

(No Model.)

P. A. HARRIS.  
ELECTRIC BELL PULL.

No. 390,778.

Patented Oct. 9, 1888.

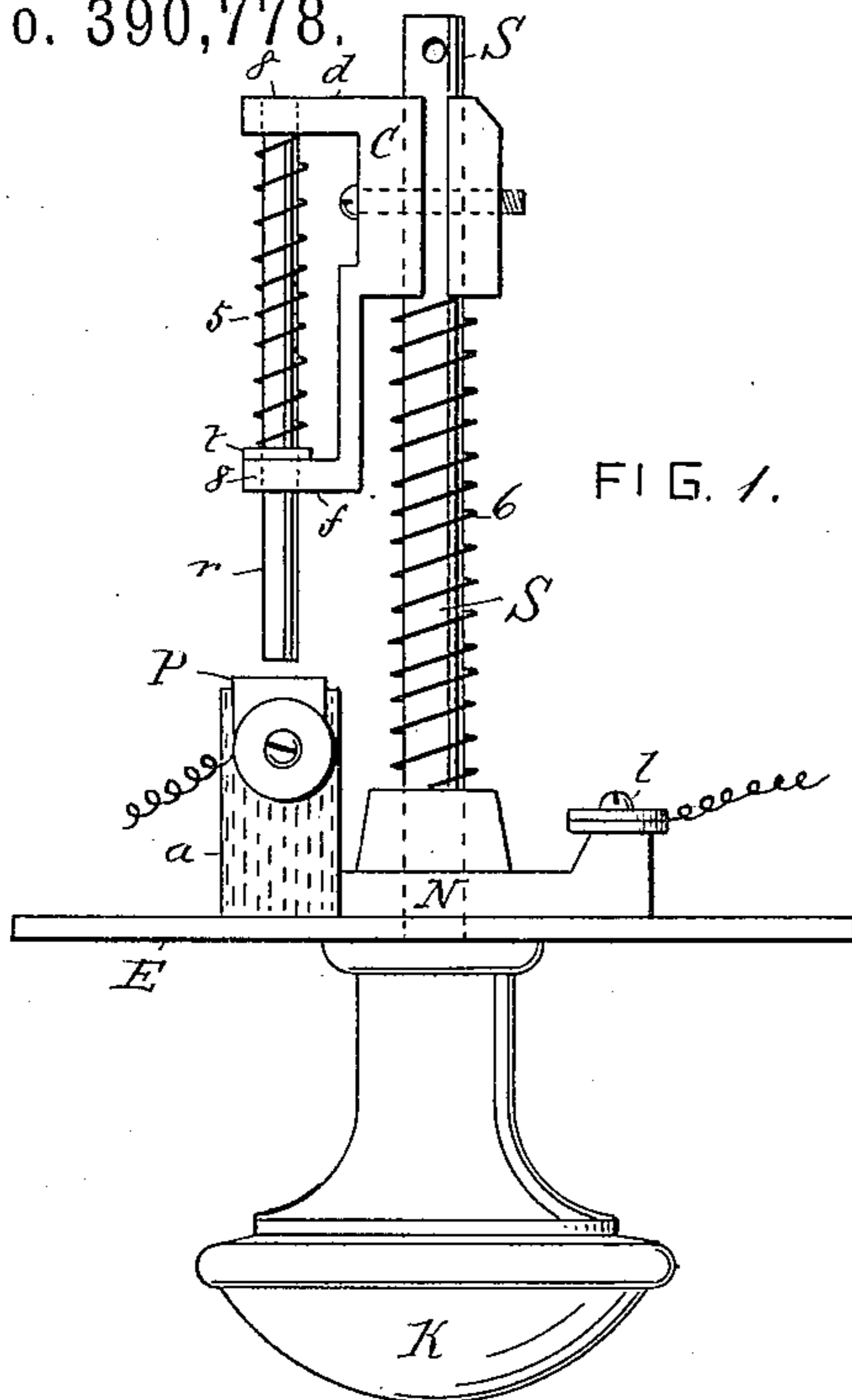


FIG. 1.

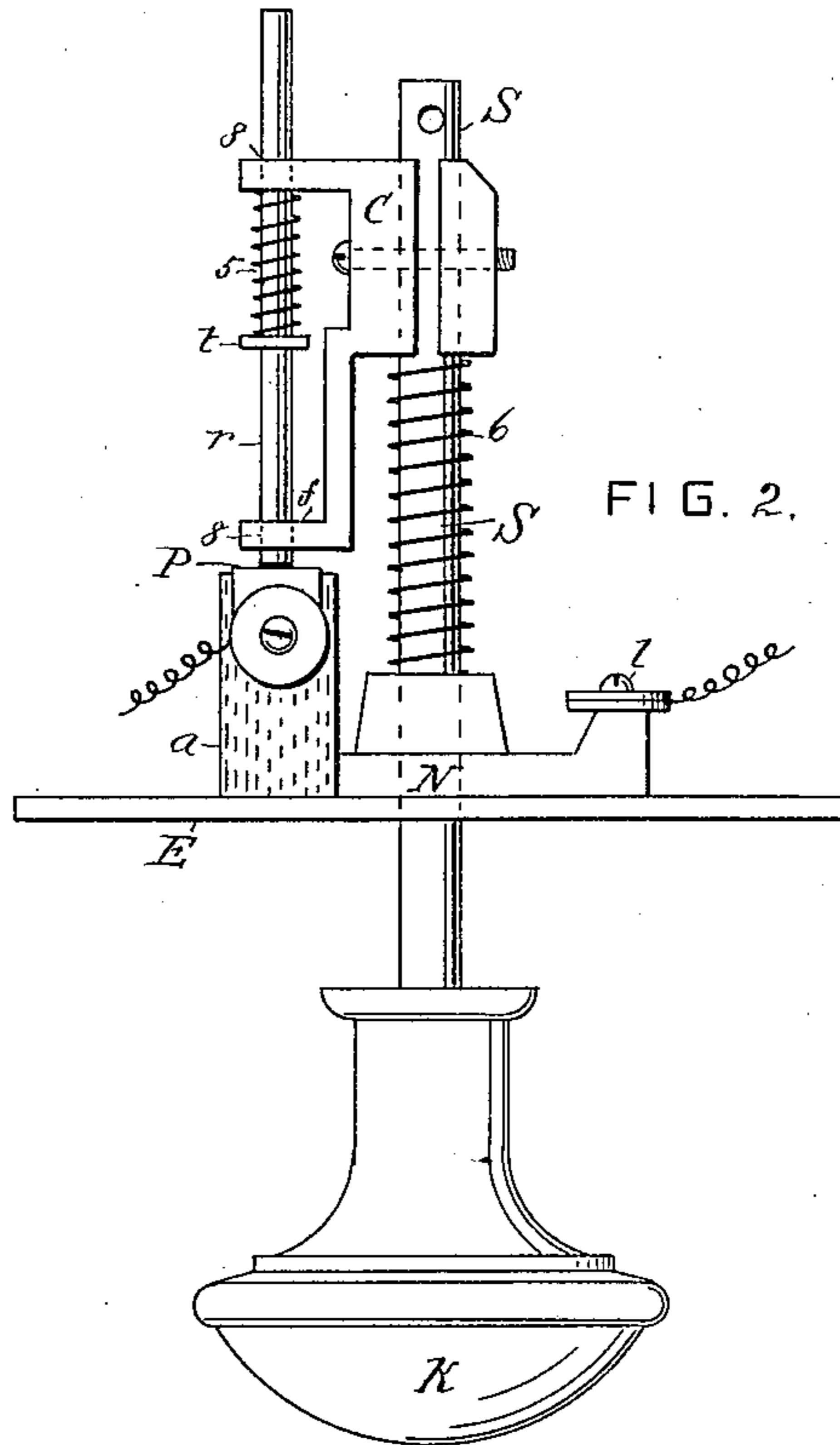


FIG. 2.

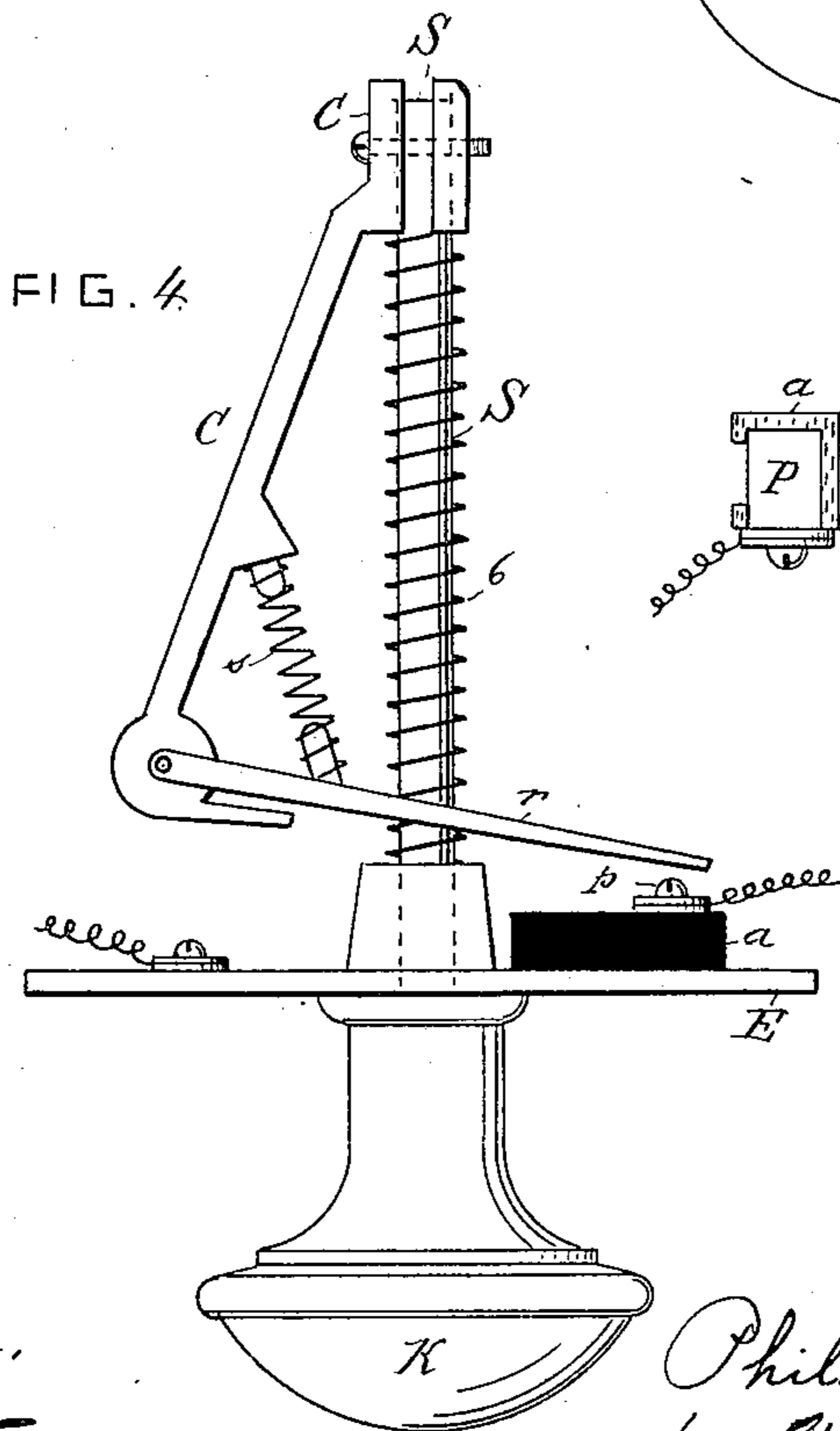


FIG. 4.

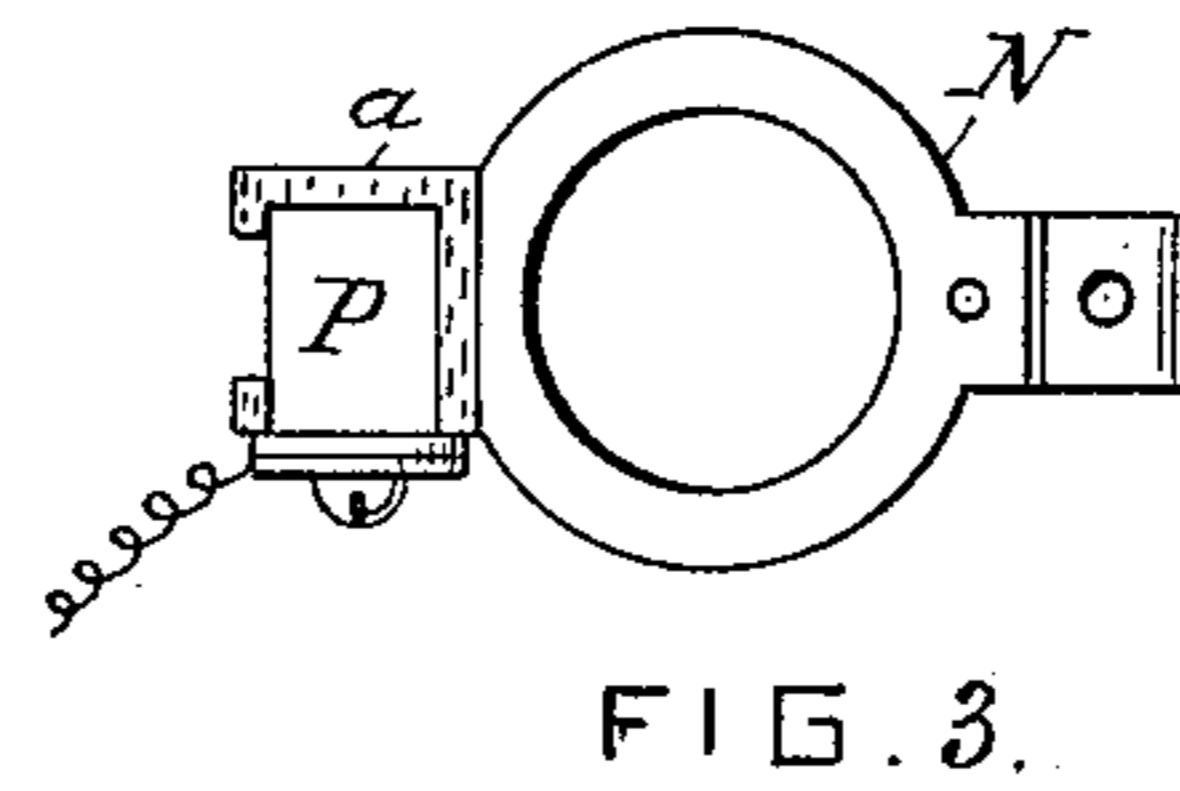


FIG. 3.

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC BELL-PULL.

SPECIFICATION forming part of Letters Patent No. 390,778, dated October 9, 1888.

Application filed December 29, 1886. Serial No. 222,868. (No model.)

*To all whom it may concern:*

Be it known that I, PHILANDER A. HARRIS, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have made certain new and useful Improvements in Electric Bell-Pulls, of which the following is a specification.

My invention relates to bell-pulls which are to be used in connection with electric bells, and the objects I seek are to provide such a bell-pull as shall be simple in its construction, perfect in its operation, economical in its manufacture, and one which may be readily adjusted to the ordinary bell-pulls for gongs and bells without the necessity of extra boxing or casing, as is required by many electric bell-pulls now in use. These objects I attain by the use of the devices herein described, reference being had to the accompanying drawings, in which the same letters and numerals refer to like parts.

Figure 1 is an elevation of an electric bell-pull containing my improvements. Fig. 2 is the same, showing the position of the spindle and springs when the former has been pulled outward. Fig. 3 is a view of the detachable supporting device by means of which the contact-plate P is attached to the escutcheon-plate. Fig. 4 is an elevation of an electric bell-pull, showing my invention in modified forms.

S is the spindle of an ordinary bell-pull, provided with the usual knob, K, and surrounded by the usual spiral spring, 6.

C is a metallic carriage fastened to the end of the spindle S, carrying upon it the small rod *r*, surrounded by the small coiled spring 5. To the rod *r* is permitted a movement in the direction of its length through the openings 8 in the arms *d* *f* of the carriage, for the purpose hereinafter described.

E is the escutcheon-plate.

P is a metallic plate attached to the escutcheon E, but insulated therefrom by the block of wood, rubber, or other non-conducting material *a*. One wire of the electric battery is attached to the plate P, and the other wire is connected directly to the escutcheon E.

The carriage C performs the function of the usual pin in compressing the spring 6 when the spindle is pulled outward, and a pin or ring, *t*, or other similar device serves a like

purpose in the case of the small spring 5, as well as to retain the rod *r* within the carriage C. The rod *r* should project beyond the carriage sufficiently far to have its end just out of contact with the plate P when the spindle S is in its normal position.

The operation of the device is as follows: When the knob K is pulled outward, carrying with it the spindle S and its attached carriage C, the end of the rod *r* is immediately brought into electrical contact with the plate P, the electric circuit is established, and the bell rings, and continues to ring until the knob is released and the spindle assumes its normal position. One end of the rod *r* is held in close contact with the plate P while the knob is being pulled outward and during nearly all the time of the outward and backward movement of the spindle S, as above stated, by means of the spring 5, and at the same time any sudden stoppage, jarring, or other interruption to the easy and smooth working of the device is prevented by the opposite end of the rod passing through the opening 8 in the arm *d* of the carriage C while the latter is moving toward the plate P. When the knob K is released, the springs 6 and 5 return the spindle S and the rod *r*, respectively, to their normal positions, thereby breaking the contact between the rod *r* and the plate P, and the bell ceases to ring. The distance between the arms *d* and *f* of the carriage C, and the space between the arm *f* and the plate P, and the size of the springs 6 and 5 should be so proportioned that when the knob K is pulled outward until the arm *f* is brought into contact with the plate P, thereby preventing any further outward movement of the spindle S, the springs 6 and 5 will not be compressed to their fullest extent, as shown in Fig. 2. In this way the life of the springs is not exhausted by the working of the device; but their elasticity is in great measure preserved, and they are rendered more durable and lasting than would be the case were the greatest degree of compression permitted.

It is very evident that many modifications may be made in the form and arrangement of the several parts of the device herein described without in any sense changing my invention. One of these modifications I have shown in Fig. 4.

I am aware that the use of two or more co-acting springs in devices for opening and closing an electric circuit is not new, such co-operation of springs having been heretofore employed in electric railway-signals, electric annunciators, circuit-closers, &c. I do not therefore claim, broadly, as new the concurrent action of the springs in establishing and breaking electrical communication. My invention consists in the novel construction and arrangement of parts, as herein described, and the application and adaptation of the same to an ordinary bell-pull. One of the main features of my invention is that the parts herein described can be readily combined with the spindle and escutcheon of the usual bell-pull (such as is commonly used to ring bells and gongs without the aid of electricity) to form a compact device which can be more easily used with and more economically applied to electric bells than can similar bell-pulls heretofore made.

For the sake of convenience, and for the purpose of adjusting my device to the ordinary bell-pulls for bells and gongs, I make the several parts of my device separable and detachable from the escutcheon and spindle. Thus, as shown in Fig. 3, the support for the insulated plate P is made in the shape of a collar, N, which may readily be slipped over any ordinary spindle and secured to the back of the escutcheon by means of screws or in any other suitable manner. Likewise the carriage C is made of two parts, as shown in Figs. 1 and 2, and fastened to the spindle by a screw or in any other usual manner. It is clear that the carriage may be made of but a single piece. I make it of two pieces, in order to have a better bearing-surface against the spring 6, thereby contributing to the more easy and perfect working of the device; but it is not essen-

tial that these several parts be made separable and detachable from the spindle and escutcheon. They may be made integral with the same, and such parts cast together as may be practicable and convenient.

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

1. In an electric bell-pull, the combination of an escutcheon-plate, having attached to the back thereof an insulated contact-plate, and a spindle and its embracing-spring, arranged as described, said spindle being provided at its outer end with a knob or handle, and having upon its inner end a carriage supporting a spring-actuated contact-piece, substantially as described, and for the purposes set forth.

2. The electric bell-pull consisting of the escutcheon-plate E, spindle S, spring 6, knob K, insulated contact-plate P, detachably connected to the escutcheon-plate, the rod r, spring 5, and the carriage C, detachably connected to the inner end of the spindle S, all constructed and arranged substantially as shown and described, and for the purposes set forth.

3. The electric bell-pull consisting of the combination of the following elements, viz: the escutcheon-plate E, spindle S, spring 6, knob K, insulated contact-plate P, detachably connected to the escutcheon, rod r, spring 5, and carriage C, provided with the stop f, detachably connected to the inner end of the spindle S, all constructed and arranged substantially as shown and described, and for the purposes set forth.

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