(No Model.)

C. W. PICKERING & T. NICHOLS.

CAR SPRING.

No. 306,698. Patented Oct. 14, 1884.

FIG. 1.

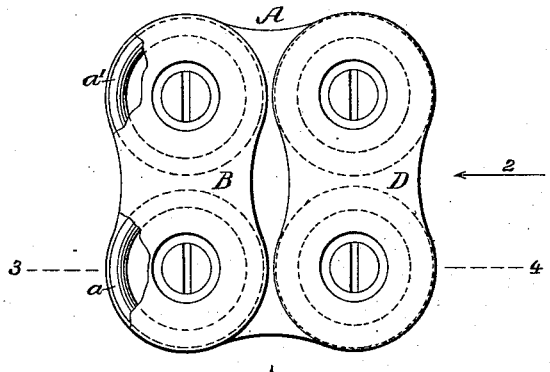


FIG. 2.

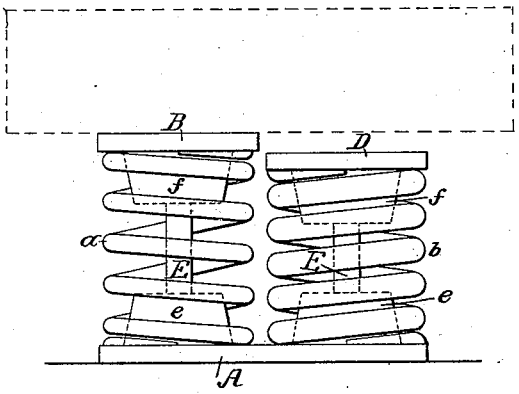


FIG. 3.

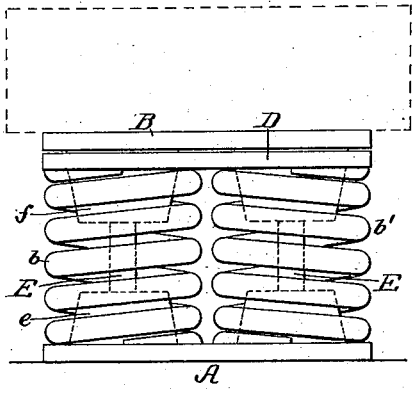
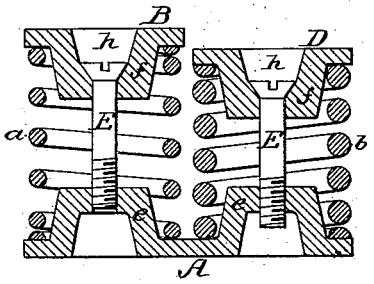


FIG. 4.



Witnesses,
John M. Clayton
James F. Jobbins

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by their Attorneys
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UNITED STATES PATENT OFFICE.

CHARLES W. PICKERING AND THOMAS NICHOLS, OF PHILADELPHIA, PA.

CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 306,698, dated October 14, 1884.

Application filed August 11, 1884. (No model.)

To all whom it may concern:

Be it known that we, CHARLES W. PICKERING and THOMAS NICHOLS, both citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Car-Springs, of which the following is a specification.

Our invention consists of certain improvements, fully described and claimed hereinafter, in that class of car-springs which are in part composed of spirals of different heights.

In the accompanying drawings, Figure 1 is a plan view, partly sectional, of our improved car-spring; Fig. 2, a side view looking in the direction of the arrow 1, Fig. 1; Fig. 3, a side view looking in the direction of the arrow 2, Fig. 1; and Fig. 4, a vertical section on the line 3 4, Fig. 1.

The elastic portion of the spring is in the present instance composed of two pairs of spirals—namely, those marked *a a'* and those marked *b b'*, the former pair being of greater height than the latter. The base A of the spring is common to all the spirals, into each of which enters one of the four projections, *e*, forming part of the said base. On the two highest spirals bears a plate, B, partly cut away in Fig. 1, to show the spirals *a a'*, the said plate having two projections, *f*, one of which enters each spiral. A similar plate, D, bears on the two shorter spirals *b b'*, and each of these plates is connected to the base A by screw-bolts E, in a manner too clearly shown in Fig. 4 to need description, the heads of the bolts being contained in recesses *h* in the said plates.

Car-springs have been heretofore composed in part of spirals of different lengths or different degrees of elasticity, so that the long and weaker springs will serve to support a light load, the shorter and more rigid springs coming into play when the load is increased. Hence our invention is restricted to the special construction of the spring above described.

It is not essential in carrying out our invention to adhere to two pairs of springs composed of spirals of different heights, for in making large springs the number of pairs of spirals may be increased, and in place of spirals arranged in pairs, they may be in sets of three or more; but in all cases two or more of the highest spirals must be connected together by a plate or plates, B, and two or more of the lowest spirals by a similar plate, D, the plate or plates appertaining to the long set or sets of spirals being independent of the plate or plates of the shorter set or sets of spirals. While the sets of springs are independent of each other from the base upward, the plates B and D present extended bearing-surfaces, which insure the unison of action of the spirals of each pair or set, and the lateral steadying of the entire spring.

The bolster-rail of the car is shown by dotted lines in Figs. 2 and 3, on reference to which it will be seen that the springs *b b'* are coiled in different directions. Thus the front spring may be coiled to the right and the rear spring to the left, the object of this being to correct the tendency which the springs, when all coiled in the same direction, have to deviate from a perpendicular line in one direction or the other, owing to the longitudinal movement of the bolster-rail. The same plan should be adopted in connection with the springs *a a'*.

We claim as our invention—

A car-spring in which the following elements are combined, namely: first, two or more pairs or sets of spirals of different heights; second, a base serving as a bearing for all the spirals; third, a plate or plates, B, connecting together two or more of the high spirals at the top; fourth, plates D, connecting together two or more of the low spirals at the top, and fifth, bolts E, connecting the said plates to the base, all substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHAS. W. PICKERING.
THOMAS NICHOLS.

Witnesses:
JOHN M. CLAYTON,
HARRY SMITH.