

D. E. SOMES.

Construction of Rubber and other Elastic Springs.

No. 84,654.

Patented Dec. 1, 1868.

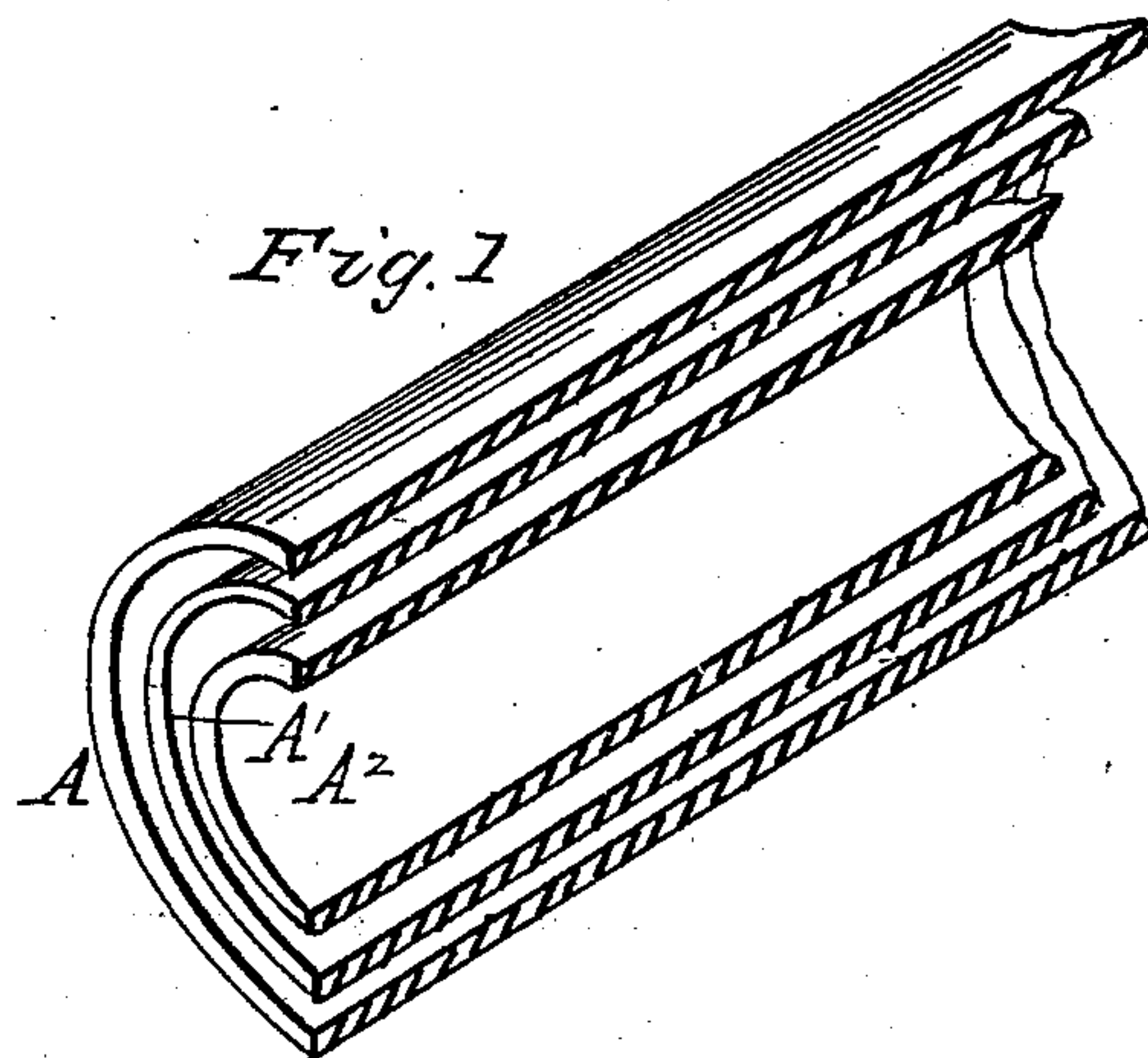


Fig. 2

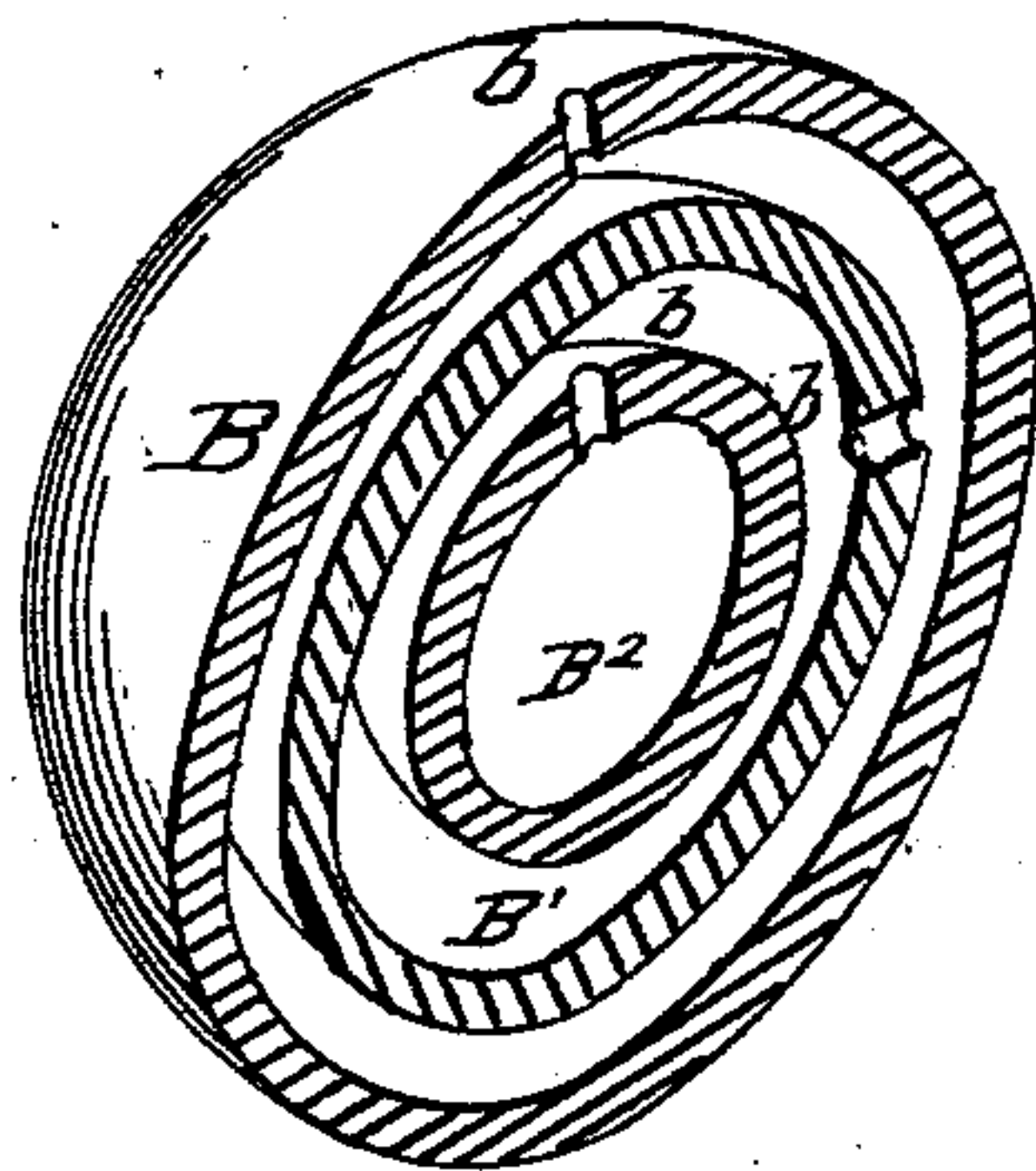


Fig. 4

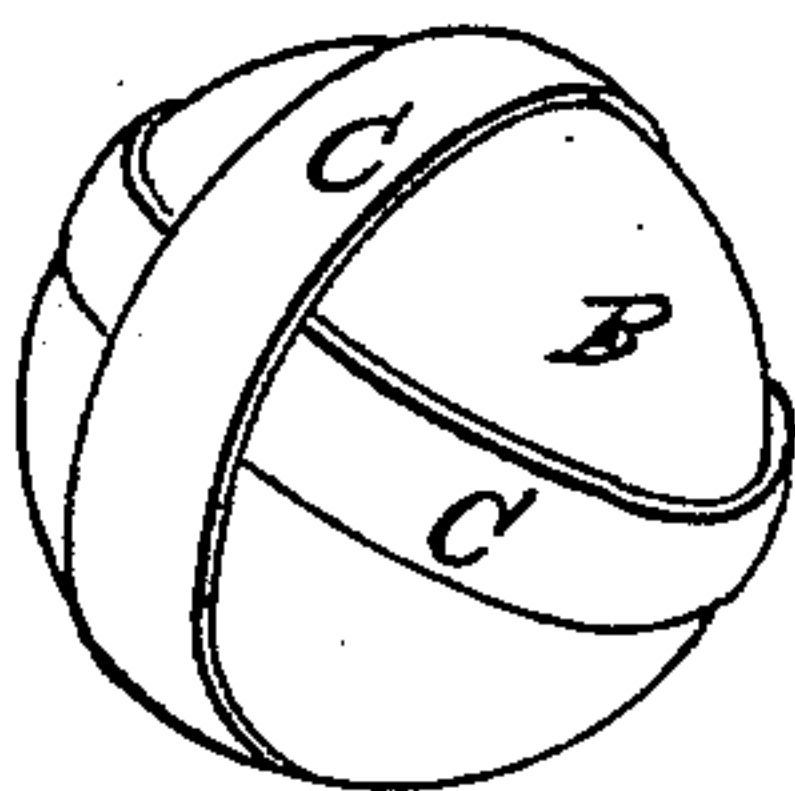
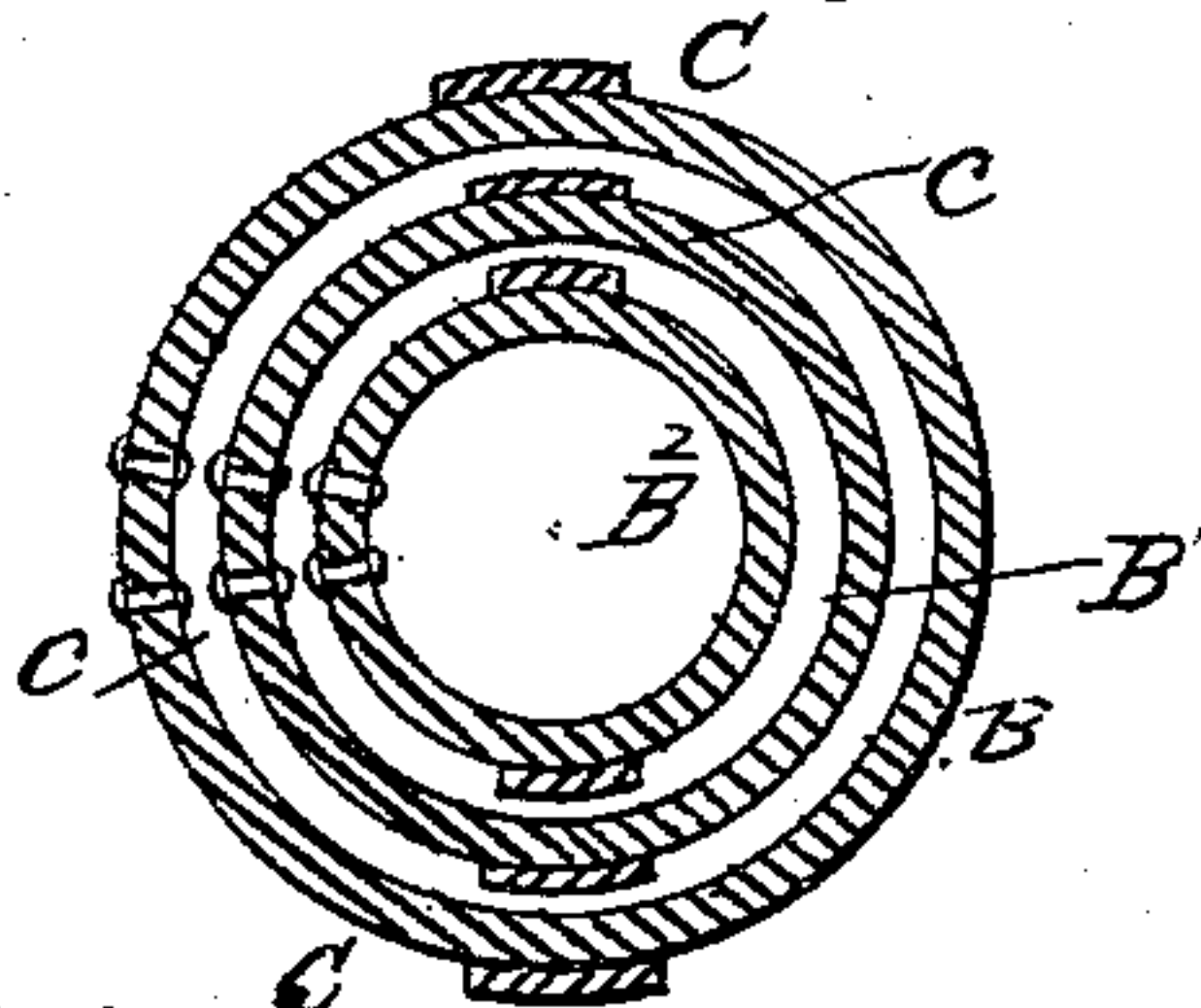


Fig. 3



WITNESSES

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DANIEL E. SOMES, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 84,654, dated December 1, 1868.

IMPROVEMENT IN THE CONSTRUCTION OF RUBBER AND OTHER ELASTIC SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, DANIEL E. SOMES, of Washington, District of Columbia, have invented a new and useful Spring, for various purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which make part of this specification, and in which—

Figure 1 represents a perspective section of my improved spring, shown as composed of elastic tubes;

Figure 2, a similar section of the same, composed of elastic spheres;

Figure 3, a sectional elevation of a similar form of the same, showing elastic metallic bands combined with the spheres; and

Figure 4, a view, in perspective, of the spring represented by fig. 3.

The object of my invention is to produce a spring whose elasticity will be exerted to different degrees, according to the different pressures which are put upon it, so that a greater or less pressure upon the spring will respectively develop a greater or less amount of elasticity therein; to which ends,

My improvement consists in forming a spring of a series of elastic tubes or spheres, one within the other, by which means the elasticity of the separate members of which the spring is composed is successively developed or rendered latent, according as the pressure upon it is increased or diminished, and the spring thereby adapted to sustain a varying load in regulating its own tension.

In the accompanying drawings, which show a convenient arrangement of parts for carrying out the objects of my invention,

Fig. 1 shows my spring as composed of a series of elastic tubes, $A A^1 A^2$, one within another.

These tubes may be composed of rubber or other suitable elastic material, and their number, diameter, and thickness be regulated according to the nature and amount of the pressure which they are calculated to sustain.

When sufficient pressure is brought to bear upon

the spring to surpass the elasticity of its outer tube, that of the next will be developed, and so on through the series, in proportion to the variations of pressure. In like manner, according as the pressure upon the spring is relaxed, its several members will return to their original form and tension.

Figs. 2, 3, and 4 show my spring as composed of a series of spheres, $B B^1 B^2$, one within another, and operating similarly to the tubular spring just described.

The spheres may either be made air-tight, for the purpose of utilizing the elasticity of the air within them, or be provided with orifices, $b b$, through which it can escape when they are compressed, and thereby enable the pressure to be sustained by the spheres alone.

In figs. 3 and 4, elastic metallic bands or rings, $C C$, are shown as secured to the spheres by rivets $c c$, and similar bands may be used upon the tubes $A A^1 A^2$, if deemed desirable.

In cases where my spring is composed of tubes, the latter may be of circular, elliptical, or polygonal cross-section, as found most suitable to the condition of its construction and use.

It will be seen that my spring is simple in its construction, and not liable to derangement, and is appropriately applicable to railway-cars, wagons, and all other cases, where varying weights or pressures are to be borne by the same spring or set of springs.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent, is—

1. A spring, composed of a series of elastic tubes, one within another, substantially as set forth.

2. A spring, composed of a series of elastic spheres, one within another, and either air-tight or perforated, substantially as set forth.

3. A spring, composed of elastic tubes or spheres, surrounded by elastic bands or rings, substantially as set forth.

D. E. SOMES.

Witnesses:

F. C. SOMES,
CHARLES HERRON.