J. B. QUIRK.

CAR-SPRINGS.

No. 190,366. Patented May 1, 1877.

Fig. 1.

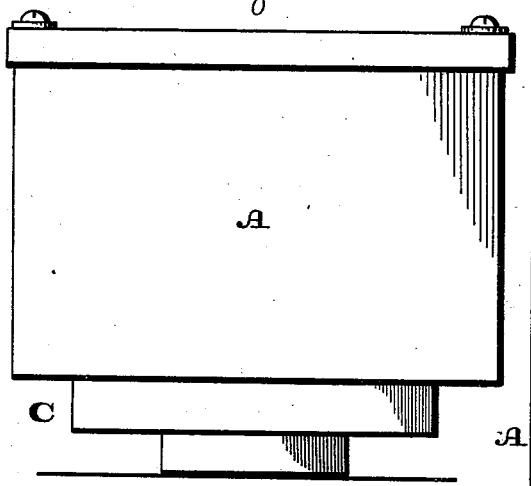


Fig. 2.

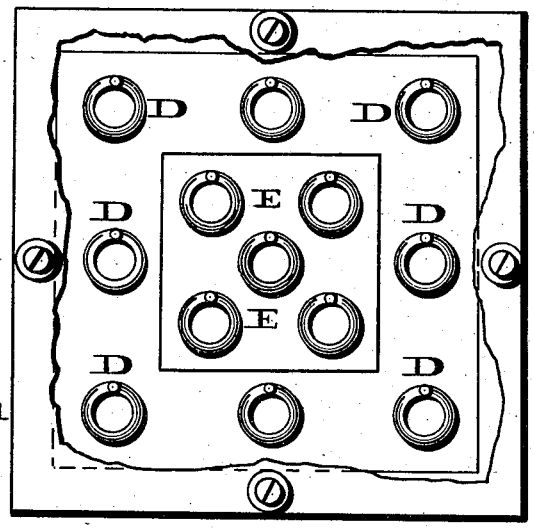
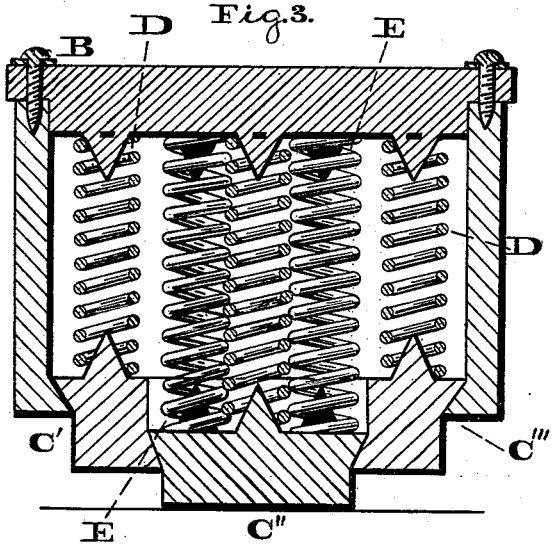


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN B. QUIRK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO A. B. DAVIS, OF SAME PLACE.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **190,366**, dated May 1, 1877; application filed February 14, 1877.

To all whom it may concern:

Be it known that I, JOHN B. QUIRK, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Springs for Cars and other purposes, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the spring embodying my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a transverse vertical section thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a spring formed of a case having two or more projecting telescopic followers, and containing one or more long and one or more short spiral springs, which are arranged side by side, and so combined with the followers that the long spirals are adapted for the long range of the spring and the short spirals for the short range thereof, the action of the followers being successive, whereby the weight—say of a car—is first received by the long springs, so as to ride easy, and then, by successive action, the weight of the subsequent load is received by both long and short spirals, thus providing a spring of endurance and power for heavy burdens.

Referring to the drawings, A represents a case, which may be of circular or angular form. B represents the top of the case, and C the bottom thereof, which latter is formed with two or more followers, C′ C″, which are fitted telescopically to each other and to the case, the follower C′ projecting below the fixed portion or ledge C‴ of the bottom of the case, and the follower C″ projecting below the follower C′, the downward motion of the followers being limited by shoulders or stops on the ledge, and on one or both of the followers.

Within the case A there is located a series of short springs, D, of spiral form, equal lengths, and arranged vertically, their upper ends bearing against the top B, and their lower ends bearing against the upper follower C′. Within the case, surrounded by the springs D, there is also located a series of long springs, E, of spiral form, equal lengths, and arranged vertically, their upper ends bearing against the top B, and their lower ends bearing against the lower follower C″.

The case will be properly located and secured in position. When weight—say that of an empty or partially-loaded car—is on the case, it is received by the follower C″, and consequently carried by the long springs E, whereby the car will ride easy, the power of the short springs not being brought into requisition.

When, however, the car is loaded so that the weight thereof exceeds the power of the long springs, the follower C″ will close into the follower C′, and the weight will be received by both followers C′ C″, and consequently carried by the combined action of the springs of the two series D E, whereby the entire power of the spring renders service.

It will be seen that provision is made for light or powerful action of the spirals, the power of the springs being successive relative to increasing any heavy loads placed thereon, and the spring is effective and reliable at all times, its resilient power being available for partial or entire service, according to the conditions of the weight transmitted to the spring.

It will also be seen that, as both ends of the springs are confined, displacement thereof is prevented, and the springs consequently retain their positions at all times.

I am aware that it is not new to employ springs of different lengths, so that they may be brought into action successively, as required, to sustain light and heavy loads.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A case with two or more followers fitted thereto telescopically, and projecting beyond each other and beyond the case, in combination with springs which are successively brought into action by successive action of the different followers, substantially as and for the purpose set forth.

2. The case A, with one or more telescopic followers and stop-ledge C‴, in combination with the short-range springs D and the long-range spring or springs E, substantially as and for the purpose set forth.

JOHN B. QUIRK.

Witnesses:
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