

W. PALMER.
Car-Springs.

No. 149,951.

Patented April 21, 1874.

Fig. 2.

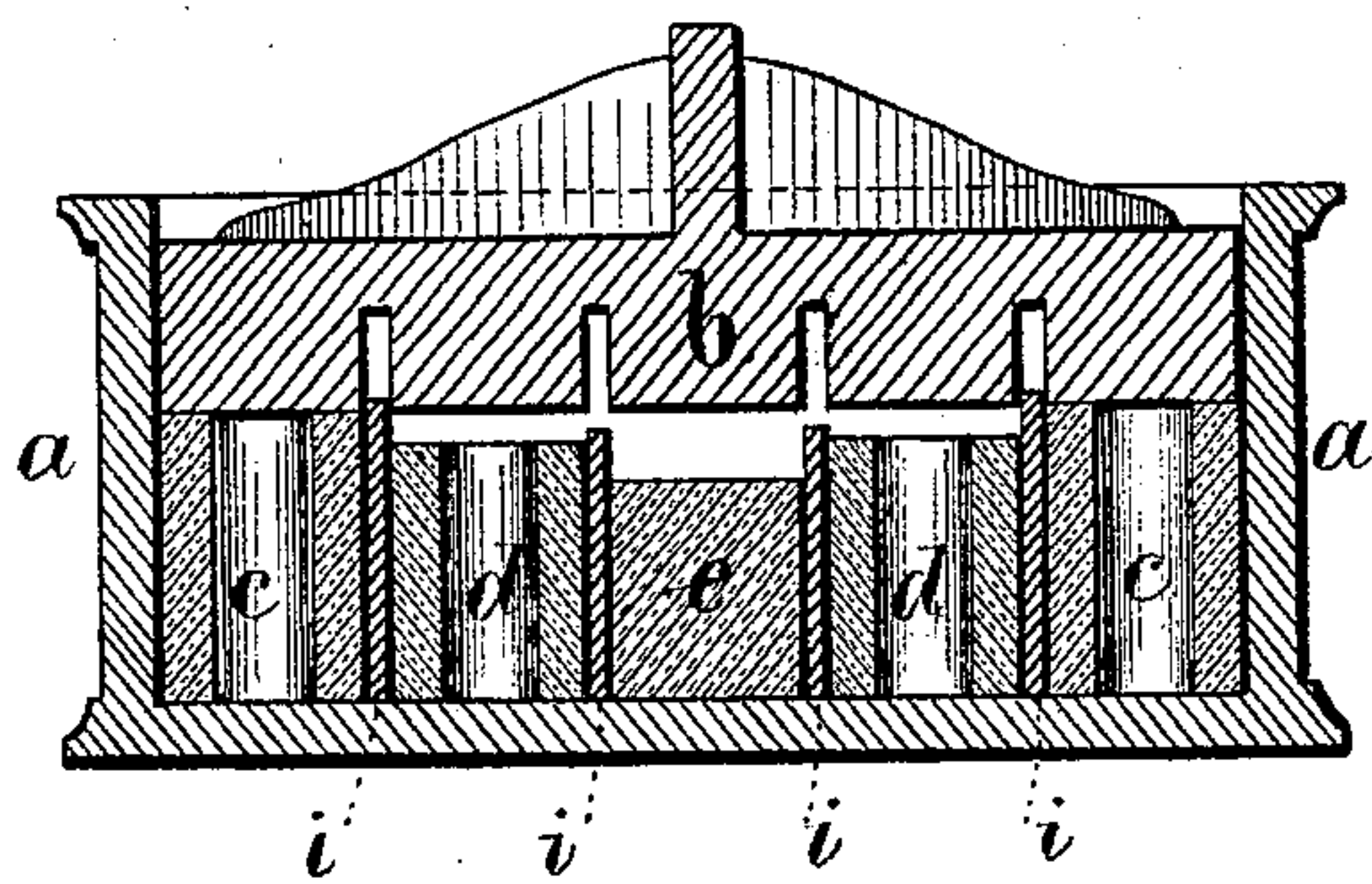
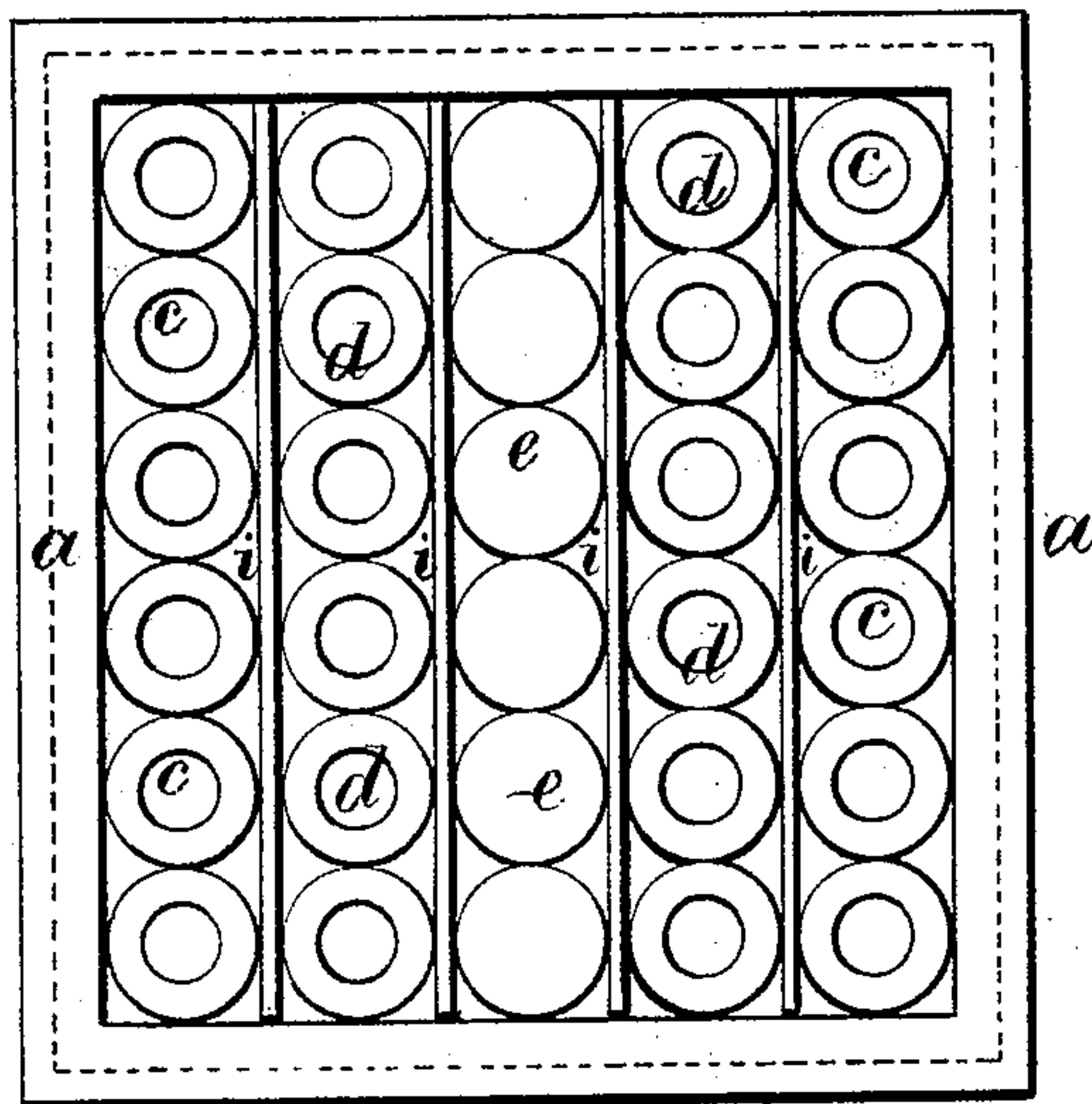


Fig. 1.



Witnesses.

Chas. H. Smith
George Serrell.

Inventor.

William Palmer,
per Lemuel W. Serrell
att'y.

UNITED STATES PATENT OFFICE.

WILLIAM PALMER, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. **149,951**, dated April 21, 1874; application filed February 19, 1874.

To all whom it may concern:

Be it known that I, WILLIAM PALMER, of the city and State of New York, have invented an Improvement in Car-Springs, of which the following is a specification:

This spring, which I term the "graduated car-spring," is made with reference to producing an accumulated resistance as the load increases; and consists in groups of india-rubber springs, of different relative lengths, kept apart by divisions, and acted upon by a follower having grooves or channels in line with the division-plates, so that the longest of the said springs are operative with a light load, and as these are compressed by the accumulation of weight the follower takes a bearing upon the springs next in length. Thereby the supporting-power is augmented as the load increases. By this construction the springs are equally efficient with light or heavy loads, whereas the ordinary rubber car-spring that is sufficient to bear heavy loads is not adapted to lighter loads, being too rigid to yield properly under a lighter weight.

In the drawing, Figure 1 is a plan of the groups of springs, and Fig. 2 is a cross-section of the springs, case, and follower.

The case *a* is of suitable size and shape for receiving the groups of springs, and the follower *b*, that is adapted to move up and down in that case. These groups of springs *c c*, *d d*, and *e*, are made of blocks, prisms, or tubes of india-rubber. The springs of the outer groups, *c c*, are longer than the springs in the groups *d d*, and those in the groups *e* are the

shortest. The partition-plates *i i* between the respective groups prevent the rubber of the springs *c* pressing out laterally and extending over the upper ends of the springs *d*, and the follower *b* is grooved or channeled in line with these plates, so as to pass down between them.

It will be apparent that the follower *b* will only rest upon the groups of springs *c* with a light load, and that as these are compressed by greater weight the follower *b* takes a bearing against the springs of the groups *d*, and thereby the yielding supporting-power of the car-spring is augmented, and so on, as range after range is compressed and the next range or group comes into action the power of the car-spring is increased.

This spring is especially adapted to passenger-cars, because the car will ride as easily when almost empty as when full; but the spring may be applied on locomotive-engines, or on any vehicle to which it is adapted.

I claim as my invention—

A car-spring composed of groups of india-rubber springs that vary in length, and are separated by partition-plates, in combination with a follower having grooves or channels in line with the partition-plates, substantially as set forth.

Signed by me this 16th day of February, A. D. 1874.

WM. PALMER.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.