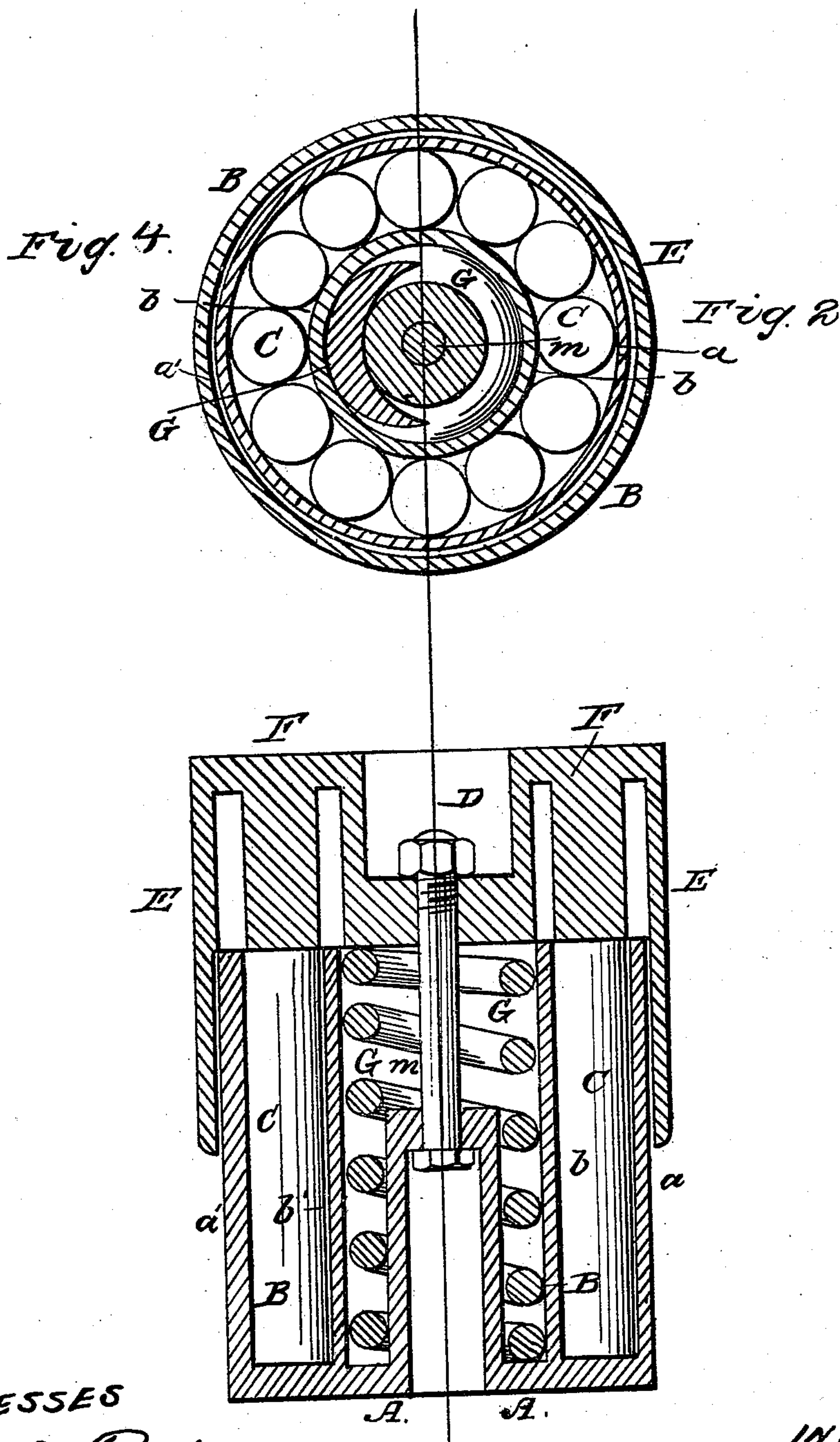


P. G. GARDINER.

Car Spring.

No. 94,100.

Patented Aug. 24, 1869.



WITNESSES

Henry C. Pender
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PERRY G. GARDINER, OF NEW YORK, N. Y.

IMPROVED CAR-SPRING.

Specification forming part of Letters Patent No. 94,100, dated August 24, 1869.

To all whom it may concern:

Be it known that I, PERRY G. GARDINER, of New York, in the county and State of New York, have invented a new and Improved Car-Spring, called the "Colonnade Spring;" and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement of a casing provided with a deep circular channel, either with parallel sides or having the outer side or wall slightly slanting outward, into which a series of india-rubber columns are placed side by side, said casing being provided with a cap or cover whose outer rim will inclose the sides of the lower casing, and which is arranged with a circular projecting rim or follower acting upon the india-rubber columns, and capable of entering the circular channel in the lower casing; and, further, my invention consists in the combination, with the above, of a spiral metal spring placed between the lower and upper casing or cap in such a manner as to act in combination with the india-rubber columns for the purpose of forming, by the use of a small amount of material, a strong, soft, and sensitive car-spring.

Figure I represents half of a vertical section, and Fig. II half of the top view with the cap removed, of my improved colonnade car-spring. Figs. III and IV represent the same views, with a slight modification.

Similar letters represent similar parts.

In the accompanying drawings, A is the lower casing, constructed with a circular channel, B, into which a number of india-rubber columns, C, are placed side by side.

D is a cap or cover having a deep rim, E, to inclose the lower casing. This cover is provided with a follower or projecting circular ring, F, acting upon the india-rubber columns C, and capable of entering freely the circular channel B. The sides or walls *a* and *b*, forming this channel B, are parallel, and act as guides for the india-rubber columns.

Into the central part of the casing A a spiral metal spring, G, is placed, on the top of

which the cap D or a projection on said cap rests. The bolt *m* fastens the spring together; but when this spring is arranged to be used as a buffer-spring this bolt *m* is dispensed with and the buffer-bolt arranged in its place.

In Figs. III and IV the outer wall, *a'*, of the circular channel B is made tapering on its inside surface, so as to make the space at the top of said channel B larger than the bottom part. By this arrangement the inner wall, *b'*, of said channel will only form and act as a guide for the india-rubber columns until said columns are compressed by a load placed on the top of the cap D, when the expansion of rubber, resulting from the compression of the india-rubber columns, will gradually fill this empty space, and as soon as the load decreases the india-rubber will leave the inner surface of the outer wall, and prevent thereby any unnecessary friction. Instead of making the wall or walls of this circular channel B in the lower casing slightly tapering, the india-rubber columns C may be made tapering, the larger diameter of the same being placed at the bottom.

The central spiral spring, G, may be dispensed with; but I prefer using the same, in combination with the india-rubber columns, to strengthen the spring and assist the reaction of the same.

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

1. The arrangement of a casing, A, constructed with a circular channel, B, either with parallel or tapering sides or walls, in combination with a number of india-rubber columns, C, placed therein side by side, and acted upon by a suitable cover or plunger, F, or its equivalent, the whole being arranged and combined in the manner and for the purpose described.

2. In combination with the above, a spiral metal spring, G, arranged inside of the circular channel in the casing, and operating substantially in the manner and for the purpose set forth.

P. G. GARDINER.

Witnesses:

HENRY E. ROEDER,
LOUIS STUMM.