

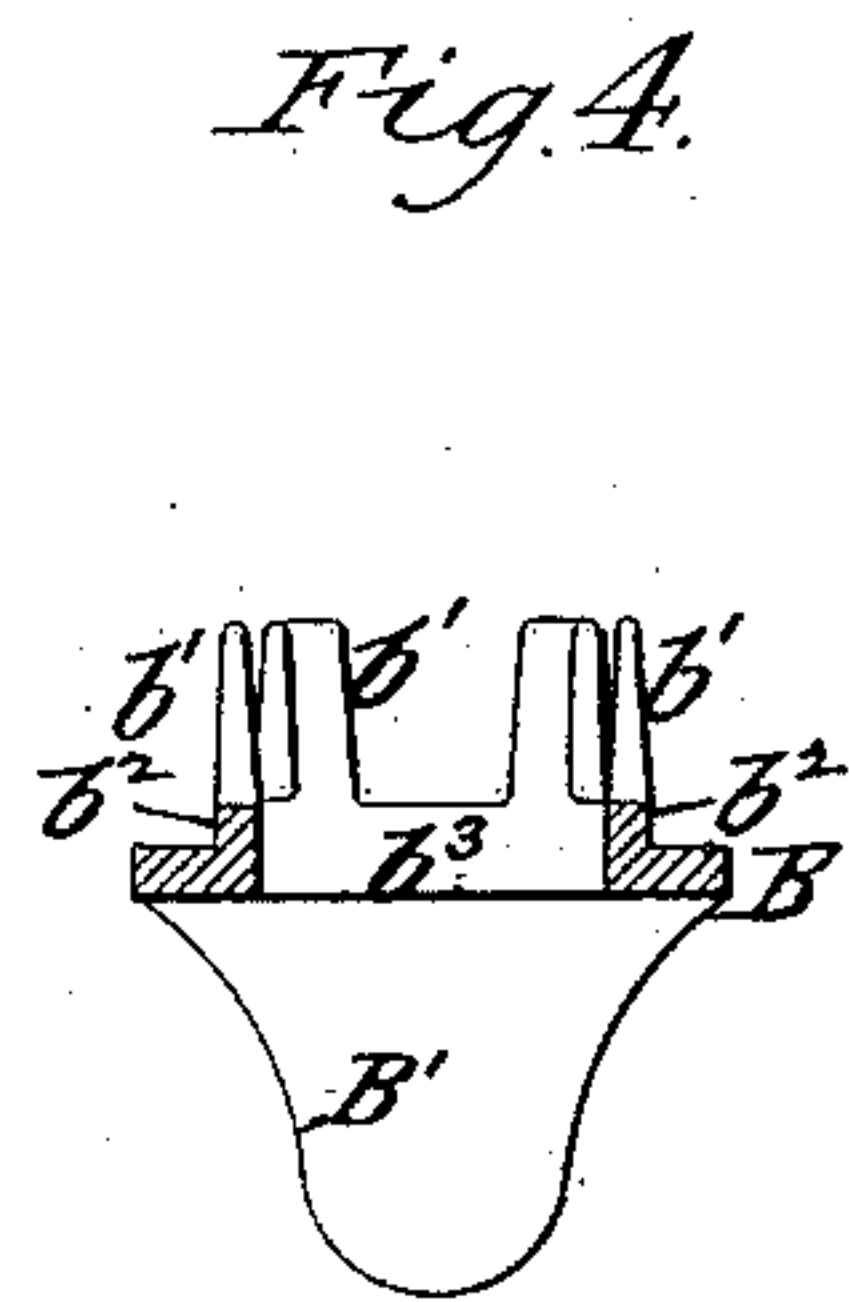
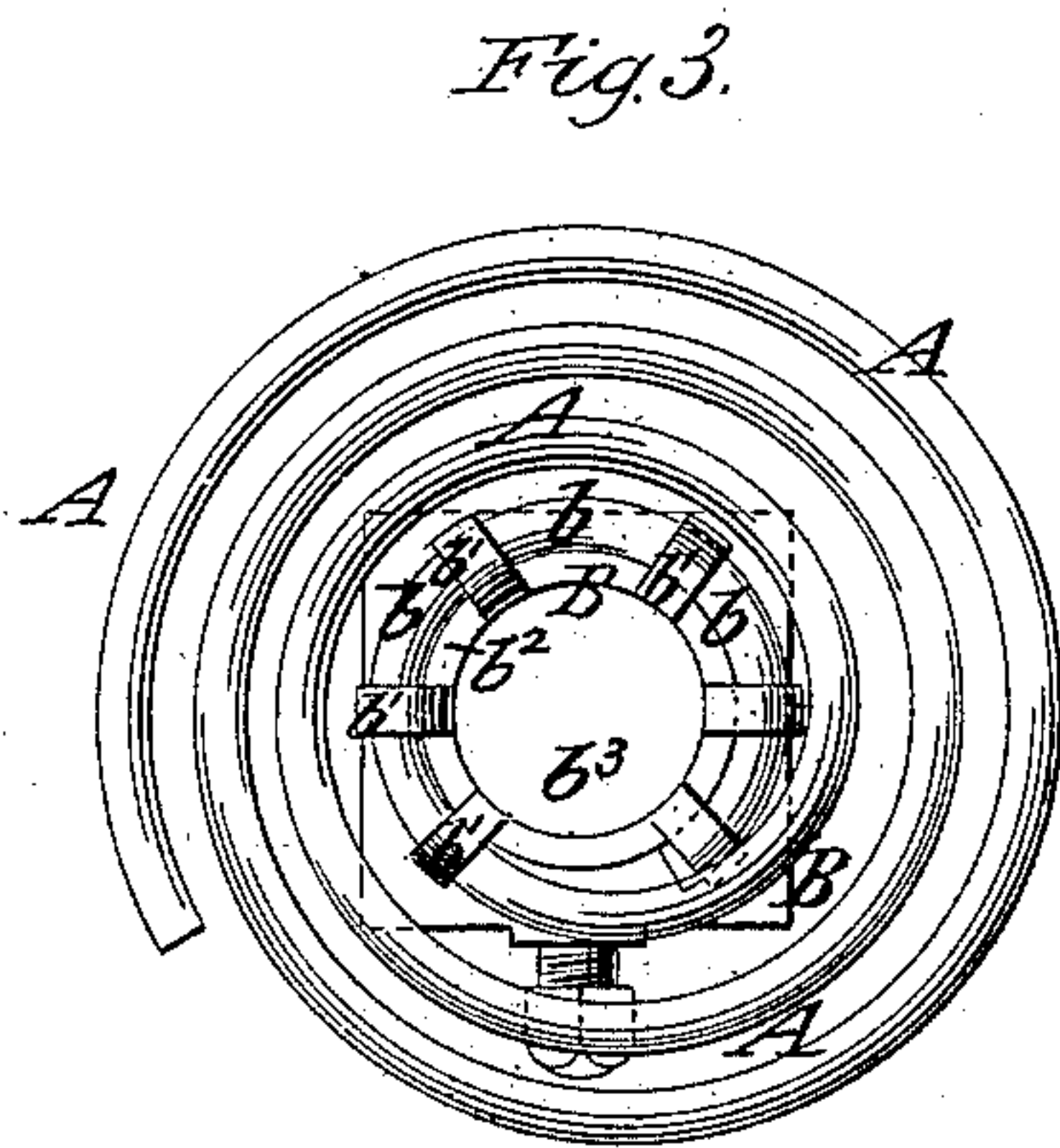
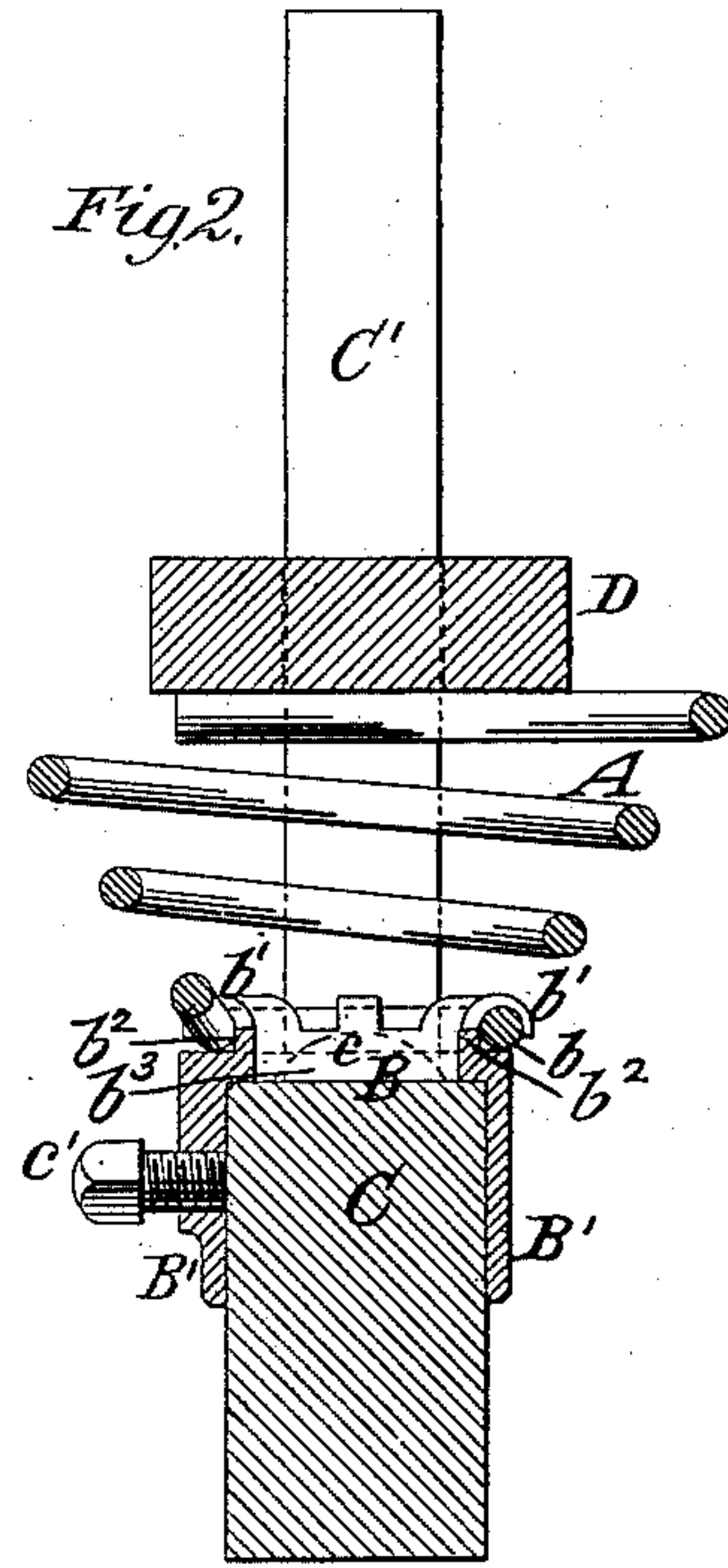
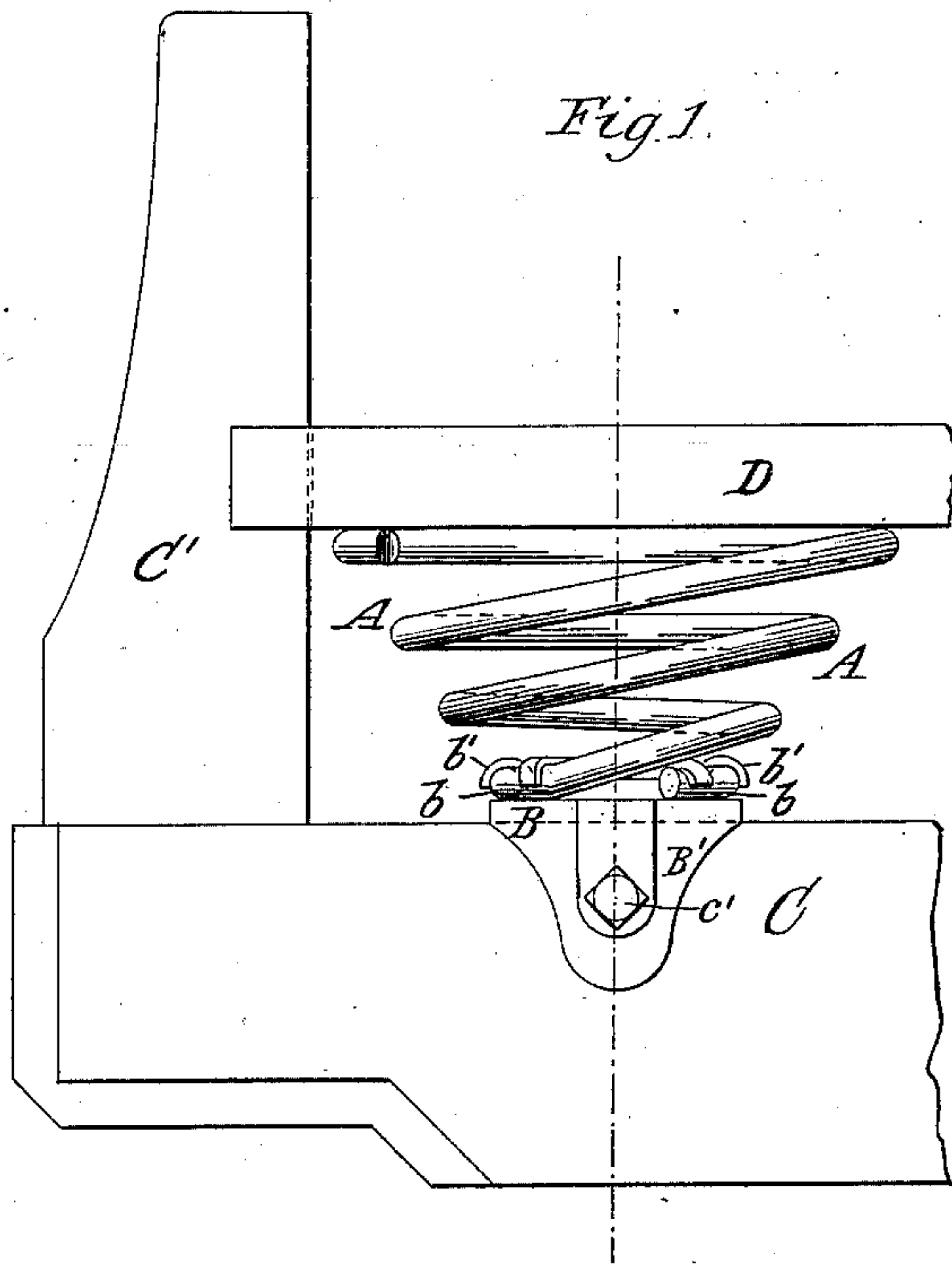
(No Model.)

F. S. PALMATIER.

VEHICLE SPRING.

No. 362,174.

Patented May 3, 1887.



Witnesses:  
Emil Herter.  
O. Sundgren

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by his atty  
Crown Hall



# UNITED STATES PATENT OFFICE.

FRANK S. PALMATIER, OF LEEDS, NEW YORK.

## VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 362,174, dated May 3, 1887.

Application filed December 22, 1886. Serial No. 222,249. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK S. PALMATIER, of Leeds, in the county of Greene and State of New York, have invented a new and useful  
5 Improvement in Vehicle-Springs, of which the following is a specification.

My invention relates to spiral or helicoidal springs for vehicles and other purposes, and which are secured each to a base-piece or bearer,  
10 which may fit the bolster or axle of a vehicle, by a circular series of fingers or prongs, which are bent over the end convolutions of the coil or spring; and my invention consists in novel combinations of parts and features of construction hereinafter described, and pointed out in  
15 the claims.

In the accompanying drawings I have represented a helical or spiral spring of conical form, and a base-piece or bearer, embodying  
20 my invention, to which the lower and smaller convolution or coil of the spring is fixed.

Figure 1 is an elevation of a portion of a bolster, a spring, and bearer embodying my invention, and a bar arranged above and supported by the spring. Fig. 2 is a transverse  
25 section of the bolster, the spring and base-piece or bearer, and said bar. Fig. 3 is a plan of the spring and base-piece or bearer; and Fig. 4 is a vertical section of a forged or cast  
30 metal base-piece or bearer having upwardly-projecting prongs or fingers, which are to be bent radially over the spring after the latter is placed thereon.

Similar letters of reference designate corresponding parts in all the figures.

A designates a spiral or helical spring, which is of conical form, and which has its end convolution or coil, *b*, securely fixed to or connected with the base-piece or bearer B. The  
40 base-piece or bearer B is secured to the lower coil or convolution, *b*, of the spring, and in this example of my invention is applied to a bolster, C; and D designates a cross piece or bar, which is supported by the spring, and  
45 which is adapted to slide vertically relatively to a stake, C', with which the bolster is provided. In connection with the bolster C and the bar D, I employ two springs, A, arranged near opposite ends thereof, and any additional  
50 number of springs may be applied between such two end springs. I have only shown one

of the springs arranged near the end of the bolster, as that is sufficient to illustrate my invention.

In carrying out my invention I secure the  
55 spring to the bearer or base-piece B, through its end convolution or coil, *b*, by means of a circular series of prongs or fingers, *b'*, projecting from the base-piece or bearer B, and which enter the end convolution or coil of the  
60 spring. The base-piece or bearer may be made of forged or malleable cast metal, and after the spring is placed in position, with its convolution or coil *b* outside the prongs or fingers  
65 *b'*, the latter are bent radially outward, so as to form loops or eyes embracing the said convolution or coil *b*, and thereby securing the spring firmly to the base-piece or bearer B.

In Fig. 4 I have shown the base-piece or bearer as provided with upwardly-projecting  
70 prongs or fingers *b'*, and after the spring is placed with its lower convolution or coil surrounding the prongs or fingers the latter are bent radially outward to the position shown in  
75 Figs. 2 and 3, thereby embracing the convolution or coil *b* and holding the spring securely to the base-piece or bearer.

In order to properly center the base-piece or bearer B and spring A, I have represented the base-piece or bearer as formed with a circular  
80 projection or rib, *b<sup>2</sup>*, upon its face, and which enters the end convolution or coil, *b*, of the spring, and the prongs or fingers *b'* spring from the upper edge of such circular projection or  
85 rib.

I have here represented the base-piece or bearer B as having its center within the circular projection *b<sup>2</sup>* entirely open, or formed with a large hole or opening, *b<sup>3</sup>*, which is advantageous, because it provides for placing the  
90 base-piece or bearer in any desired position upon the bolster or other part, irrespective of whether there are any projections or bolt-heads or nuts upon said part. If it be desired to place the base-piece or bearer upon a bolster  
95 or other part where a bolt extends from the same, the bolt-head will be received in the open center or hole *b<sup>3</sup>*, as shown at *c* in Fig. 2.

The base-piece or bearer B may be secured by any suitable devices to the bolster or other  
100 part to which it is applied. In the present example of my invention the base-piece or



bearer B has lips or flanges B' projecting in the same direction and embracing the bolster C or other part, as shown in Fig. 2, and through one of these lips or flanges B' is inserted a set-screw, c', which, by bearing against the bolster or other part, serves to secure the base piece or bearer thereon without weakening the same by inserting a bolt through it.

It is advantageous to have the prongs or fingers b' enter the end convolution or coil, b, of the spring, because they are then not in the way of the next convolution or coil shutting or working down over the end coil, b, and also because the base-piece can then be of less horizontal area than would be necessary for the circular series of prongs or fingers to embrace or fit outside the end convolution of the spring and be bent radially inward.

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

1. The combination, with the spiral or helical spring A, of conical form, of a base-piece or bearer having a circular series of prongs or fingers, b', which enter the convolution or coil at the small end of the spring, and are bent radially outward over said convolution or coil to secure the spring to the base-piece or bearer and permit the second con-

volution or coil to work downward and over the convolution or coil which is secured to the base-piece or bearer, substantially as herein described.

2. The combination, with a spiral or helical vehicle-spring, of a base-piece or bearer having an open center and a circular projection which enters within the end convolution or coil of the spring, and having a circular series of prongs or fingers springing from the top of said projection and bent radially outward over the end convolution or coil to secure the spring to the base-piece or bearer, substantially as herein described.

3. The combination, with the spring A, of the base-piece or bearer B, constructed with a circular projection, b<sup>2</sup>, entering the end convolution or coil of the spring, and provided with a circular series of prongs or fingers, b', bent radially outward and embracing said end convolution or coil, and also provided with lips or flanges B', and a set-screw, c', inserted through one of the lips or flanges, substantially as herein described.

FRANK S. PALMATIER.

Witnesses:

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