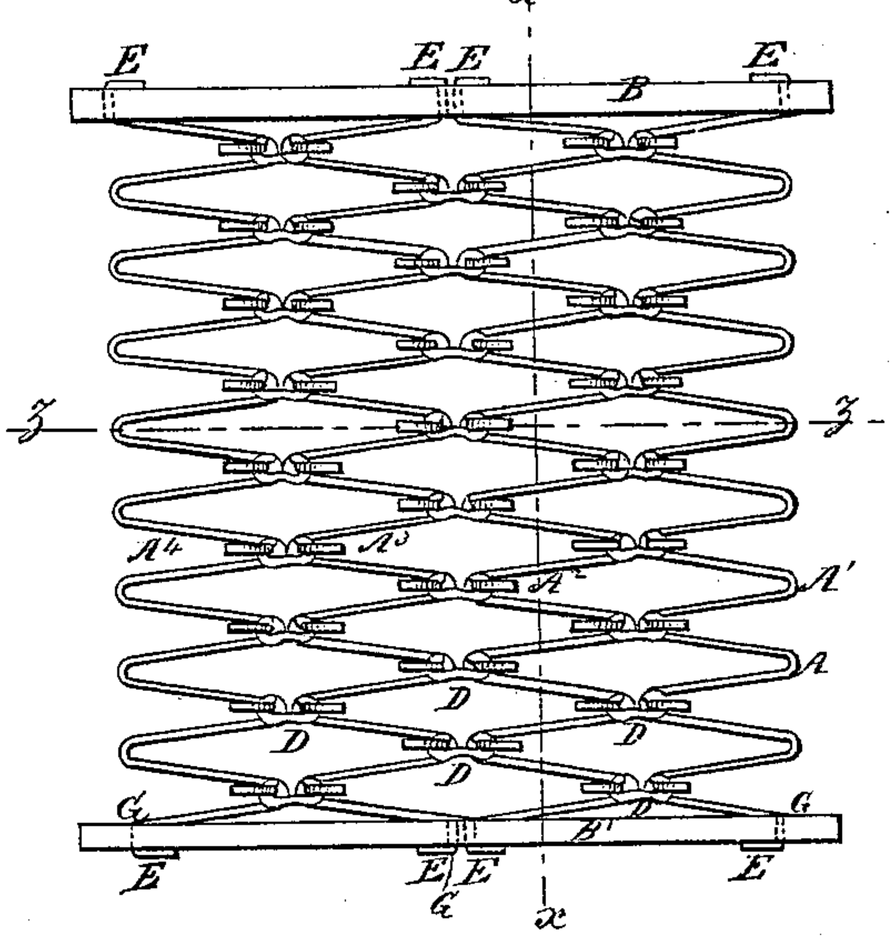


Fig. 2.

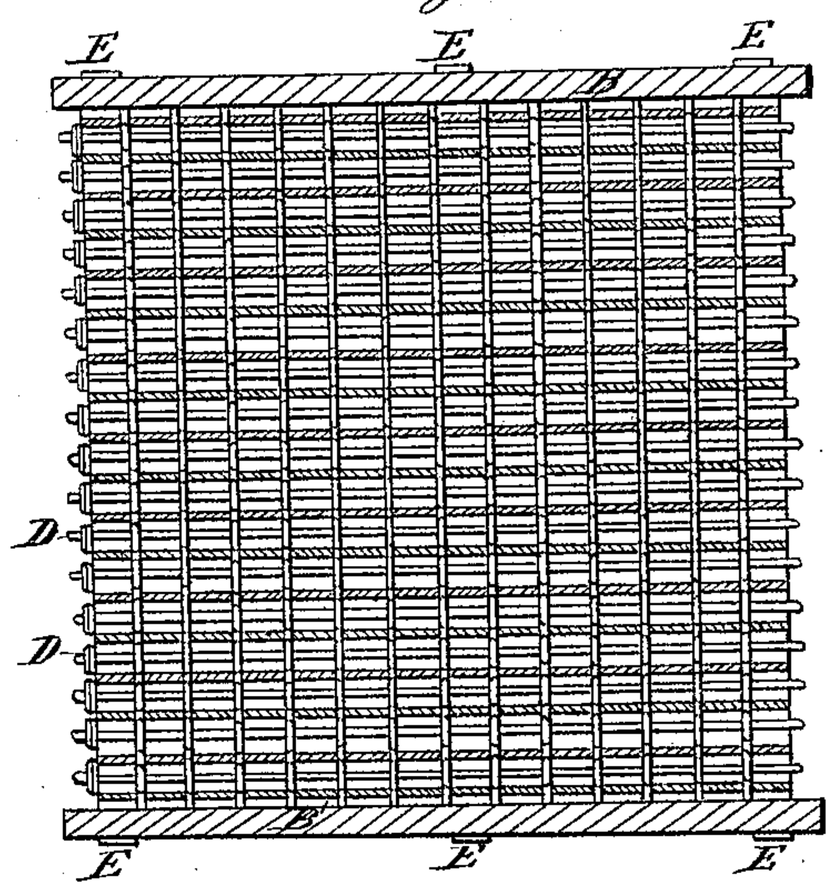


Fig. 3.

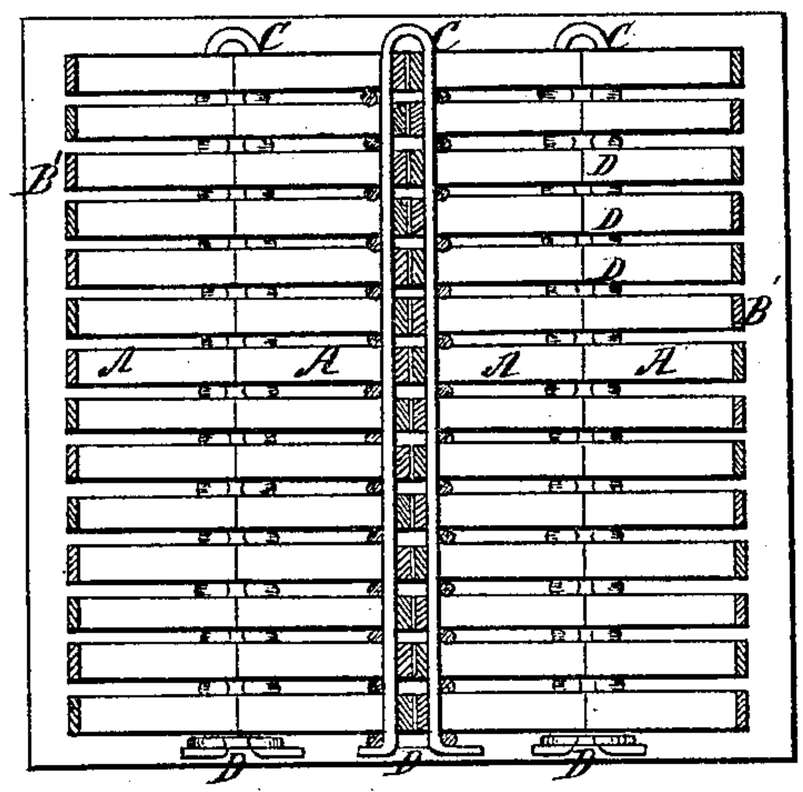
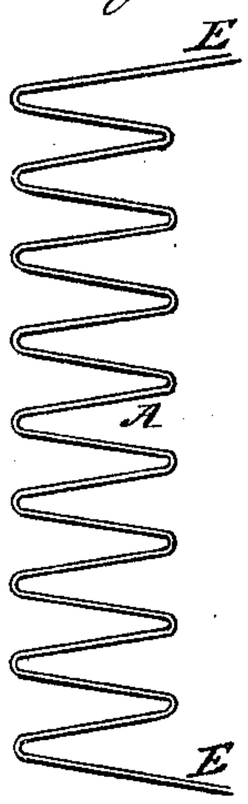


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN JOS. CHARLES SMITH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **50,850**, dated November 7, 1865.

To all whom it may concern:

Be it known that I, JOHN JOSEPH CHARLES SMITH, of the city and county of Philadelphia, in the State of Pennsylvania, have made certain new and useful Improvements in Car-Springs; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the accompanying drawings, which are made part of this specification, and in which—

Figure 1 is an elevation. Fig. 2 is another side view on line *x x*, Fig. 1. Fig. 3 is a sectional plan view on line *z z*, Fig. 1. Fig. 4 is a view of a detached section of spring.

Similar letters refer to corresponding parts in the different figures.

My invention consists in the method of building up and putting together the spring, which is composed of an assemblage of the portions shown detached in figure.

To enable one skilled in the art to which my invention appertains to construct and use the same, I will proceed to describe it.

A, Fig. 4, is a detached spring consisting of convoluted flat steel.

B B′ are two plates—an upper and a lower one—between which the assemblage of springs is to be made. These plates are not an essential feature of my invention, though they form a convenient method of applying it. The spring itself, as consisting of the said assemblage, forms the subject-matter of a separate application, and the present specification of invention is only concerned in the method of assembling, attaching, or putting together the said portions to constitute an aggregated and finished spring for cars, &c.

For the sake of perspicuity I shall term the detached portions A, Fig. 4, "spring-pieces." The number of tiers of spring-pieces A having been determined upon—as, for instance, four, as represented in the drawings, these are laid flat upon a plate, and the first tier will form one side of the spring. These four spring-pieces are marked 1 2 3 4 respectively, Fig. 1. As will be seen, the adjacent folds of these spring-pieces are in opposition to each other, and the said adjacent folds in each case inclose the prongs of the bent wires C C, which, as the pieces are being assembled, are vertical. In the case illustrated, where the spring consists of four tiers, the number of rows of bent wires will be three, and the number of said bent wires will be equal to the number of the opposing convolutions. The first tier having been laid down in the manner described the prongs of the bent wires C C are linked together by the wire washers D, which retain the wires in close proximity to the fold of the spring-piece. This linking is performed at every one of the opposing convolutions by preference, though it may possibly be sufficient to omit it to some extent. The next tier of spring-pieces is then laid down in a corresponding manner and treated as before described, and the process repeated until the required limit is reached. The ends of the wires C C are then bent over, securing the whole.

The ends of some of the spring-pieces are prolonged, as shown at E, Figs. 1, 2, 4, so as to pass through holes in the top and bottom-plates, B B′, above and below which they are bent so as to secure them thereto. These projecting portions E are made as numerous as may be required, and the holes G in the plates B B′ are calculated, as to number and position, for the said projections.

This I claim to be a novel and secure method of assembling and fastening the pieces, and it has a feature beyond the mere security, inasmuch as it adds to the rigidity and strength of the spring by making each wire C a fulcrum-point upon which the adjacent straight portions of the spring will vibrate, and reducing the tendency to fracture at the middle of the curve.

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

1. The wires C C, which pass through the convolutions of the spring-pieces A.

2. The wire or other washers which connect the said wires C C, and thereby tie the pieces A to each other.

3. The method of securing the spring-pieces A to the upper and lower plate, or to an equivalent frame or rods.

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