P. G. GARDINER.

Car Spring.

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IMPROVED RAILWAY-CAR SPRING

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, PERRY G. GARDINER, of the city, county, and State of New York, have invented new and useful Improvements in Cases or Frames for Railroad-Car Springs; and that the following is a full, true, and exact description of my said improvements, and the construction thereof, reference being had to the drawings accompanying and making part of this, my specification.

The nature and purpose of my improvements are to provide a suitable metallic case or frame, in which springs, composed of steel spiral coils, shall be arranged and held in a vertical position under the weight and swinging movements of the car, so as not to sway or bend laterally, and so become broken, bent, and useless; and, at the same time, the frame shall not entirely enclose the springs, but leave the lower portion of the springs open and accessible, so that dust and dirt will not accumulate in the frames and springs.

It has been found that when spiral coils are set in entirely enclosed frames or cases, for the purposes of railroad-car springs, there is a tendency to a gradual accumulation of dust and dirt within the closed case, which does not and cannot escape, or be cleaned out, except by taking off the spring from the car, and that this constantly-increasing accumulation of dust and dirt becomes so great as, in time, to choke the spring, and limit its action to the parts of the spring only which are above such accumulation.

My improvements remove this difficulty, and, at the same time, hold the coils in their proper position, and provide, also, the other requirements of a case or frame for the reception and action of the spiral coils.

For the description of my improvements, and manner of constructing the same, I will, in the first place, refer to—

Figure 3 of the drawings, which represents a vertical cross-section through the centre of the frame and springs; and also to

Figure 8, which represents a horizontal cross-section of the same, at the red line *x x* of fig. 3.

This spring consists of a group of eight spiral coils, *a a*. These springs are placed vertically between the base *b* and top or cover *c*, each of which is suitably grooved or recessed to receive the top and base of the springs, and hold them in position.

A tube or sleeve, *d*, passes through the centre vertically, extending above and below the top and bottom of the case or frame. Upon the base *b* of the frame, and forming one piece or casting with it, is the central hollow standard *e*, which surrounds the tube *d*, and extends upward, a little over half the height of the spring. It fits the central tube, so as to slide closely upon it during the action of the spring.

The base of the case is also cast in the exterior shape shown in fig. 8, so that a circular socket is formed by the two parts, *b* and *e*, of the size or diameter of the coil of the spring. The cap or cover of the frame is like the base in construction, but its sides, or periphery, *e' e'*, extend downward about half the length of the spring, so as to partly surround each spring, and support it in its proper position.

A screw-nut or collar, *f f*, placed in each cap and base, around the central tube or sleeve, holds the frame and springs together. The weight of the car rests upon the base and cap, the projecting ends of the sleeve or tube *d* being received in openings provided in the frame of the car and truck.

By this construction of the frame, or case, the spiral coils are sufficiently supported by and between the segmental standard *e* and the sides of the cap *e'*, and the frame is open at the lower part, so as to prevent any accumulation of dirt or dust, and to be readily cleaned by a brush. The stability of the spring is also further provided for by the sleeve *d*. The spiral coils have the desired freedom of action while thus set, and secured and supported in a vertical position, so as not to be bent or swayed by the swinging motion of the car.

Another form of frame or case, embodying my improvements, and securing the objects thereof upon the same principles, is shown in Figure 2 of the drawings, which represents a frame containg eight spiral springs, by a vertical cross-section through the centre, and Figure 7, which is a transverse horizontal section of the same at the line *x x* in fig. 7.

In this form of the frame or case, the central standard or supporting-pin *e*, is attached to the cap, as well as the base of the frame, the part attached to the cap being substituted in place of the sides, or periphery, *c' c*, in fig. 3, this arrangement being intended to have the springs still further open, and yet give them the necessary support and protection against bending or swaying out of line. The tube or sleeve runs through the centre of the frame, upon which the working-parts slide, and which is provided at each end with a screw-nut or collar, *f f*, to hold the parts together.

A further modification of my improvements is shown in Figures 5 and 10, which are similar sections of those before referred to. This frame contains only four springs. The cap *c*, and sides or periphery *c'*, are like those before described and shown in figs 3 and 8. The base *b* is also the same, but the central segmental standard *e* is dispensed with, and the tube *d* is substituted in its place. This tube is cast in one piece with the base *b*, and extends about half way up the height of the spring. It is, at its upper extremity, closed, with the exception of a central circular opening to admit a bolt, *g*, which connects the tube *a* with the cap *c*, through which it passes, and is provided

with a screw-nut at each extremity, and by which arrangement, the parts of the frame are held in position, so as to carry and support the spiral coils.

Figures I and VI represent, in similar sections, a frame, carrying two spiral coils. In this the central standard is dispensed with, and the cap *c* and sides, or periphery *c'*, are similar to those in fig. 5. The bolt *g* extends the entire length of the frame, and passes through both the cap and base, its lower extremity having an upset or head, with a recess of the base, as seen at *g'*, and its upper end is provided with a screw-nut, by which arrangement the parts are held together. The cap *c* has attached to it the tube or sleeve, which surrounds the bolt, about half the length of the spring, and slides easily upon the bolt.

Figures 4 and 9 represent, in similar sections, a single coil, and case therefor, the cap *c*, sides, or periphery *c'*, and base *b*, being arranged as a frame for the spiral coil *a*, but the bolt, central standard, and tube, or sleeve, being dispensed with.

In all the figures of the drawing, the same letters represent the same or similar parts.

Having thus described my improvements, the nature and objects thereof, and the manner of constructing the same,

What I claim therein as my invention, and for which I desire Letters Patent, is—

1. A frame or case, in which the parts are constructed, arranged, and combined together, in the manner and for the purposes substantially as described, for carrying and securing the steel spirally-coiled springs, singly or in groups, so that the lower portions of the springs will be unenclosed, and accessible for cleaning and inspection without removing the case, and at the same time the coils are protected and secured against bending or being thrown out of line by the irregular pressure or surging of the car.

2. The form and construction of the central standard *e*, whether used in combination with the cap or base singly, or with both in the same frame, and in part surrounding and sliding upon the central tube *d*, operating substantially in the manner and for the purposes described.

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