

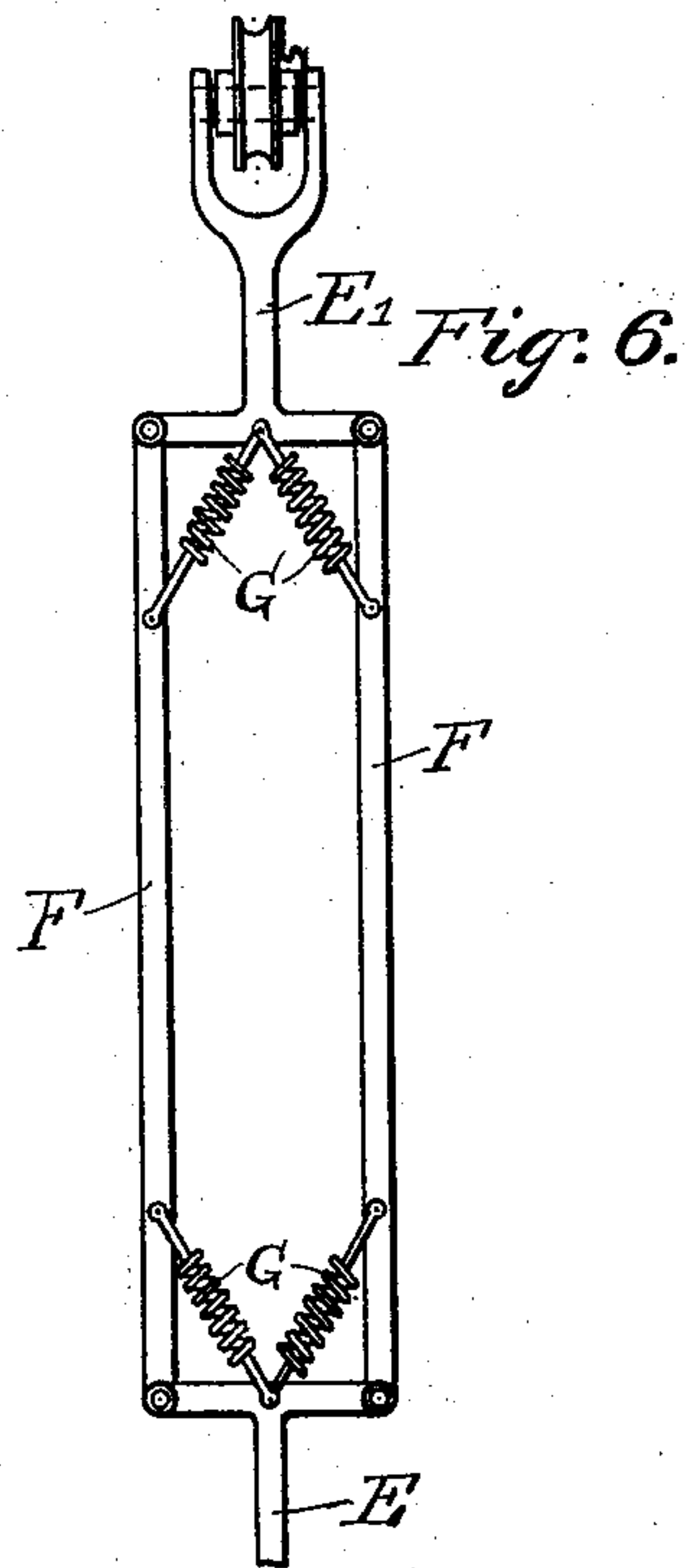
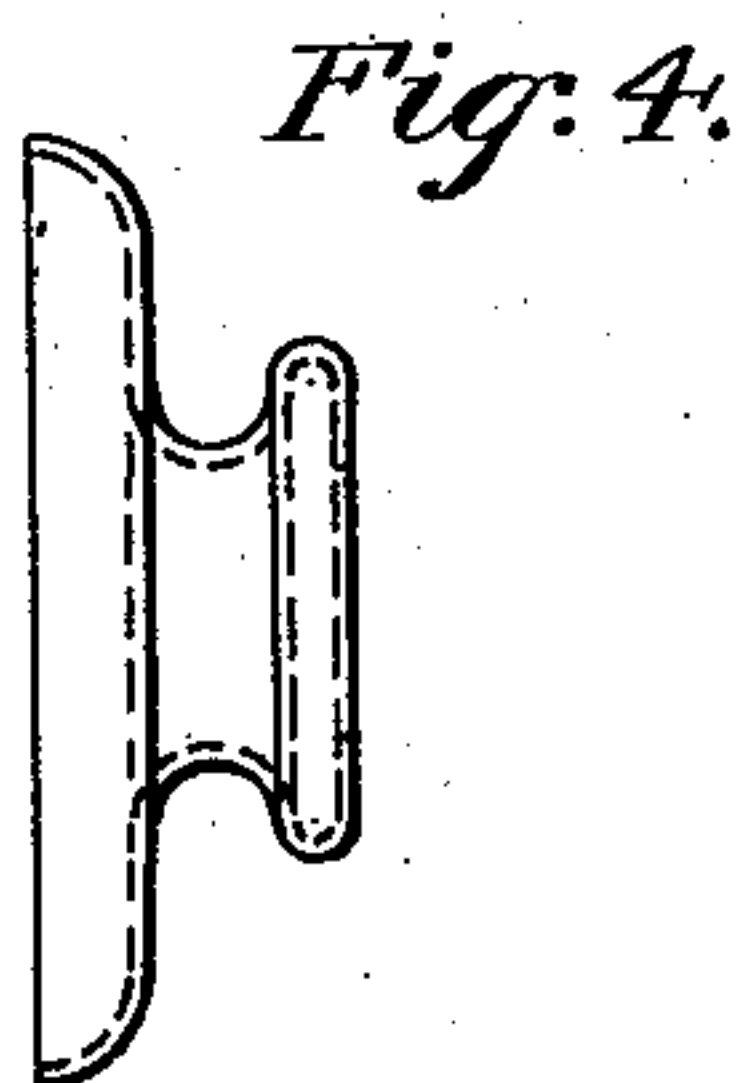
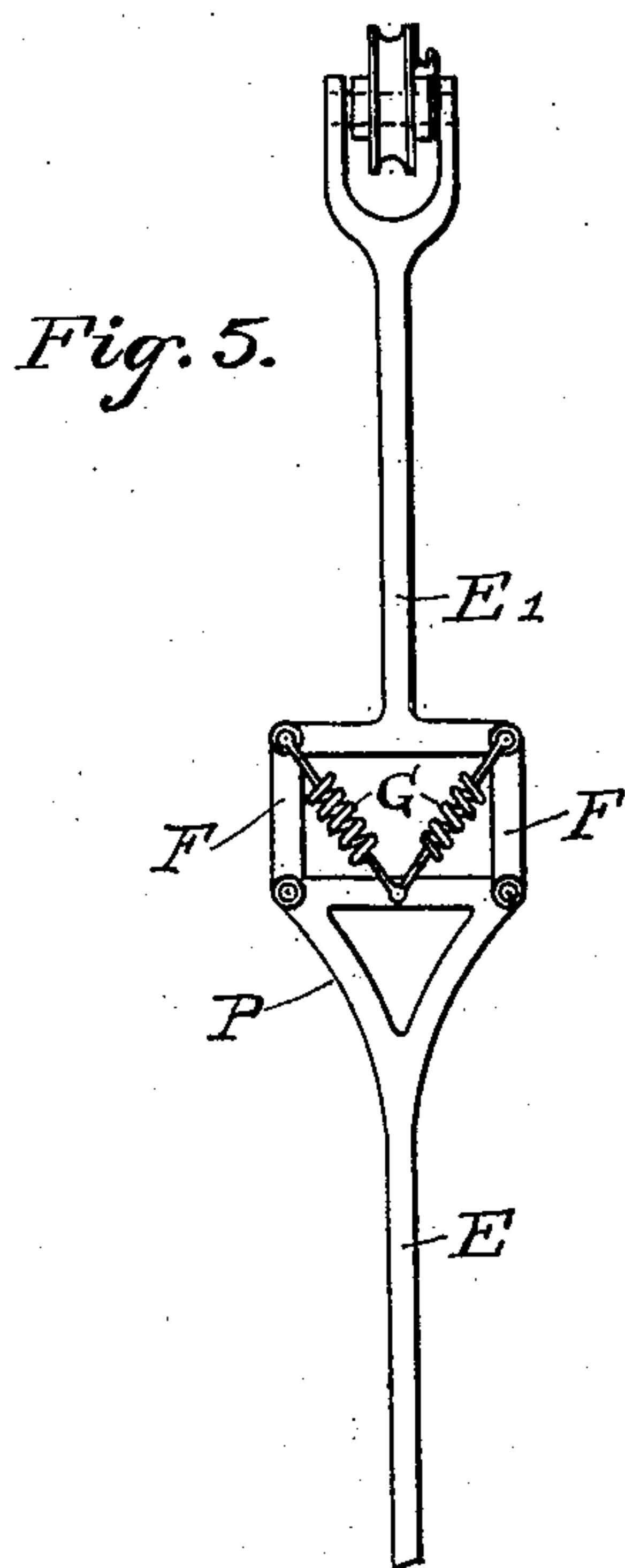
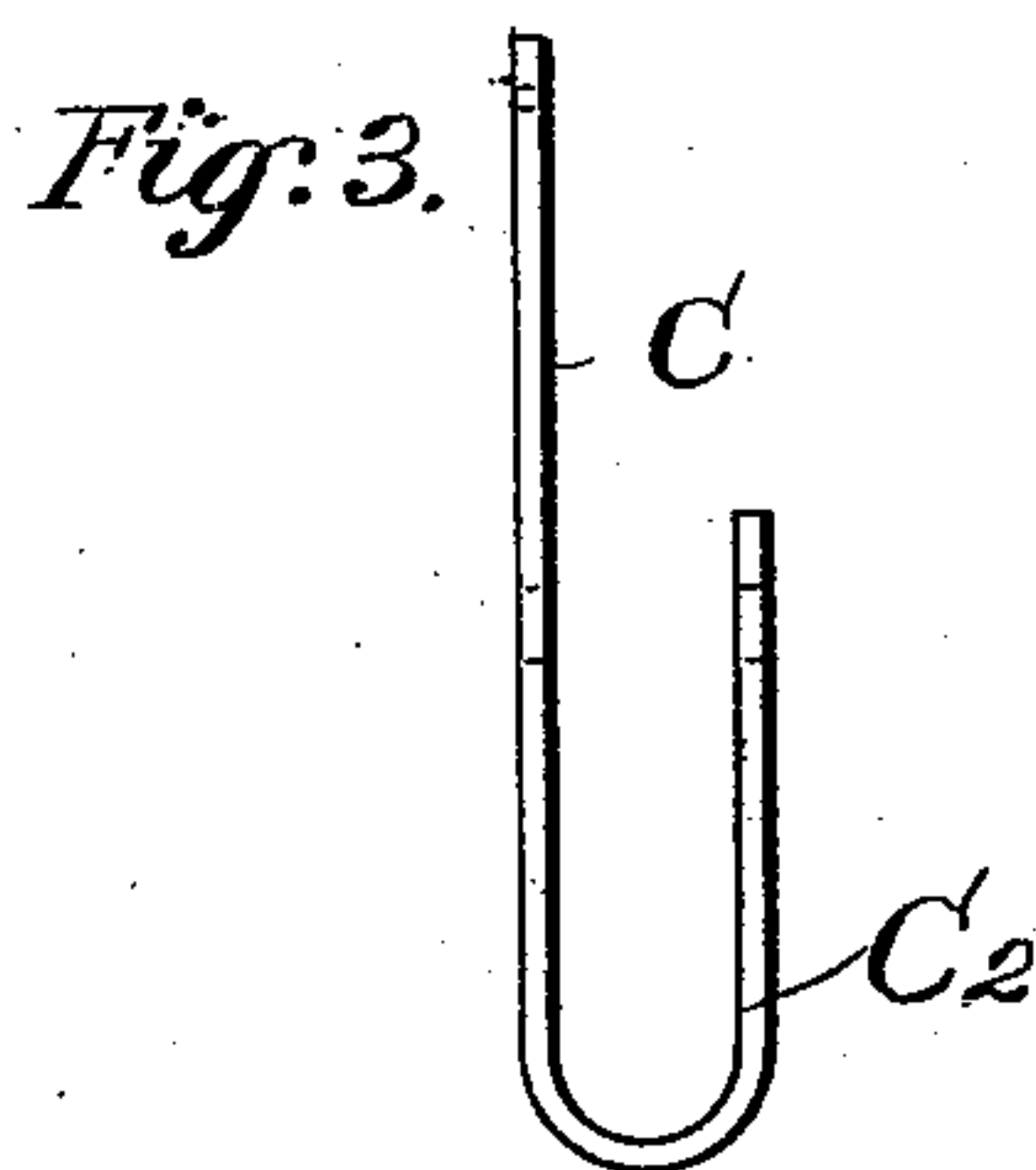
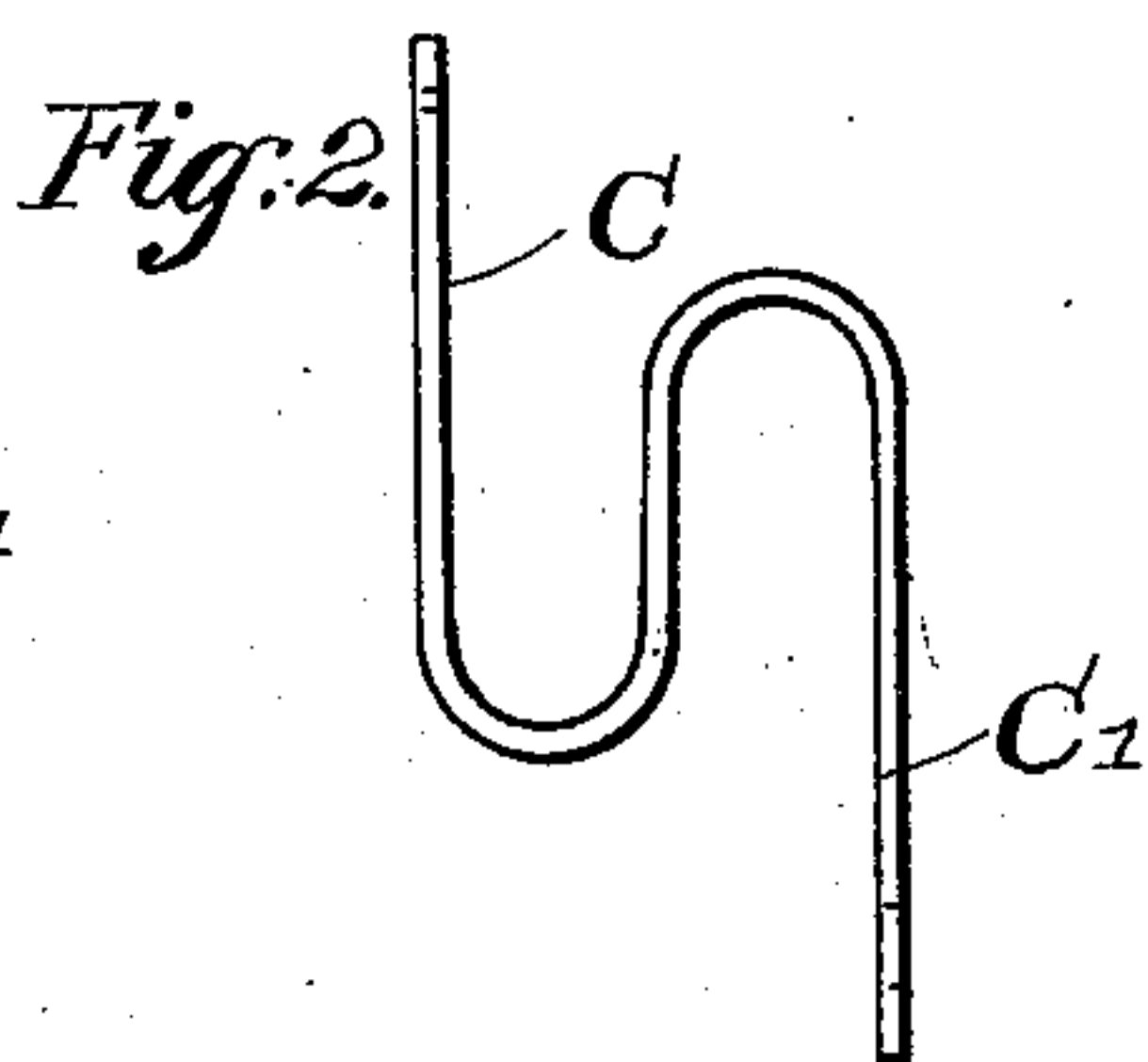
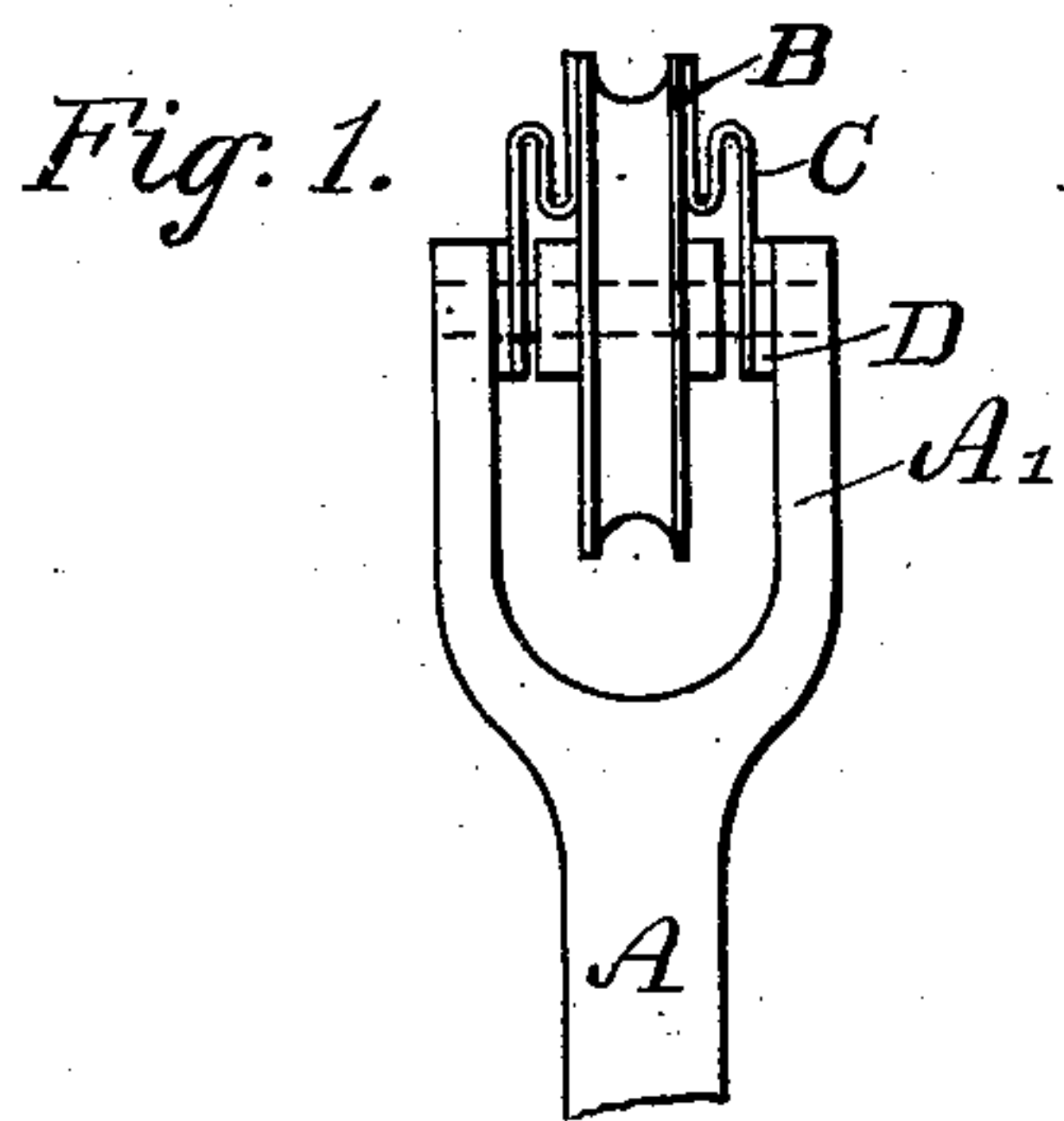
No. 688,509.

F. W. GARRETT.
TROLLEY.

Patented Dec. 10, 1901.

(Application filed Dec. 1, 1899.)

(No Model.)



WITNESSES:

S. E. Clarkson
M. E. Sharpe

INVENTOR

F. W. Garrett

BY

Geo. H. Parmelee
his ATTORNEY.

UNITED STATES PATENT OFFICE.

FRANK W. GARRETT, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE
LORAIN STEEL COMPANY, A CORPORATION OF PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 688,509, dated December 10, 1901.

Application filed December 1, 1899. Serial No. 738,752. (No model.)

To all whom it may concern:

Be it known that I, FRANK W. GARRETT, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and
5 useful Improvement in Trolleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

10 My invention has relation to trolleys, and is designed to provide means of improved character for taking the current from the trolley-wheel and conducting it to the trolley arm or pole; also, to provide means of novel character for maintaining the trolley-wheel in en-
15 gagement with the suspended conductor.

The first part of my invention consists in the combination, with a trolley-wheel and the harp or fork in which it is journaled, of a
20 spring attached to said wheel and revolving at its free portion in contact with the inner surface of the harp or frame, said spring forming a good conductor of electricity and making by reason of its spring-pressure good contact with the harp or fork.

25 The second part of my invention consists in a trolley-pole having therein a joint of novel character, whereby the wheel is always maintained in a perpendicular plane and in full contact with the under side of the conductor, notwithstanding widely-varying angular positions of that portion of the pole which is immediately attached to the car.

30 The invention also consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

35 Figure 1 is a front view of a trolley-wheel and harp embodying my invention. Fig. 2 is a detail view of the spring-contact device detached; Figs. 3 and 4, similar views showing modified forms of the spring; Fig. 5, a detail view of a portion of a trolley-pole having my improved joint. Fig. 6 is a similar
45 view showing a modification.

50 The letter A designates the trolley-pole, having the usual fork or harp A'. B is the usual grooved trolley-wheel, which is journaled in said harp in any suitable manner. C is a spring which is secured to the side face

of the said wheel with its free end portion encircling the trolley-wheel spindle in bearing contact with the inner face of one of the arms of the harp or with a washer D secured to said
55 arm.

The spring C may be of various forms. In Figs. 1 and 2 it is shown as consisting of a flat strip whose free end portion is bent to form a shoe portion C' for contact with the
60 washer D and perforated for the wheel-spindle. One or more of these springs may be employed. In Fig. 4 the spring is shown as being of cup-form and is designed to be secured to the wheel concentric with its spin-
65 dle. Fig. 3 shows a spring somewhat like Fig. 2, but with a long spring-loop C² and a single bend. These springs may be employed at one side of the wheel or they may be used at both sides.

70 Thesecond feature of my invention is shown in Figs. 5 and 6, and consists in interposing between the lower portion of the pole and the wheel-carrying portion a joint in the form of a rectangular frame, composed of a lower or
75 base bar E, a parallel link-bar E', and connecting side links F, with springs G connected across the angles of said bars and links. The base-bar E is centrally attached to the upper end of the lower or main section of the
80 trolley-pole and extends transversely of the car or at right angles to the vertical plane of the trolley-wheel. The upper or wheel-carrying portion of the pole is attached to the central portion of the upper bar E'. The
85 springs G are of sufficient strength to maintain the frame against collapse, while at the same time they permit a limited parallel movement endwise of the bars E E' with respect to each other. This movement, it will
90 be readily seen, maintains the wheel in the plane of the conductor, although the lower portion of the pole may considerably change its angular position. In turning a curve, for instance, the wheel will thus maintain its full
95 contact with the conductor instead of assuming a tilted position. I thus not only get the advantage of a full contact between the wheel and the conductor at all times, but I very greatly reduce the tendency of the wheel to
100 leave the wire.

P designates curved guards or fenders be-

low the joint to prevent the latter from injuring the span-wires should the wheel leave the conductor. In the modification shown in Fig. 6 the frame forms practically the entire length 5 of the pole.

I do not wish to be limited to the non-essential details shown and described, as these may be changed without departing from the spirit of my invention.

10 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a trolley-wheel, and the harp or frame in which it is journaled, 15 of a current-conducting device revolving with said wheel and forming an electrical connection between the wheel and harp, said device consisting of a piece of spring material bent upon itself intermediate of its ends, one of

which is secured to the side of the wheel and 20 the other of which has a bearing engagement with the inner side of the harp or frame.

2. In a trolley, a lower pole-section having transversely-separated bearings at its upper end, an upper section having similar bearings 25 at its lower end, links connecting the said bearings, and springs restraining the movement of said links.

3. A trolley-pole formed in two sections united by a transverse rectangular frame 30 having side links, and springs connected to said links and to the fixed sides of the frame.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRANK W. GARRETT.

Witnesses:

MYRTLE E. SHARPE,
H. W. SMITH.