

C. T. SCHOEN.
Car-Springs.

No. 148,991.

Patented March 24, 1874.

Fig. 1.

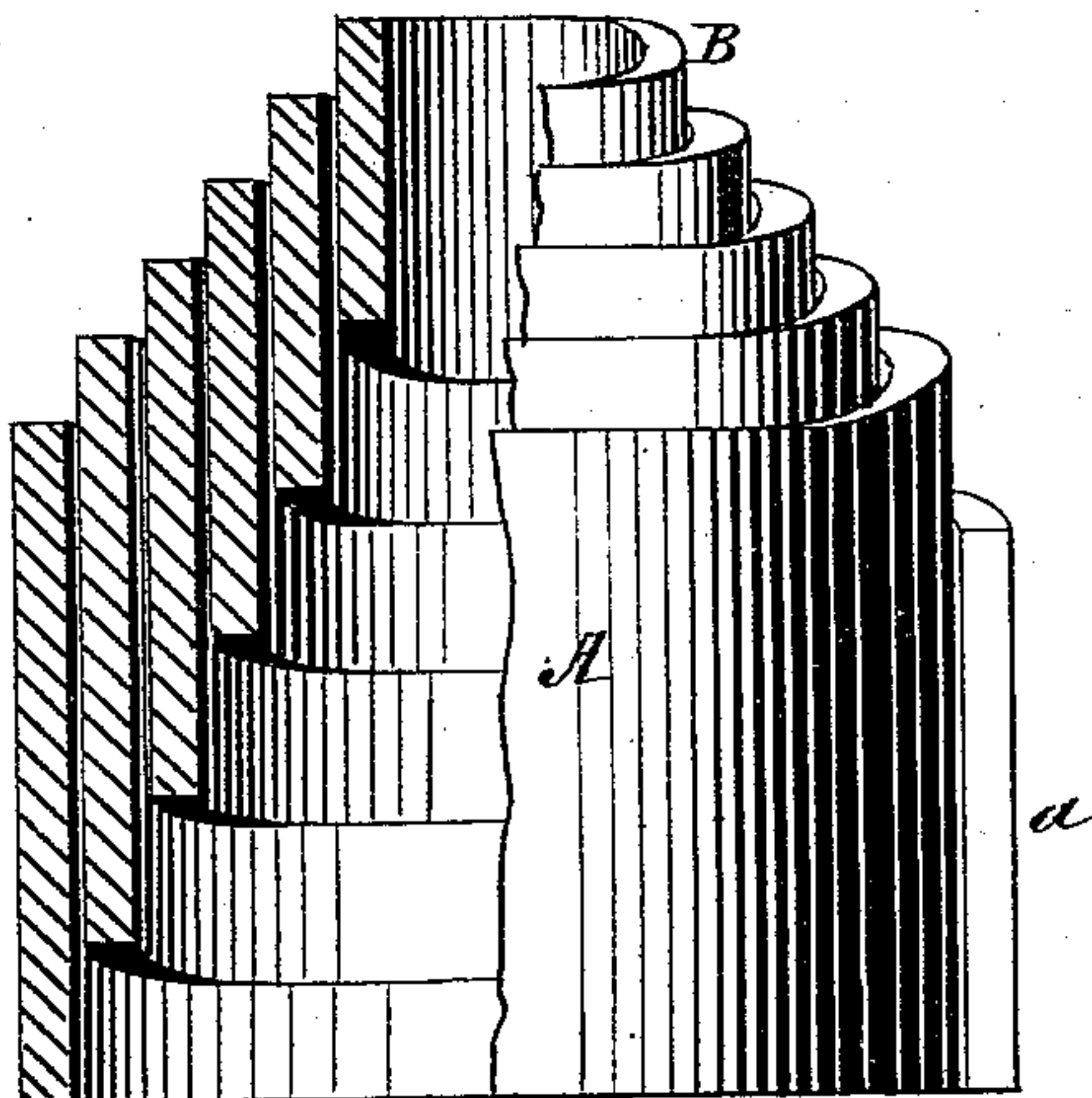
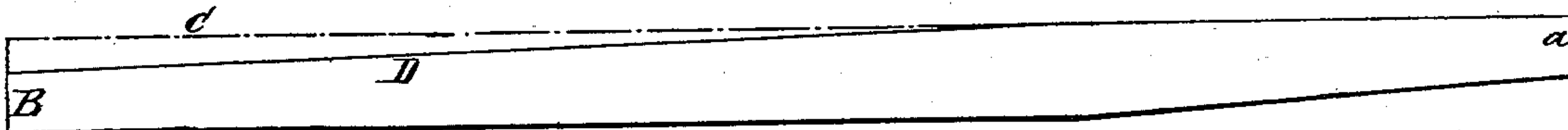


Fig. 2.



Witnesses.

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CHARLES T. SCHOEN, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **148,991**, dated March 24, 1874; application filed January 27, 1874.

To all whom it may concern:

Be it known that I, CHARLES T. SCHOEN, of Wilmington, in the county of New Castle and State of Delaware, have invented a new and Improved Volute Spring; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation, partly in section. Fig. 2 is a plan view of the plate of which the spring is formed.

My improvement relates to spiral volute springs; and the object is to cause the spring, while under pressure, to act equally throughout, all the coils of which the spring is composed being made to act at the same time, to avoid too great rigidity, give elasticity, and overcome the tendency of the spring to fracture; also, to save material, and reduce the weight, and lessen the cost.

To construct my volute spring A, the plate is rolled of a uniform thickness, and tapers in width about two-thirds of the length, more or less, the tapered end being that which composes the smaller or innermost coils of the spring. The end of the plate which forms the larger coils or base is shown at *a*, and that which forms the smaller or top at B, the dotted line C showing the taper of the plate.

In a spiral volute spring constructed of a

steel plate of uniform thickness and width, or tapered or flattened off only at the ends, the elastic action under pressure is confined almost entirely to the middle coil and those toward the base. These coils, having the longer leverage, must, necessarily, act first, and the smaller coils toward the top, from their stiffness and short leverage, afterward. The elastic action being confined to so small a portion of the spring, the fibers of the steel are liable to fracture, as the action is confined almost wholly to one or two coils.

This defect is remedied in constructing my spring by the gradual narrowing of the plate, the coils toward the small end being made less stiff and rigid, and the elastic action extending throughout the whole length of the spring. This construction causes each coil to act at the same time, and in equal proportion, except those constituting the base and top.

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

A spiral volute spring made from a spring-plate which gradually increases in width with the diameter of the spring, as and for the purposes specified.

CHARLES T. SCHOEN.

Witnesses:

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