

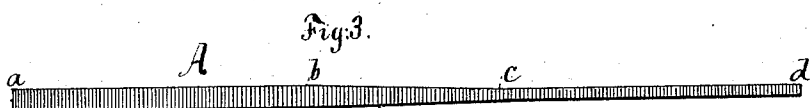
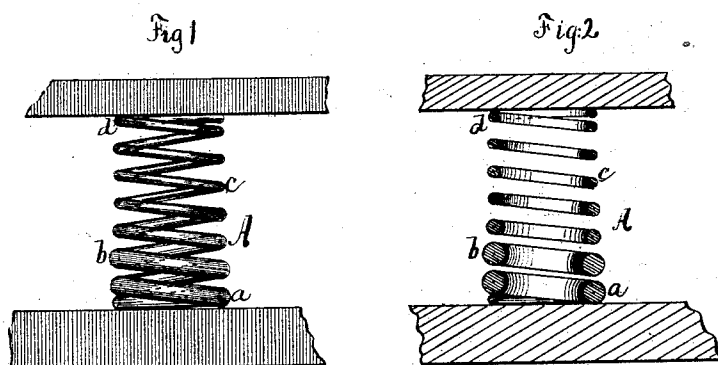
(No Model.)

C. C. HEARLE.

SPRING.

No. 338,267.

Patented Mar. 23, 1886.



WITNESSES:

Franklin Barrett.
David R. McTee

INVENTOR:

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UNITED STATES PATENT OFFICE.

CHARLES COPPIN HEARLE, OF MONTREAL, QUEBEC, CANADA.

SPRING.

SPECIFICATION forming part of Letters Patent No. 338,267, dated March 23, 1886.

Application filed October 19, 1885. Serial No. 180,382. (No model.) Patented in Canada November 26, 1885, No. 22,885.

To all whom it may concern:

Be it known that I, CHARLES COPPIN HEARLE, a subject of the Queen of Great Britain, and a resident of Montreal, in the district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Springs; and I do hereby declare that the following is a full, clear, and exact description thereof.

10 The object of my invention is to produce a spiral spring which is so constructed that it will carry with elasticity either a light or heavy load, and that it will withstand the requisite amount of resistance, thus accommodating it-
15 self to any given weight that may be placed upon it and at the same time retain its elasticity.

Referring to the drawings, Figure 1 is a front view of my improved spiral spring. Fig. 20 2 is a sectional view of the same. Fig. 3 is a plan view of the rod or bar of steel or other metal before rolled up into a spiral spring, as shown in Fig. 1.

Similar letters refer to similar parts throughout the several views.

A is a rod or bar of steel or other metal, and which can be made round, square, or of any other shape, and of any desired length necessary to make any required size of coil.

30 This bar or rod of metal is made thick and straight from *a* to *b*. From *b* to *c* it is tapered and made gradually thinner. From *c* to *d* it is straight and thin. When the spiral spring is formed out of the rod or bar A, the part from *a*
35 to *b* forms the lower coils. The part from *b* to *c*

forms the three other coils, and the part from *c* to *d* forms the upper coils.

Although I show this mode of constructing the coil, I am aware the same result may be accomplished by forming the coil with the heavy part on top and the thin at the bottom.

With a light load or empty car or vehicle the thinner metal of the spiral spring carries the weight. As the load increases, these coils become compressed. When these coils are 45 compressed or closed downward or upward, or vice versa, no further or greater strain comes on them. The load then presses down or up the tapered part until it is also closed down or raised, and the heavier part of the spring 50 carries the maximum load. I can by this construction make a spring which will be elastic under all conditions up to its full capacity.

The spring constructed as described may be used on railroad-cars, vehicles, and for any 55 other purposes where springs are required.

Having thus described my invention, I desire to claim—

A spiral spring formed out of a bar or rod of iron or steel or other metal, A, which is 60 straight and thick from *a* to *b*, tapered and thin from *b* to *c*, and thin and straight from *c* to *d*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I 65 have hereunto set my hand.

CHARLES COPPIN HEARLE.

Witnesses:

HENRY FRY, Jr.,

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