(No Model.)

W. P. HANSELL.

CAR SPRING.

No. 273,837. Patented Mar. 13, 1883.

Fig. 1.

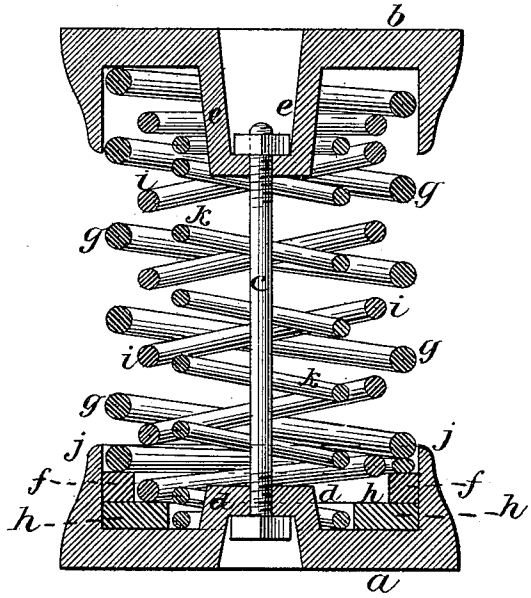


Fig. 2.

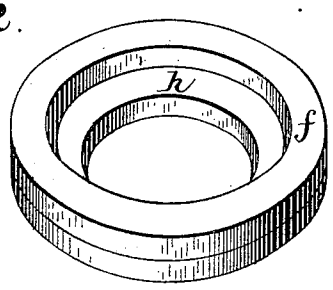
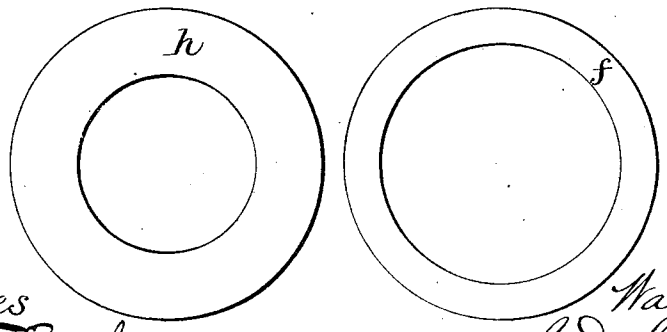


Fig. 3



Witnesses
Edmund Brodhag
R. E. Grant

Inventor.
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UNITED STATES PATENT OFFICE.

WALTER P. HANSELL, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE FRENCH SPIRAL SPRING COMPANY, OF SAME PLACE.

CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 273,837, dated March 13, 1883.

Application filed November 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, WALTER P. HANSELL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Car-Springs, of which the following is a specification.

My invention relates to improvements in graduated bolster-springs for railway-cars and for other purposes, in which the graduation of spirally-coiled springs of different strength placed one within the other, so as to be acted on in succession, is effected by the seat casting or cup having recesses of different depths, whereby to let the inner spring or springs down below the outer one, the object being to use spirally-coiled bars of equal length and graduate by the seat-confining casting to suit light and heavy weights.

My improvement is directed to effect the same result by means of a ring or rings adapted to fit one upon the other, into the seat or cup casting within which the springs are usually fitted, each ring having the same circumference, but of varying diameters of central openings, so that each ring will form a separate support for each spring, and be confined within the rim of the seat-casting. The separate seat-forming rings give the advantage of using them with the ordinary cup-seat or rimmed casting now used for spiral springs in nests, and thus save the expense of new seat castings or cups recessed at different depths.

My improvement also gives the advantage of using one, two, or more rings within the seat-cup to suit the number of springs used.

Referring to the accompanying drawings, Figure 1 represents a vertical section of a car-spring of three spirals of equal length, graduated by separate seat-rings; Fig. 2, the ring-seats removed from the seat-cup or rimmed casting, and Fig. 3 the seat-rings separated.

The spirally-coiled bars forming the springs are of equal length, and arranged in nests of two or more, the outer one being preferably the strongest and the central one the weakest. The usual rimmed seat or cup, *a*, and rimmed cap *b* are used with the springs, and secured together and to the springs by a central screw-bolt, *c*, in the usual manner, as shown. The rimmed seat or cup and cap has the usual interior central hubs, *d e*, and the inner spring fits around them upon the seat-cup, and, being the weakest, is the last of the nest brought into action by reason of being supported upon the bottom of the rimmed seat. A separate ring, *f*, forms the seat for the outer spring, *g*, and is placed upon a bottom ring, *h*, which forms the seat for the intermediate spring, *i*, the bottom ring having a central opening of less diameter than that of the top ring. These separate metal rings may be of the same or of different thickness, and each of a diameter to allow them to be placed within the rim *j* of the cup-seat *a*, and to fit its interior wall, so that they shall have no movement upon or within the seat or upon each other. The upper ring supports the outer spring at a suitable height above the inner ones, and the lower ring supports an intermediate spring a suitable height above the central spring, *k*, which rests directly upon the bottom of the cup-seat. The outer spring sustains the weight of the car at all times, and the inner spring or springs are brought into action as the load is increased. The seat and the cap form the casing for the springs, and the cross-beam of the car-body is supported upon the cap. It is obvious that two or more rings may be formed in a single ring adapted to be fitted within the rimmed seat; but I prefer to make them separate, so that each spring shall have a separate ring-seat support, which can be placed within and removed from the rimmed seat-cup, as may be desired.

By the separate ring-plates I provide a simple and effective device to obtain a graduated spring, and which can be applied to any spring composed of two or more spirals inclosed in a case, at no expense beyond the cost of the rings which make the variations in the height of the different spirals composing the spring.

A cup or rimmed seat-ring for a bolster-spring has been used with coiled springs of different lengths, and constructed so as to confine both the inner and the outer springs in their proper relation, but by my improvement plain rings, like washers, are used to graduate

springs of equal length, and the usual rimmed cup serves to confine both the springs and their plain seat-rings.

I claim—

1. The combination, with a bolster graduated spring composed of spirally-coiled bars of equal length placed one within the other, and the rimmed seat or bearing-cup *a*, of one or more separate washer-rings having a diameter adapted to fit within the bearing-cup rim, and of a thickness less than the depth of said rim, as shown, and for the purpose described.

2. The graduated spring herein described, consisting of the spirally-coiled bars of equal length placed one within the other, the cap *b*, the seat or bearing-cup *a*, and the separate washer-rings of equal outer diameter, and of unequal inner diameter placed one upon the other within and below the top of the rim of said bearing-cup, as shown, and for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER P. HANSELL.

Witnesses:

BIDDLE R. HANSELL,

OLIVER FULTON.