W. P. HANSELL.
Car-Springs.

No. 163,485. Patented May 18, 1875.

FIG II

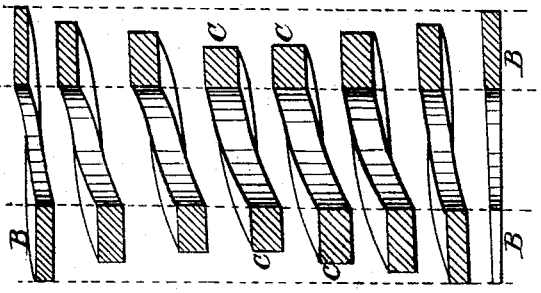


FIG V

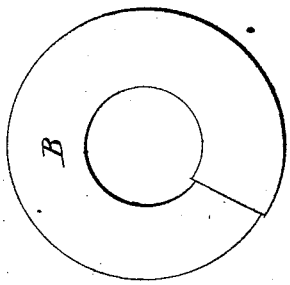


FIG III

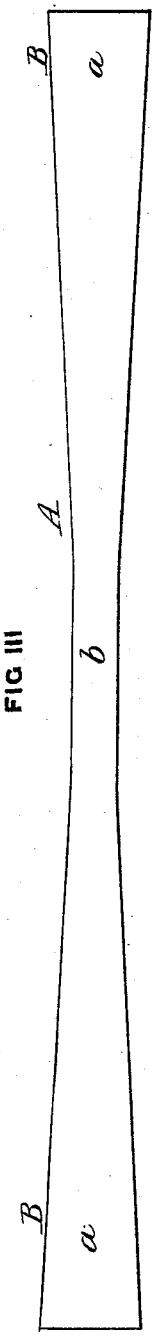
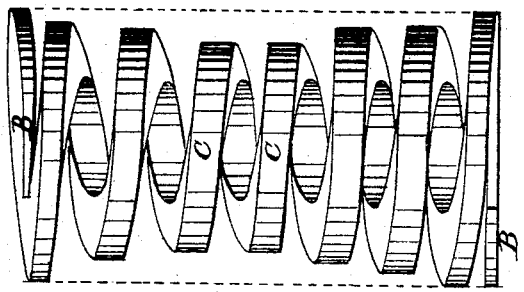


FIG IV

FIG I



WITNESSES

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IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **163,485**, dated May 18, 1875; application filed January 25, 1875.

To all whom it may concern:

Be it known that I, WALTER P. HANSELL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Springs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

The features which distinguish this spring from others consist of a spiral spring, produced from a bar of metal or steel having a greater width at its ends than in the center, and greater thickness in the middle than at the ends, the object being to obtain a broad bearing at each end of the spring, with comparatively narrow and thick coils as they approach the center, or at the center, giving the spring the greatest strength at this point in thickness, while the ends are comparatively thin, so that the bar may be coiled on its edge upon a mandrel having the same diameter its full length, and produce by the peculiar shape of the bar a center opening of equal diameter from end to end, with the outer edges of the coils increasing in diameter from the center to the ends, and form thereby a double conical contour, giving the spring great strength and elasticity.

In the accompanying drawings, Figure 1 represents an elevation of a car-spring embracing my invention; Fig. 2, a vertical section of the same; Fig. 3, a side view of the bar from which the spring is formed, and Fig. 4 an edge view of the same.

The bar A to form the spring is brought to the proper shape, either by flattening the ends *a*, or cutting the metal with wide flat ends and a narrow thick middle, *b*, or by taking a wide bar and drawing it down in the center; or in any way that will produce the required shaped bar that will give, when coiled, the broad flat bearing ends B and narrow thick middle coils C. The ends of the bar are thinner than the center, where it increases in thickness and in strength; an essential difference between my present spring and that patented to me December 15, 1874, being that the double cone in said patent is formed from a bar of the same width and thickness throughout its length, upon a mandrel of two cones joined at their apexes, while in the present case the bar tapers in width on the flat side from the extreme ends, as shown in Fig. 3, toward the center, and in thickness from the center or middle to its ends, as shown in Fig. 4, and is coiled upon a mandrel of the same diameter throughout its length, as shown in Fig. 2, and produces, when so coiled, a spiral spring having the outline only of a double cone, as shown in Fig. 1.

The bar is coiled on its edge, and as it is wider at its ends than the middle, it thus produces an outer double outline, as described.

The ends may be flattened or cut out as far toward the center of the bar as desired, and such flattened ends may be long enough to make one coil, or they may be long enough to make the spring taper down to the center.

Any suitable dimensions for the bar may be used, and the spring may be used with or without the usual plates at the top and bottom.

Helical springs have been made from a bar varying in width, or on its flat side, from the middle to either end, and a car-spring made from such form of bar is not claimed in this patent.

I claim—

1. A spiral spring made from a bar having a uniform flatwise and edgewise taper from the ends to the middle, and from the middle to the ends, substantially as and for the purpose set forth.

2. A spiral car-spring, coiled from a bar tapering edgewise from the middle to the ends, to give the greatest strength to the middle coils of the spring, as set forth.

3. A spiral car-spring having broad, thin, flat end coils, thick center coils, a cylindrical central opening, and a double conical contour, substantially as set forth.

In testimony that I claim the foregoing as my own, I have affixed my signature in presence of two witnesses

WALTER P. HANSELL.

Witnesses:

WM. J. LOGAN,

BIDDLE R. HANSELL.