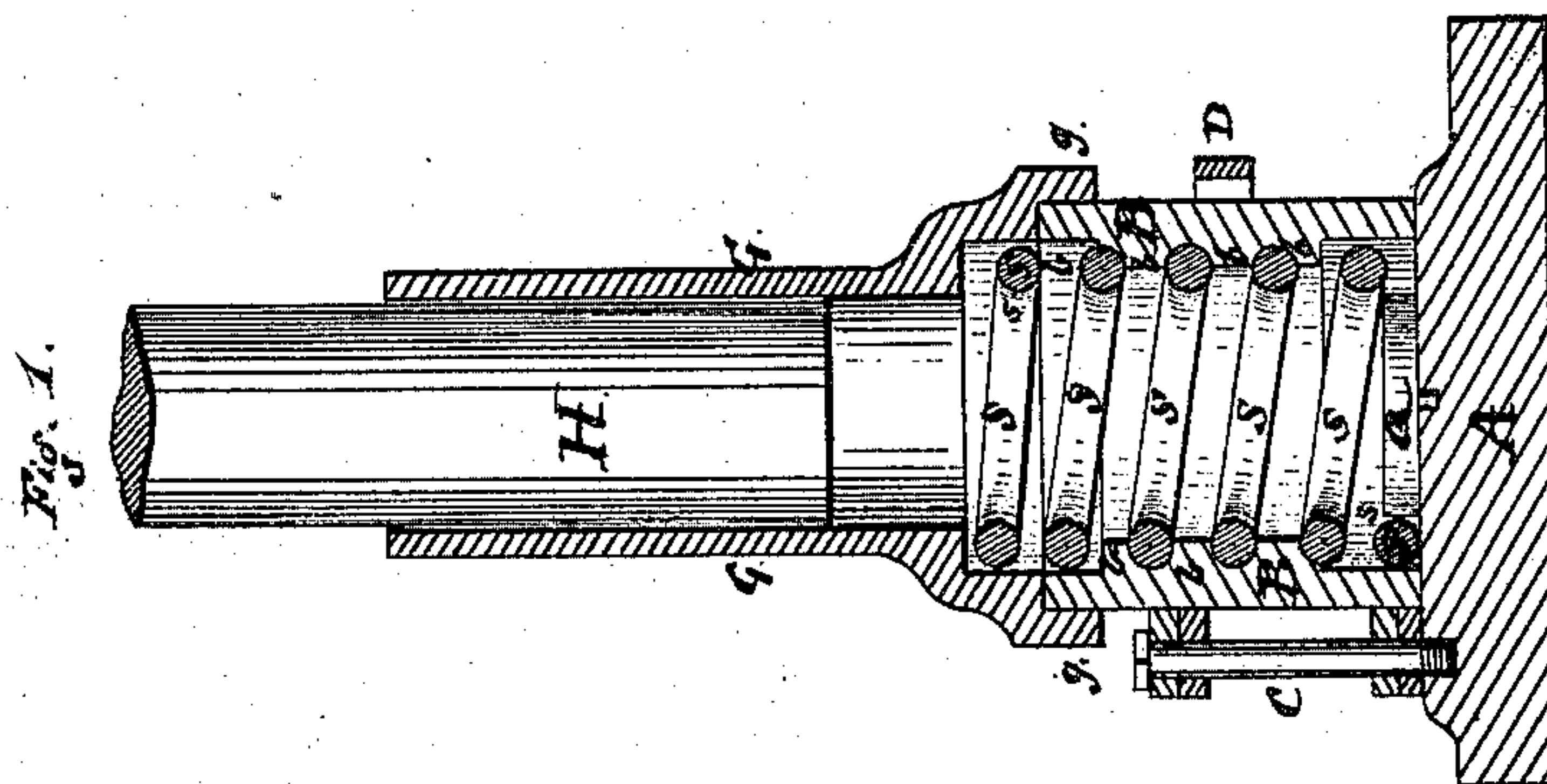
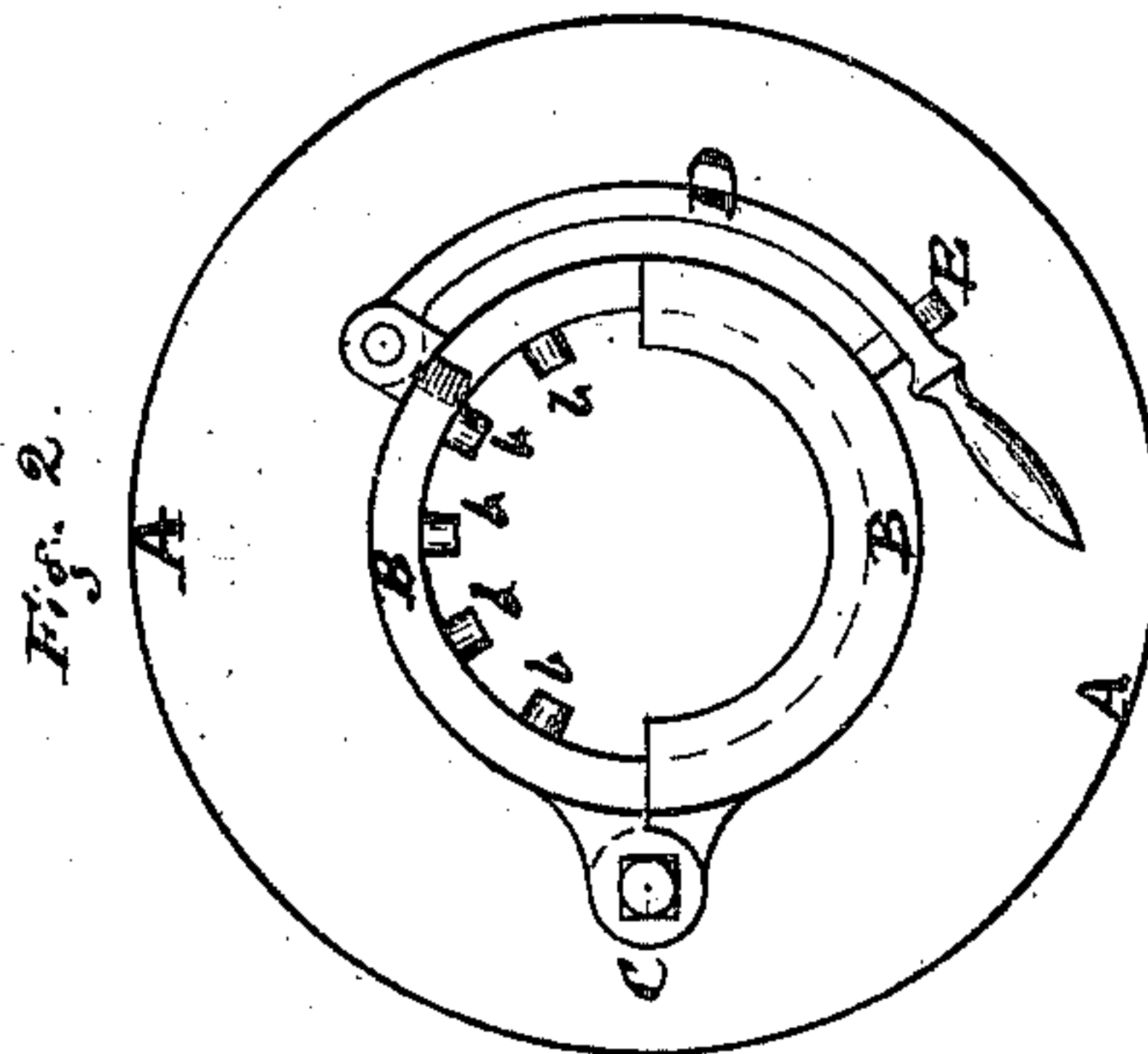
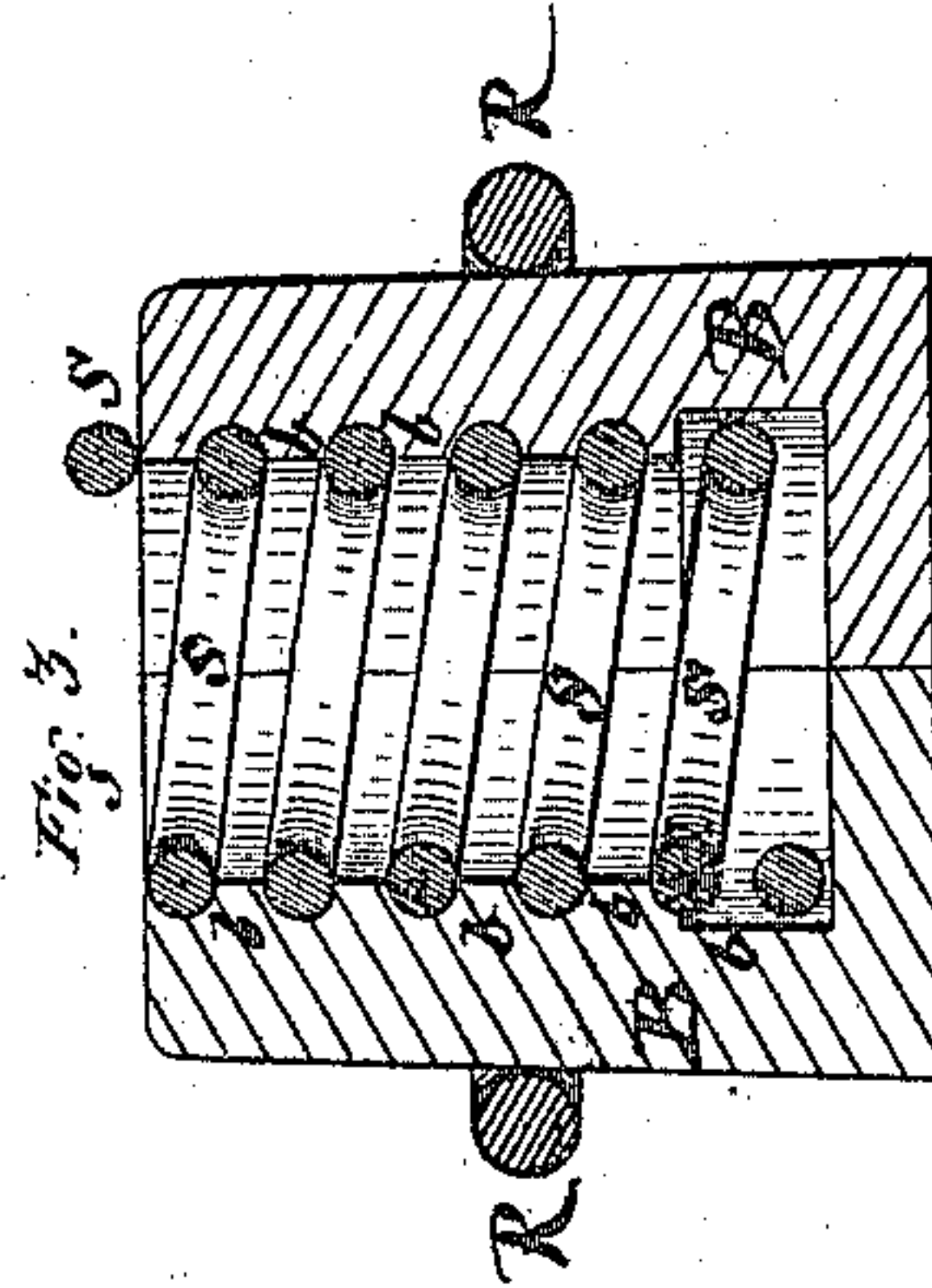
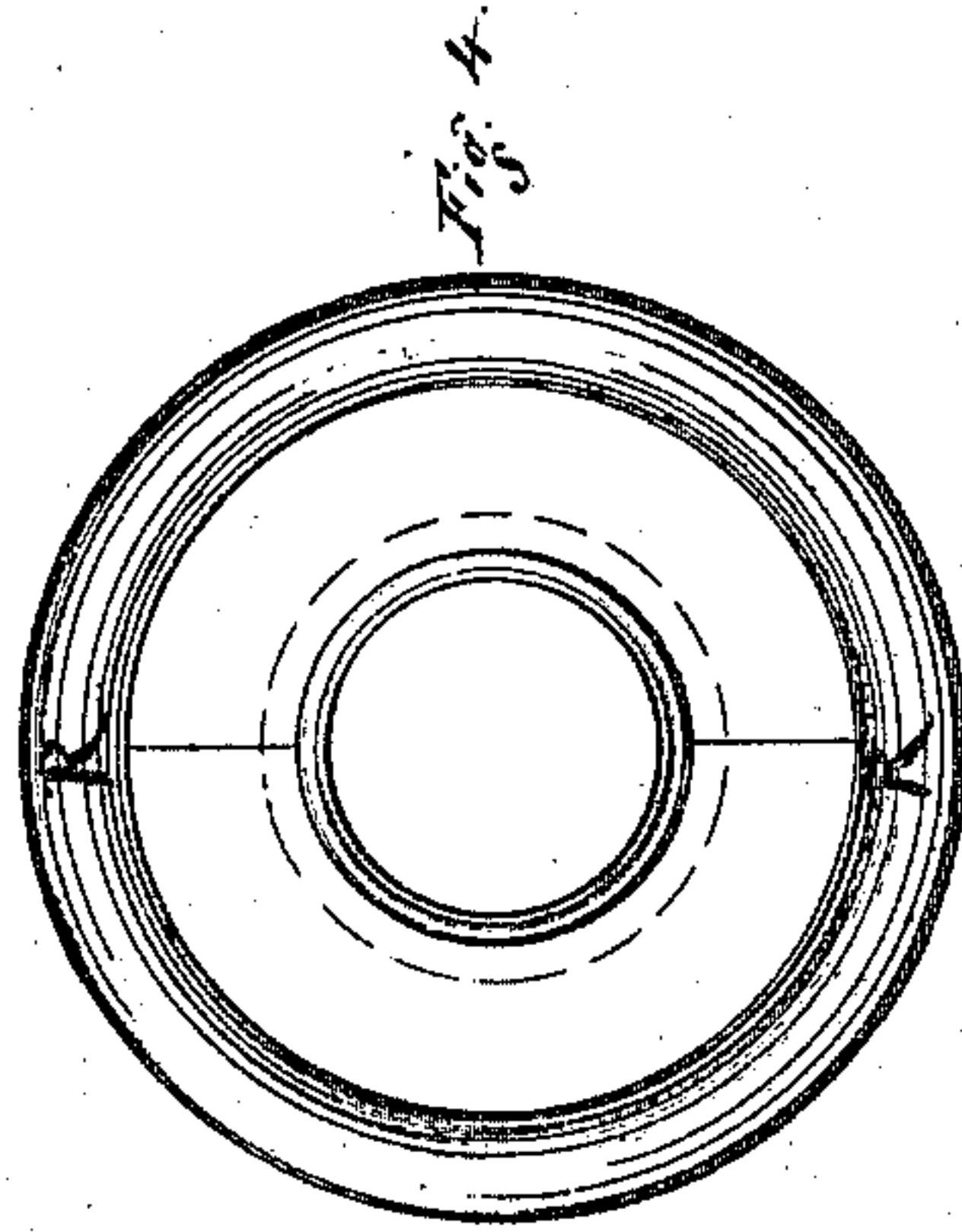


P. G. GARDINER.

Car Spring.

No. 97,385.

Patented Nov. 30, 1869.



WITNESSES:

C. H. Wagner
J. B. Staples

INVENTOR:

P. G. Gardiner

United States Patent Office.

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

Letters Patent No. 97,385, dated November 30, 1869.

IMPROVED PACKER FOR RAILWAY-CAR 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, PERRY G. GARDINER, of the city, county, and State of New York, have invented a new and useful Improvement for a Spring, Holder, and Packer, for Holding and Packing Spiral Springs for Railroad-Cars, with wool, cotton, cork, India rubber, or similar elastic fibrous substances; and that the following is a full and exact description of my invention, in connection with the drawings accompanying this, my specification.

Spiral steel springs having their cores filled and packed with a dense elastic filling, have been found exceedingly useful, and the greatly increased power of the two, when properly combined, has been found very valuable for the purposes of railroad-car springs.

Hand filling or packing was at first used, which was a slow, difficult, and imperfect process. Afterward the filling or packing was performed by a machine or apparatus, by which the wool or other packing was forced through a tube down into the spring.

By the latter process, the pressure required to pack the wool or filling into the spring also pressed coils together, and when the pressure was removed, the coils would spring back, leaving spaces in the spring not thoroughly filled or packed.

In both processes, by hand and machine packing, a difficulty was experienced in the wool or packing bulging out and filling the intervals between the coils. This bulging in the intervals required cutting or paring away, so as to leave the coils free to act.

My improvement is directed to obviating these imperfections and difficulties, and consists—

First, in the construction of a cylindrical hollow case or holder, in sections, separable and opening, so as to admit the spring, and shutting in and closing it fast, the interior sides of the holder being provided with spiral projections like the thread of a female screw, corresponding with the intervals between the coils and the pitch of the spring, by which the coils are held firm and immovable under pressure; and

Secondly, in combining with this arrangement a filler, in which the precise quantity of wool or filling required is placed separately, and which filler is adjustable and removable, on or off the holder, at pleasure; and

Thirdly, in a solid plunger or follower, combined and arranged with the filler and holder, so as to press the packing material through the filler into the spring, and which is also adjustable and removable at pleasure.

Figure 1, of the drawings, is a vertical cross-section, through the centre of the holder and the spring within it, of the filler in its place above it, and of the follower or plunger therein.

Figure 2 is a top view of the same.

Figure 3 represents, in vertical central cross-section, the holder and spring therein, being a modification of plan shown in fig. 1.

Figure 4 is a top view of fig. 3.

Similar letters represent similar parts in all the figures.

I construct my improvements as follows:

Upon a suitable platform, A, fig. 1, is placed the hollow cylindrical shell B, the interior surface of which is circular, and corresponds with the size of the spiral spring S, to be filled or packed.

This shell or holder is divided vertically into two equal parts, which are hinged upon the fixed vertical spindle C, so as to open wide enough to admit the spring, and, when shut, to embrace it closely.

A curved spring-latch, D, is hinged to one half of shell B, and, passing round, crosses the dividing line at right angles to it, and at its opposite end locks into a catch, E, fast in the other half of the shell, and there held by the spring, and, by disengaging which, the shell may be opened, and, when locked in the catch, the two sides of the holder are firmly secured together.

The interior surface of the shell or holder is provided with a spiral thread or projection, *b b*, running from top to bottom, and corresponds with the spaces between the coils of the spring and the pitch.

When the spring is placed within the holder and the two parts closed upon it, these projections *b b* just fill the intervals between the coils, or nearly so.

Instead of carrying the spiral thread *b b* continuously around the interior surface of the holder, I intermit it on one half of the shell, (or on both sides) leaving only projecting points or studs, as shown in fig. 2, at *b b*. These points or projections, however, correspond with the intervals of the coils and the pitch of the spring, and answer the same purpose as the continuous thread. I have found them convenient in practice, and easier constructed, and they readily adapt themselves to the purpose required.

Upon the holder I place the filler G, fig. 1, which is a hollow cylinder, the interior diameter of which corresponds with the interior diameter or core of the spring.

It shuts down upon the top of the holder by a joint, *g*, so that when in place it shall be held sufficiently firm there. This filler is so constructed as to be removable at pleasure, and replaced.

H is a solid cylindrical plunger or follower, of the diameter of the interior of the filler, and fitting the filler closely, but sliding easily within it.

At the base of the holder B is placed the solid disk *a*, having on the under side a short pin which fits into an opening in the platform A. It is removable at pleasure. Its use is to form a base for the packing,

and to limit the line of the packing within the last coil. It also forms a pedestal on which to stand the spring when put into the open holder.

In figs. 3 and 4 is shown a modification of my invention, so far as relates to the holder B.

In this the holder is divided into two equal parts, vertically, but, instead of the parts being hinged and held together by the latch, they are held together by a ring, R, which slides on and off over the top. The exterior of the holder is made very slightly conical, so that the ring, being pressed downward, brings the two halves home in close contact, and holds them firmly. The ring being removed, the parts separate.

The operation of packing the spring is as follows:

The coiled spring *s* to be packed is placed upon the base *a*, the holder being opened to receive the spring.

The holder is then closed and secured by the latch and catch D E.

The filler G is supplied with the precise quantity of wool, cotton, cork, rubber, or other elastic fibrous material, sufficient to pack the spring to the density required. This amount is to be ascertained by experiment with the "tester" and weighed. The filler is then supplied with the exact weight of filling required by hand.

In practice, it will be found convenient to have a number of these fillers to each holder, so that they may stand by the operator ready to be used, and as fast as a spring is packed and removed, and another placed within the holder, a charged filler is in readiness, and being placed upon the holder, the operation proceeds rapidly, without loss of time in waiting for the filler to be charged.

The follower or plunger H is then inserted into the filler, and caused to descend with suitable power to force down the packing and completely fill the core of the spring.

The follower may be operated by any suitable ma-

chinery, like a drill-stock, or by a lever, or by a screw having the thread or pitch open, so as to give a sufficiently rapid descent to the follower, and so as to stop, automatically, at the required point, when the filling has completely filled the spring.

Holders of different sizes must be provided for the different sizes of springs, and the filler and plunger correspond therewith.

By these improvements, packing the spiral springs is performed with accuracy and rapidity, and in a greatly improved manner. The exact weight or amount of material for packing is placed in the filler, and ready prepared for use, and there is no bulging out of the filling between the coils to be pared or cut away, and the spring is more complete and efficient than has heretofore been attained.

Having described my invention, and manner of constructing and operating the same,

I claim—

1. The holding and securing the spiral spring for packing, by means of a cylindrical shell or holder divided in halves, and provided with the interior female screw-thread, or the points or studs to hold the coils and prevent their being pressed together under the pressure of the filling or packing-process, arranged and operating substantially as described.
2. The removable and adjustable hollow cylinder or filler G, in combination with the holder and spring, arranged and operating substantially in the manner and for the purposes described.
3. The combination of follower or plunger with the filler and holder and spring, constructed, arranged, and operating substantially as described.

P. G. GARDINER.

Witnesses:

C. PH. WAGNER,
J. B. STAPLES.