

Freeland & Ward,

Making Springs,

N^o 46,655.

Patented Mar. 7, 1865.

Fig. 3

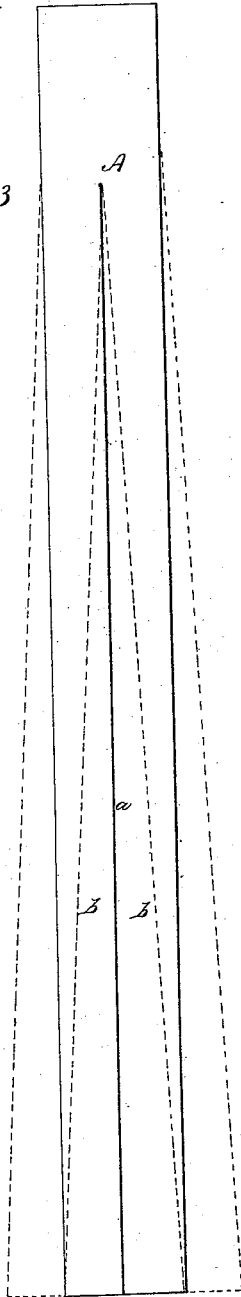


Fig. 1

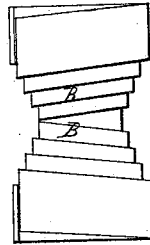
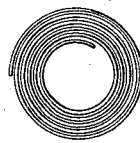


Fig. 2



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UNITED STATES PATENT OFFICE.

JOHN FREELAND AND DANIEL WARD, OF NEW YORK, N. Y.

IMPROVEMENT IN MAKING VOLUTE SPRINGS.

Specification forming part of Letters Patent No. 46,655, dated March 7, 1865.

To all whom it may concern:

Be it known that we, JOHN FREELAND and DANIEL WARD, of the city, county, and State of New York, have invented a new and useful Improvement in Volute Springs; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an external view or elevation of our invention; Fig. 2, an end view of the same; Fig. 3, a view of the metal plate or strip out of which our improved spring is formed, said plate being properly prepared for rolling.

Similar letters of reference indicate like parts.

This invention relates to a new and useful improvement in volute springs for railroad-cars and for other purposes.

The object of the invention is to obtain a spring of the class specified which will possess a greater degree of elasticity than usual, and be stronger and less liable to break and more durable.

The invention consists in forming the spring out of a metal plate of suitable dimensions, said plate being cut centrally nearly its whole length and the cut portion spread apart or distended and the plate then rolled, whereby a double volute spring is formed, as herein-after set forth.

A, Fig. 3, represents a metal plate. Steel would be the preferable material for large springs. This plate may be of any suitable dimensions, according to the size of spring required, and it is cut longitudinally and centrally nearly its entire length, *a*, Fig. 3, indicating the cut. The two parts *b b* formed by the cut are then spread apart, as indicated in red, Fig. 3. The plate *A* thus prepared is ready for rolling, and if steel be used the plate is heated and rolled from the uncut end around a rod or mandrel. The spring thus constructed is of double volute form, as shown in Fig. 1, the smaller diameters of the two parts, designated by *B* in Fig. 1, being in contact. By this mode of construction we obtain a spring of the class specified possessing great elasticity, strength, and durability. Two springs are in effect combined in one, which has greater elasticity and strength than a spring rolled from a single plate, as hitherto, so as to form one continuous spiral or scroll.

We claim as new and desire to secure by Letters Patent—

A volute spring composed or formed out of a single plate cut or divided longitudinally nearly its whole length, with the cut portions spread apart and the plate rolled, substantially as herein shown and described.

JOHN FREELAND.
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Witnesses:

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