

J. J. GEST.

Car Spring.

No. 53,292.

Patented Mar. 20. 1866.

Fig 1

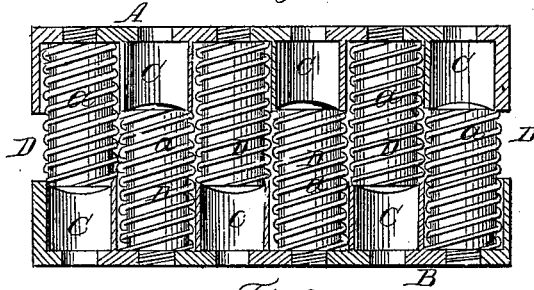


Fig 2

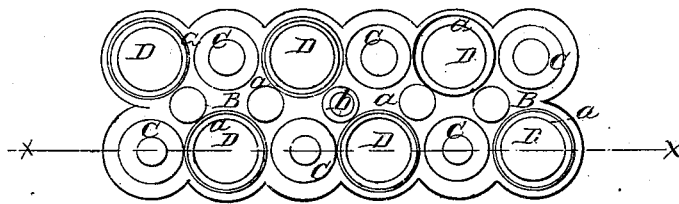


Fig 3

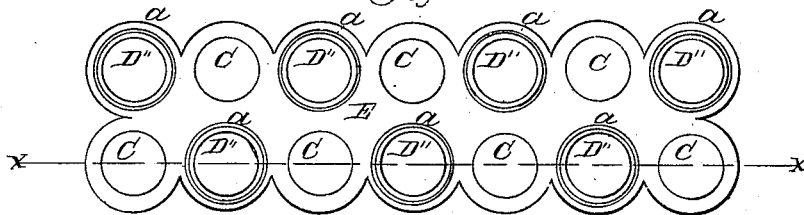
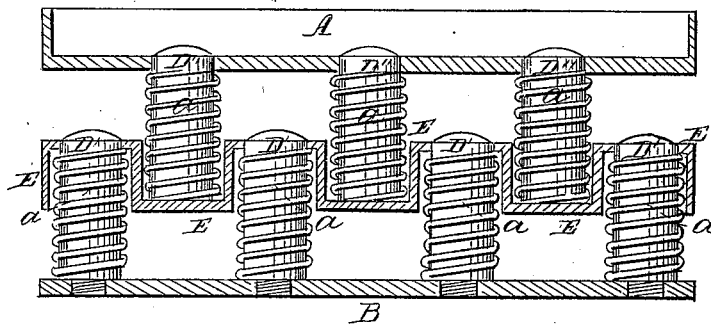


Fig 4



Witnesses

*J. D. Cotton*  
*N. W. Helburn*

Inventor

*Joseph J. Gest*  
*By Atty. C. B. Stoughton*

# UNITED STATES PATENT OFFICE.

JOSEPH J. GEST, OF CINCINNATI, OHIO.

## IMPROVED CAR-SPRING.

Specification forming part of Letters Patent No. 53,292, dated March 20, 1866.

*To all whom it may concern:*

Be it known that I, JOSEPH J. GEST, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and Improved Combination Spiral Spring for Railroad-Cars, Carriages, and for other Purposes; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical section through one of the springs in question, and taken through one of the tiers of springs, studs, and sockets, as at the red line *xx* of Fig. 2. Fig. 2 represents a top view of the lower plate of the spring. Figs. 3 and 4 represent, respectively, a plate and vertical section through a modified construction of the spring, in which a central plate of an embattled or crenelated form is used, with nests of springs above and below it.

Similar letters of reference, where they occur in the separate figures, denote like parts in all the drawings.

Spiral springs are as a general thing the cheapest and most simple of the many kinds known and used; but as now applied and used under railroad-cars, particularly when there is but a limited space for the spring to set and play in—this space not being much over five inches in height, and rarely seven inches—they are seriously defective in retaining their proper position; and it is well known that the motion or action of spiral springs diminishes each way from the center of same; consequently the necessity of working as long a spring as possible within a limited space to secure a sufficient and proper amount of motion.

The object and purpose of my invention is to so combine and arrange a nest or series of coiled springs in a box or case, with studs or guides running through the coils, and within a limited space, as that the greatest amount of motion may be attained in that given space, and thus make the coiled springs worked on studs or guide-rods available as car-springs; and my invention consists in arranging upon an upper and under plate alternate studs and sockets, with a coiled spring arranged to be compressed and expanded by the approach or

receding of the plates or of the studs or sockets, and this whether a central plate between the upper and under plate be used or not, as will be explained.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

In Fig. 1, A represents an upper, and B an under, plate, upon each of which are arranged a series of alternate sockets, C, and studs D, but so that the sockets of one plate shall be opposite the studs of the other plate, and vice versa.

Around the studs D are placed coiled springs *a*, one end of said spring resting upon the plate and the other against the socket into which the stud plays as the spring yields to its superincumbent load; and a set-screw, or its equivalent, *b*, Fig. 2, may be used to prevent the upper and under plates from separating so far as to bring the points of the studs out of the sockets, which, if it should occur, might disarrange the spring as a whole. As the springs yield the studs play into their respective sockets, and the sockets and studs in turn keep the springs in proper position to prevent them from buckling or getting out of perpendicular.

In Figs. 3 and 4 I have shown a modification of my proposed spring, in which a middle plate, E, of an embattled or crenelated form, is interposed between the top and bottom plates, A B. In this form of spring the studs and springs break joint or overlap each other, as in Fig. 1; but there are two sets of studs, sockets, or their equivalent guides, and springs. The studs D' are secured to the under plate, B, and work into and through a socket in the middle plate upward, while the studs D'' are secured in sockets in the middle plate, E, or to the upper plate, A, and play up through an opening or openings in the upper plate, A, or down through the middle plate, E. In this construction, too, the coiled springs *a a*, &c., extend from the plate to the end or bottom of the socket, which admits of about the same length of spring as those shown in Fig. 1; but one set of studs, D'', may or may not project through or out of the box as the spring yields to the load.

The plates which hold and guide the studs,

springs, and sockets may form a part of the boxing or caging that contains them, and the ends, as in Fig. 1, may be cut away to allow for the compression or expansion of the whole spring; or one flange or end may pass inside or outside of the other, and thus completely inclose all the parts, while the spring would be free to act under its load.

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

The combination of plates, springs, and alternate sockets and studs on said plates, substantially as herein described, and for the purpose of attaining the greatest amount of motion with spirals worked on studs or rods in the limited space usually allowed for car and other springs, as herein explained.

JOSEPH J. GEST.

Witnesses:

M. EMMERY BAILEY,  
P. POLAND.