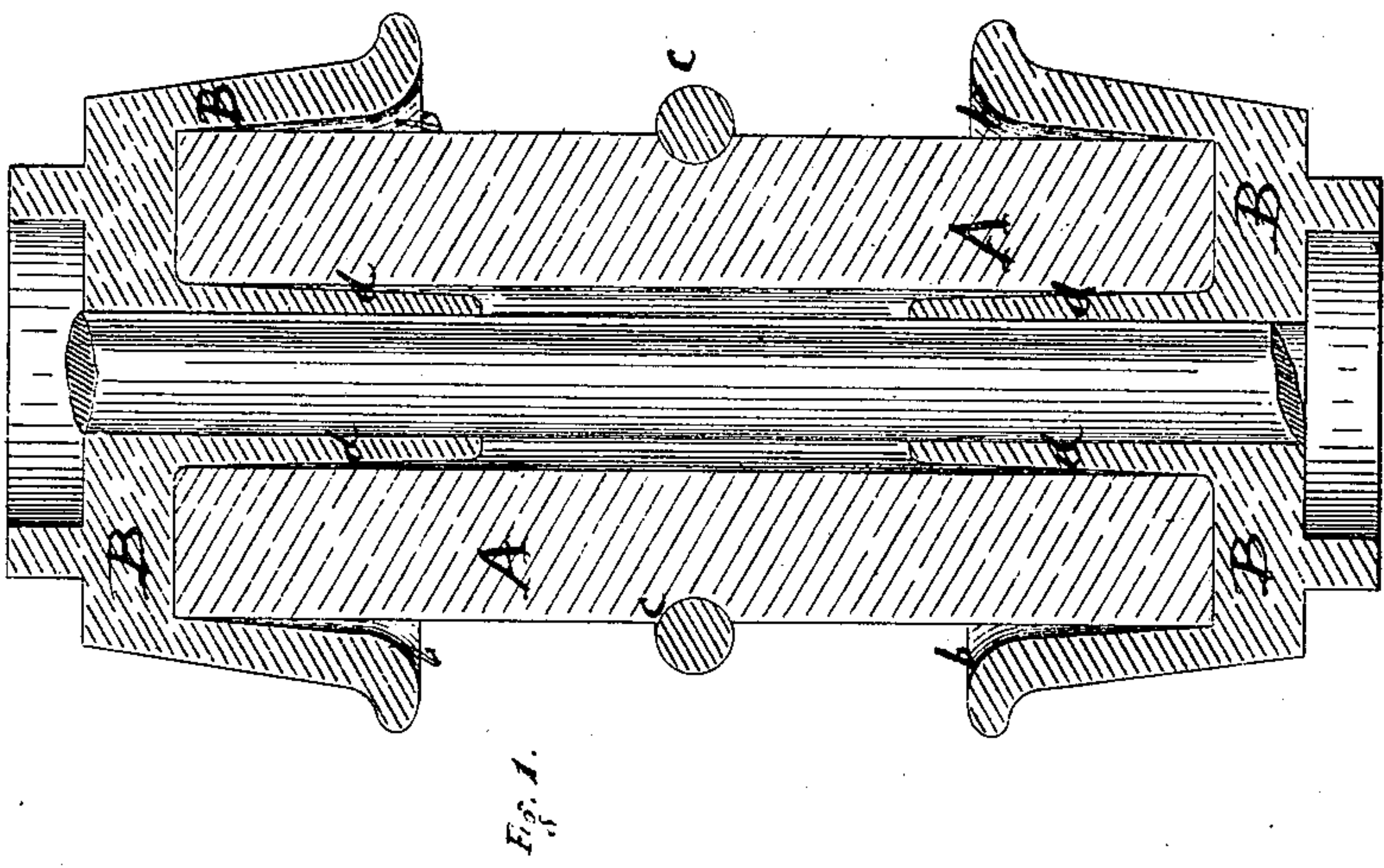
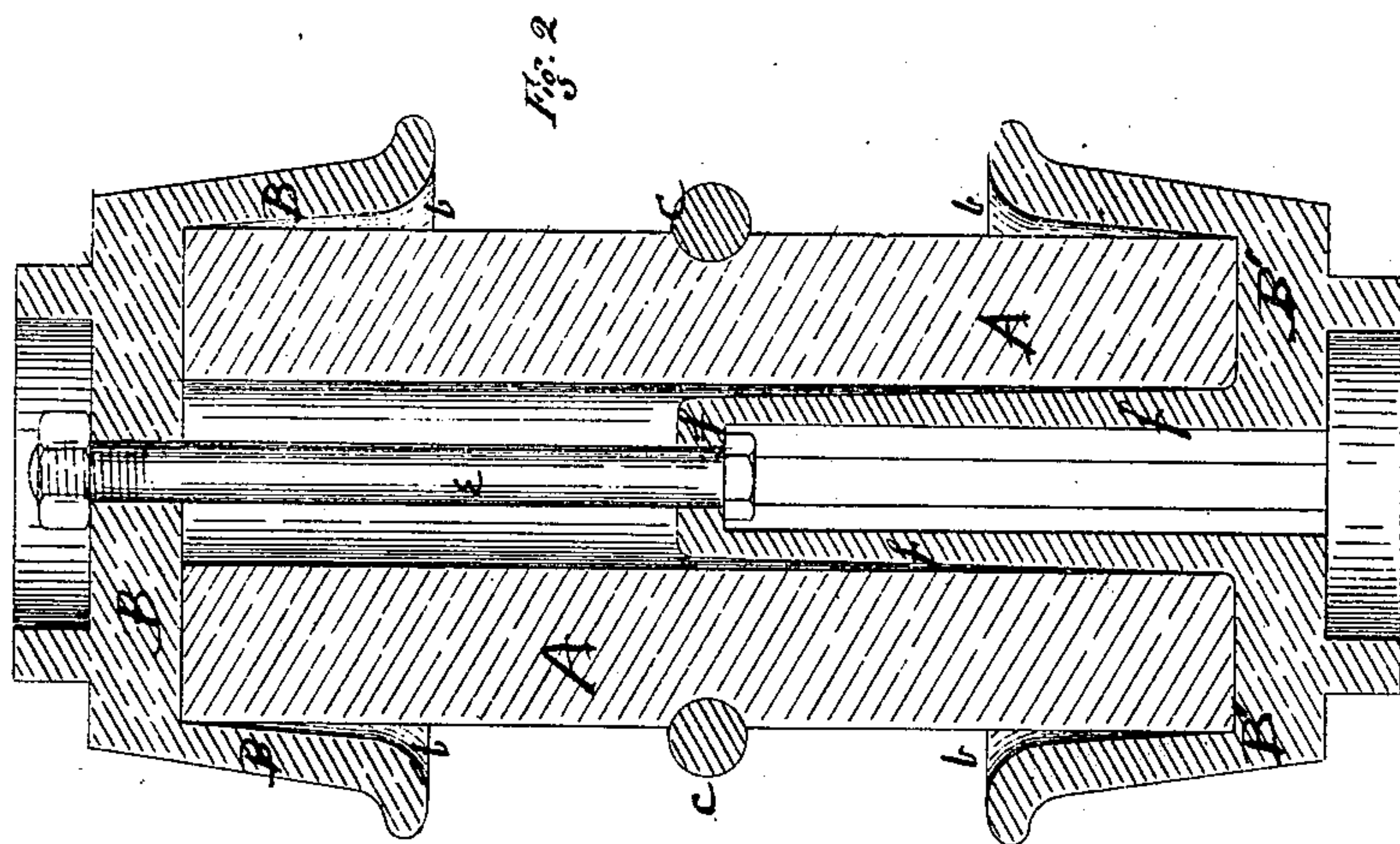


P. G. GARDINER.
CAR SPRING.

No. 107,036.

Patented Sept. 6, 1870.



WITNESSES:

J. B. Hupps.
C. Ph. Wagner.

INVENTOR:

P. G. Gardiner

UNITED STATES PATENT OFFICE.

PERRY G. GARDINER, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-SPRINGS.

Specification forming part of Letters Patent No. 107,036, dated September 6, 1870.

To all whom it may concern:

Be it known that I, PERRY G. GARDINER, of the city, county, and State of New York, have invented a new and useful Improvement in Railroad-Car Springs; and I do declare that the following is a full and exact description of my said improvement, reference being had to the accompanying drawings, forming part of this my specification.

Figure I represents one mode of constructing the spring by a vertical cross-section through the central axes of the same.

A is the india-rubber cylinder, of the usual form.

B B are the two flaring and spreading circular-mouthed end pieces, of cast-iron, which commence to spread or enlarge in diameter from the ends of the rubber cylinders, and bending outward by an easy curve, so as to leave a gently-widening space all around between their inner surfaces and the part of the india-rubber cylinders along which they extend, as seen at *b b*.

To strengthen the rubber cylinder, I surround it midway between the ends with an iron ring, C, which, to prevent slipping and being displaced from a horizontal position, is set in a semicircular-shaped groove around the rubber cylinder, which fits the ring. This groove or recess may be made with the rubber cylinder in the mold, or cut or turned in a lathe afterward.

Through the central opening of the rubber cylinder is placed a cylindrical bolt, by which the spring is set and held together. The two end pieces in this form of the spring are provided with a central opening to receive the

central bolt, and they are flanged inwardly, so as to form tubular casings around the central bolt a part of its length, as seen at *d d d*, Fig. I.

Fig. II represents a spring of the same principle of construction, except that the spring is held by a bolt, *e*, extending about half the length of the spring, and is there inserted at its lower end into a tubular socket, *f*, through a suitable opening, and held by an upset or head, the other end of the bolt being secured by a nut in the usual manner, and the other end of the tubular socket *f* being fixed to the lower setting, *B'*, and cast solid with it. It extends into the opening in the rubber cylinder about half its length, and tapers in its outer surface toward the top, so as to allow the rubber to bulge around it without being pinched and injured by the friction.

The construction represented in Fig. I is adapted for use as a buffer or draw-spring; that in Fig. II for a body or bearing spring.

What I claim in the foregoing-described improvement, and for which I desire Letters Patent, is—

1. The combination of the caps B, constructed with tubular sockets *d*, the india-rubber cylinder A, ring *c*, and the bolt, all arranged and operating as shown and described.

2. The combination of the cap B, the cap *B'*, constructed with the tubular socket *f*, the india-rubber cylinder A, ring *c*, and the bolt, all arranged and operating as shown and described.

P. G. GARDINER.

Witnesses:

J. B. STAPLES,
S. A. STODDER.