

J. W. EVANS.

Car Spring.

No. } 788, {
31,792. }

Patented Mar. 26, 1861.

Fig. 1.

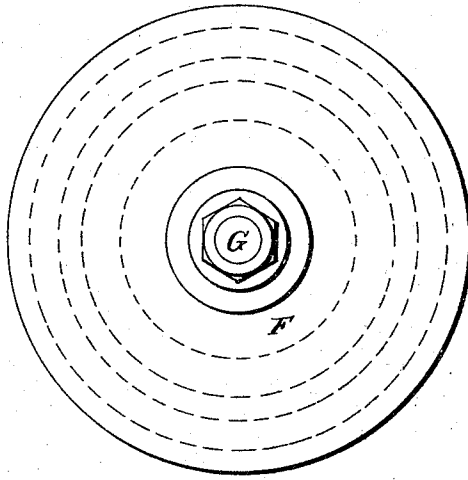


Fig. 2.

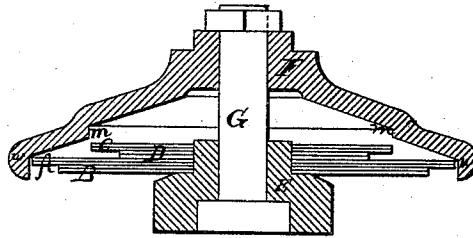
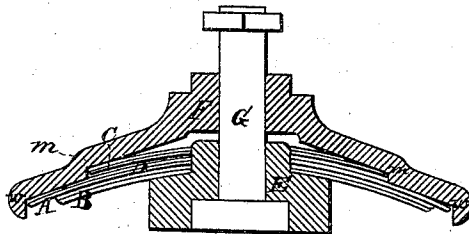


Fig. 3.



Witnesses:

Bury & Pordie
Julian Keen

Inventor:

James W. Evans

UNITED STATES PATENT OFFICE.

JAMES W. EVANS, OF NEW YORK, N. Y.

RAILROAD-CAR SPRING.

Specification of Letters Patent No. 31,792, dated March 26, 1861.

To all whom it may concern:

Be it known that I, JAMES W. EVANS, of the city, county, and State of New York, have invented a new and Improved Railroad-Car Spring; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure I represents a top view and Figs. II, III longitudinal sections of my improved railroad car spring.

The nature of my invention consists in the combination of a dished cup, with a series of concentric steel disks, in such a manner that the plates will only be acted upon one after another, and as the weight or load upon the spring increases, whereby the strength and power of the spring is graduated in proportion to the load or weight applied, and likewise in the arrangement of a lip or projection on the dished cup for the purpose of insuring their effective action by the exclusion of dust, water or any other substances.

In the accompanying drawing A, B, C, D are concentric steel disk plates of unequal diameter, either single or duplicated, until the required strength is obtained. These disks are placed loosely on a ferrule, E, shaped in such a manner, as only to act near the center upon said plates. By this arrangement the disks forming the spring are, when under compression, allowed free expansion near the central hole, while by disks clamped or firmly screwed together in the middle, as has been heretofore done, the same are not only held tight, but their elasticity is in a very great measure thereby destroyed, besides having in that case a tendency to split in the center, while by my arrangement the disk plates are left at perfect liberty to slide or expand.

Over the steel disks a dish shaped cup F is placed, resting, when the spring is unloaded, on the outer periphery of the largest steel disk, A, and is provided with a lip, w, projecting below the disks A confining

thereby the circumference of said disks, and prevent at the same time the admittance of dust, water or other substances. The ferrule E and cup F are connected together by a bolt, G, to prevent the different parts from falling apart.

The inside of the dish shaped cup F (see Figs. II and III) is made with a recess, m, into which the largest disk plate C, of a second series of plates fit. By this arrangement, the series of plates A, B, on which the dish cup F rests are made of sufficient strength for any light weight or for the weight of the car itself, and as these are gradually brought inward then the second series of plates C, D, come into the recess, m, in the cup F and combine then their strength with the before acting plates A, B, and at the same time the acting or effective diameter of the steel disks will be so much reduced, and by which the strength of the spring will likewise be increased, giving thereby a soft and easy spring in the beginning which is increased gradually in strength and stiffness as the weight or load is increased.

The lip, w, which is made so long, that under no circumstances the edges of the largest disk will be brought below the same, forms a joint sufficiently tight to prevent the entrance of dirt, water, or any other substance, which might produce a detrimental effect on the successful operation of my spring.

What I claim as my invention and desire to secure by Letters Patent is—

The arrangement and use of a concave dish shaped cup, F, provided with a projecting lip, w, and annular recesses, m, in combination with a series of annular steel disks; placed loosely upon a ferrule, E, the whole being arranged in the manner and for the purpose specified.

JAMES W. EVANS.

Witnesses:

HENRY E. ROEDER,
JULIAN KEEN.