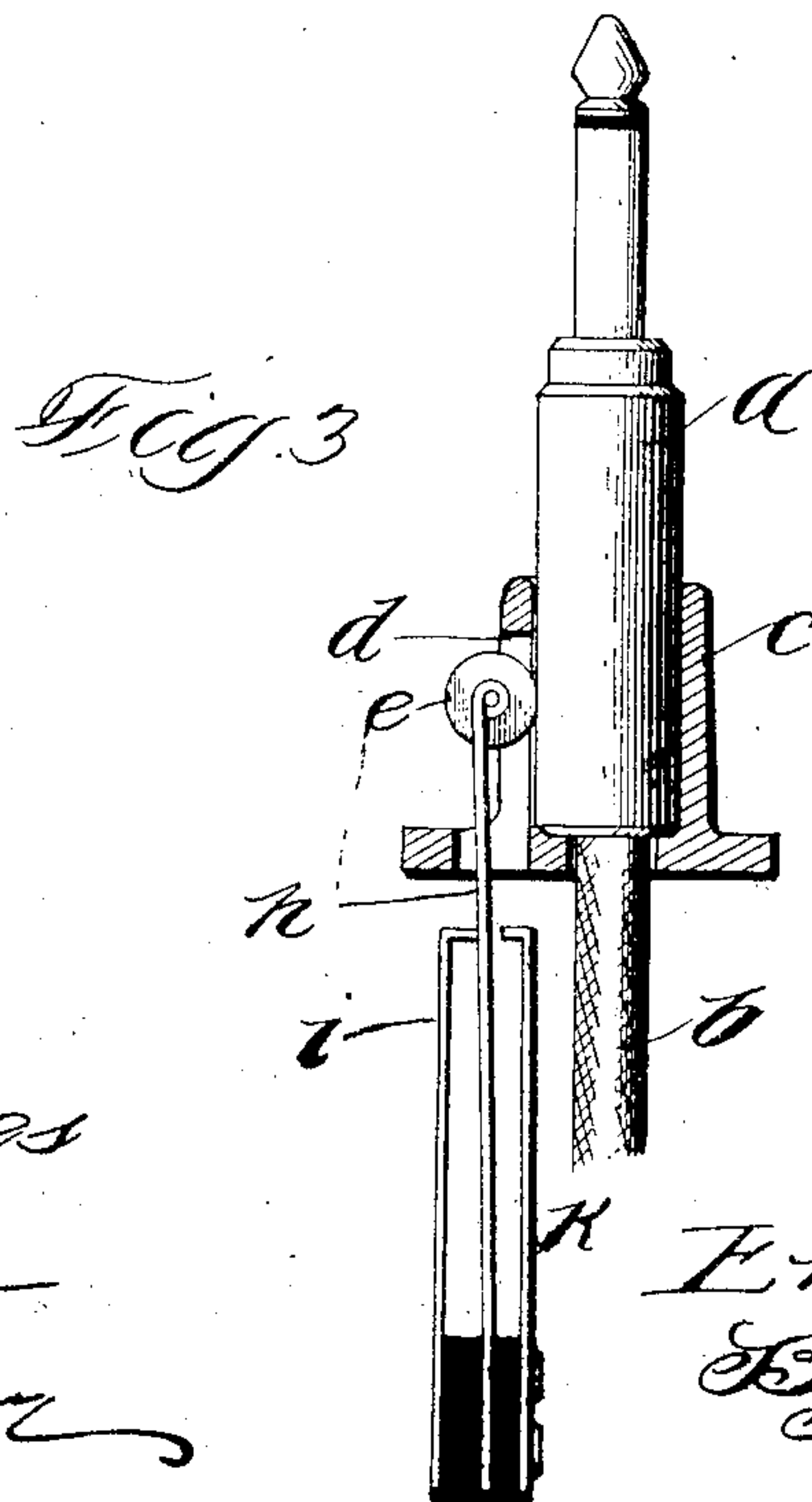
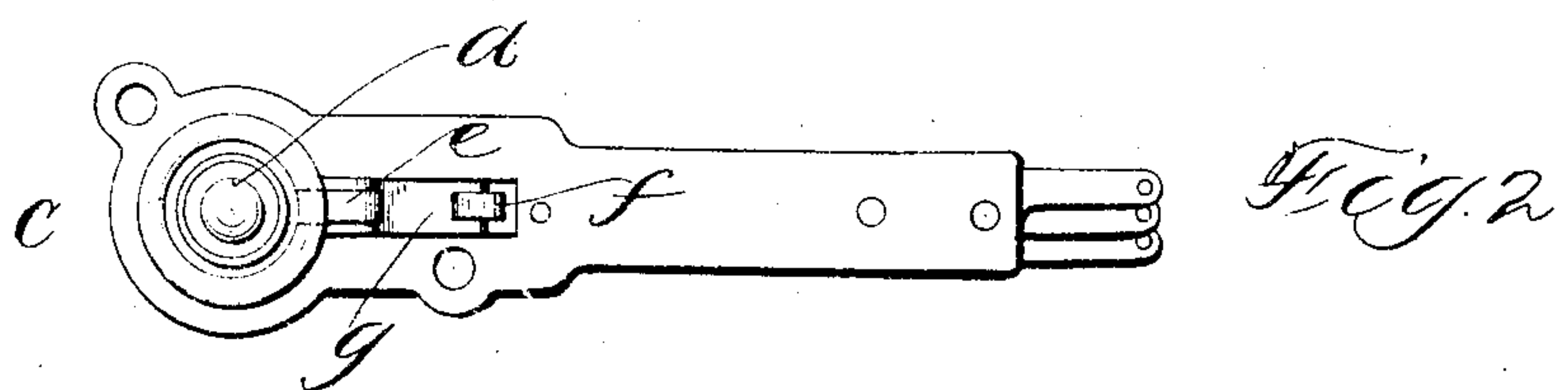
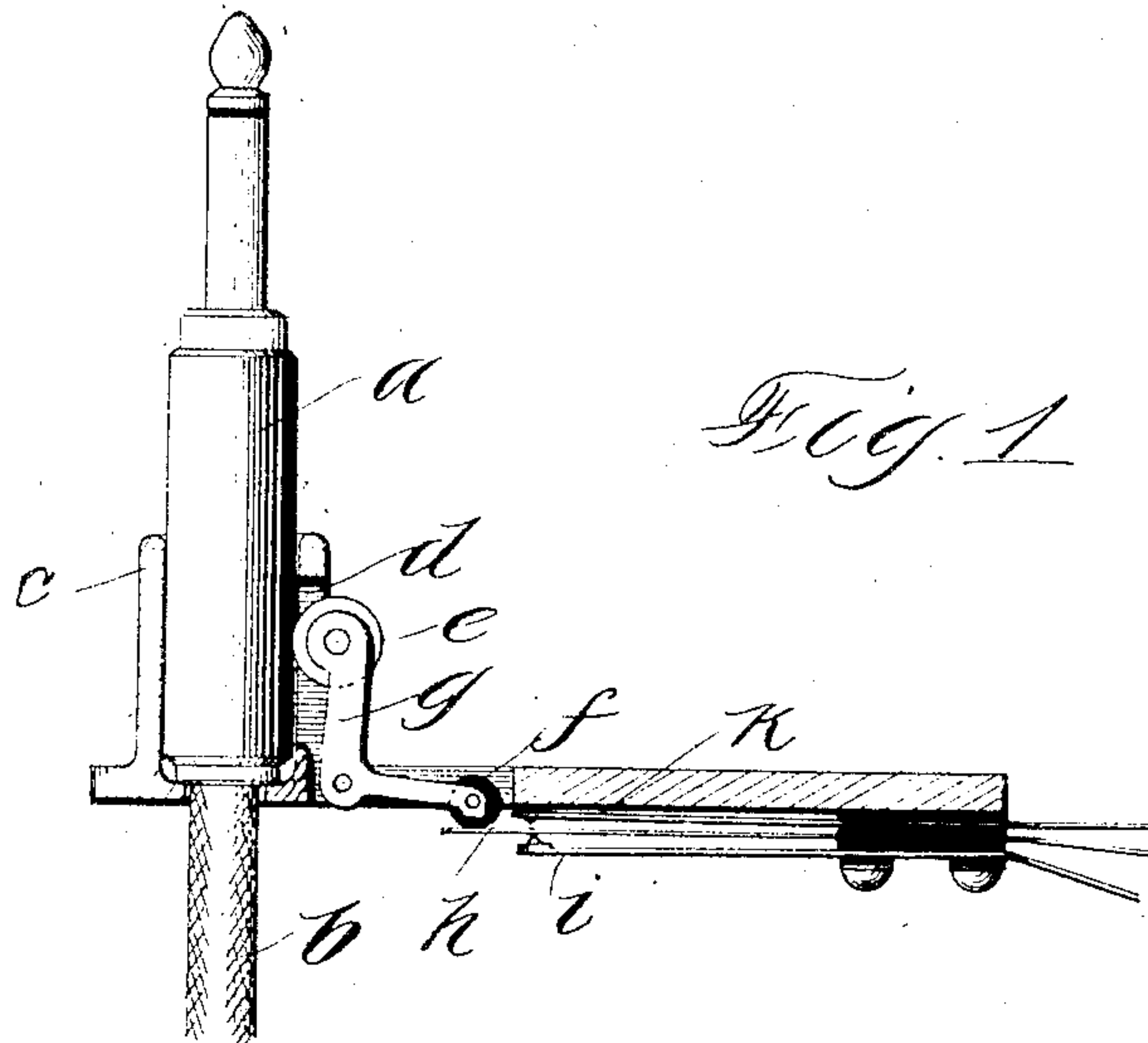


No. 860,070.

PATENTED JULY 16, 1907.

E. E. YAXLEY.
PLUG SEAT SWITCH.
APPLICATION FILED JULY 21, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

ERNEST E. YAXLEY, OF CHICAGO, ILLINOIS.

PLUG-SEAT SWITCH.

No. 860,070.

Specification of Letters Patent.

Patented July 16, 1907.

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To all whom it may concern:

Be it known that I, ERNEST E. YAXLEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain

new and useful Improvement in Plug-Seat Switches, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to plug seat switches, and has for its object the improvement of the mechanical construction thereof whereby the plug may be more effective than hitherto in operating plug seat switches.

In practicing my invention, I prefer to employ a bell crank lever pivoted at its elbow, one end of the lever being operated by the descending plug, while the lever serves to effect the operation of the plug seat switch at its other end when said lever is actuated by the descending plug.

In all embodiments of the invention, I prefer to employ anti-friction or roller mechanism, which is interposed between the plug and the plug seat switch, and which, by offering little or negligible friction to the descending plug, permits the plug and the weight employed to restore the same to operate the switching mechanism effectively as the plug, by reason of the said interposed roller mechanism, is not sufficiently impeded in its downward progress to prevent the cord weight from fully restoring the plug to its seat. Hitherto great difficulty has been found in the operation of plug seat switches because of the degree of frictional engagement afforded between the plugs and the spring elements of the switches engaged thereby.

In the embodiment of the invention employing a bell crank lever, I desirably dispose the contact members of the switch horizontally, and cause the operating member of the switch to be engaged by a roller carried upon the contiguous end of the operating lever. The other end of the operating lever is also provided with a roller which is disposed slightly in the path of the descending plug and which rides upon the plug to effect actuation of the lever, whereby the operating member of the switch is actuated.

In another embodiment of my invention, the anti-friction device is mounted upon the element or portion of the switch that is to be actuated, the anti-friction device in this instance being likewise a roller, which in all forms of the invention is preferably cylindrical, though I do not wish to be limited to cylindrical rollers.

I will explain my invention more fully by reference to the accompanying drawing, showing two preferred embodiments thereof, in which—

Figure 1 is a view in sectional elevation of the embodiment of the invention including an operating bell crank lever. Fig. 2 is a plan view of the structure shown in Fig. 1. Fig. 3 is a view in sectional eleva-

tion showing an embodiment of the invention wherein the switch elements are vertically disposed.

Like parts are indicated by similar characters of reference throughout the different figures.

I have illustrated a cord or link circuit plug *a* to which a cord *b* is extended, which cord is desirably associated with the usual pulley weight, which need not be shown, as its office is so well understood. When the plug is not in use, it rests within a socket which may be secured to the cabinet work of a switch-board, as is understood. The socket *c* has a recess *d* whereby an anti-friction device may be projected into the bore of the socket when the plug is removed, so that said plug will engage the same when the plug is being restored, whereby said anti-friction device may operate the plug seat switch mechanism. In the form shown in Fig. 1, the anti-friction device is composed preferably of two cylindrical rollers *e* and *f* carried upon the free ends of a bell crank lever *g* which is pivoted at its elbow, the roller *f* being desirably made of insulating material. The elements *e*, *f* and *g* constitute the preferred form of bell crank lever device. When the plug *a* is lifted, the element *h* of the switching device, which is desirably a contact spring of the switching mechanism, operates upon the roller *f* and thereby upon the bell crank lever *g* to thrust the roller *e* within the bore of the socket *c*, said element *h* in this operation breaking engagement with its normal contact *i* and making connection with its alternate contact *k*. When the plug *a* descends, the anti-friction mechanism is engaged thereby, whereby the element *h* is moved in a reverse direction to break connection with its alternate contact *k* and make connection with its normal contact *i*. In the construction shown in Fig. 3, the element *h* carries the roller *e* directly. In this latter construction, when the plug *a* is removed, the spring *h*, by reason of its resiliency, projects the roller *e* into the bore of the socket *c*, said element *h* at the same time engaging its alternate contact *k*. When the plug is restored, it engages the anti-friction device and causes the movement of the spring *h* from its alternate contact *k* to its normal contact *i*. I prefer the construction shown in Fig. 1 because of the lever device which promotes the effective operation of the switch.

Stated broadly, it will be seen that I have provided a plug seat switch including a seat for the plug, and a switch actuating anti-friction device interposed between the plug and the switching mechanism and operated by the plug, though I prefer the construction including a socketed portion adapted to receive a plug in its bore, a switch actuating bell crank lever, rollers upon the ends of the bell crank lever, and an actuating element serving to engage one of said rollers and, when the plug is removed, to force the other roller into the path of the plug as it returns to its socket.

It is obvious that many changes may be made in the constructions shown, without departing from the spirit of my invention, and I do not, therefore, wish to be limited to the precise features illustrated, but,

5. Having thus described my invention, I claim as new and desire to secure by Letters-Patent:—

1. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating bell crank lever, rollers upon the ends of the bell crank lever, and an actuating element serving to engage one of said rollers and, when the plug is removed, to force the other roller into the path of the plug as it returns to its socket.

2. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating bell crank lever device, a roller upon one end of said lever device, and an actuating element serving to engage said roller and, when the plug is removed, to force the lever device into the path of the plug as it returns to its socket.

3. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating bell crank lever device, a roller upon one end of said lever device, and an actuating element serving to engage the other end of said lever device and, when the plug is removed, to force the roller into the path of the plug as it returns to its socket.

4. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating bell crank lever device, and an actuating element serving to engage one end of said lever device and, when the plug is removed, to force the other end of the lever device into the path of the plug as it returns to its socket.

5. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating lever, rollers upon the ends of the lever, and an actuating element serving to engage one of said rollers and, when the plug is removed, to force the other roller into the path of the plug as it returns to its socket.

6. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating lever device, a roller upon one end of said lever device, and an actuating element serving to engage said roller and, when the plug is removed, to force the lever device into the path of the plug as it returns to its socket.

7. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating lever device, a roller upon one end of said lever device, and an actuating element serving to engage the other end of said lever device and, when the plug is removed, to force the roller into the path of the plug as it returns to its socket.

8. A plug seat switch including a socketed portion adapted to receive a plug in its bore, a switch actuating lever device, and an actuating element serving to engage one end of said lever device and, when the plug is removed, to force the other end of the lever device into the path of the plug as it returns to its socket.

9. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating bell crank lever, rollers upon the ends of the bell crank lever, and an actuating element serving to engage one of said rollers and, when the plug is removed, to force the other roller into the path of the plug as it returns to its seat.

10. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating bell crank lever device, a roller upon one end of said lever device, and an actuating element serving to engage said roller and, when the plug is removed, to force the lever device into the path of the plug as it returns to its seat.

11. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating bell crank lever device, a roller upon one end of said lever device, and an actuating element serving to engage the other end of said lever device and, when the plug is removed, to force the roller into the path of the plug as it returns to its seat.

12. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating bell crank lever

device, and an actuating element serving to engage one end of said lever device and, when the plug is removed, to force the other end of the lever device into the path of the plug as it returns to its seat.

13. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating lever, rollers upon the ends of the lever, and an actuating element serving to engage one of said rollers and, when the plug is removed, to force the other roller into the path of the plug as it returns to its seat.

14. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating lever device, a roller upon one end of said lever device, and an actuating element serving to engage said roller and, when the plug is removed, to force the lever device into the path of the plug as it returns to its seat.

15. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating lever device, a roller upon one end of said lever device, and an actuating element serving to engage the other end of said lever device and, when the plug is removed, to force the roller into the path of the plug as it returns to its seat.

16. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating lever device, and an actuating element serving to engage one end of said lever device and, when the plug is removed, to force the other end of the lever device into the path of the plug as it returns to its seat.

17. A plug seat switch including a portion for supporting the plug, a switch actuating element, rollers upon the ends of said element, and an actuating element serving to engage one of said rollers, and, when the plug is removed, to force the companion roller into the path of the plug as it returns to its seat.

18. A plug seat switch including a portion for supporting the plug, a switch actuating element, a roller upon one end of said element, and an actuating element serving to engage said roller, and, when the plug is removed, to force the first aforesaid element into the path of the plug as it returns to its seat.

19. A plug seat switch including a portion for supporting the plug, a switch actuating element, a roller upon one end of said element, and an actuating element serving to engage a portion of the switch actuating element removed from said roller, and, when the plug is removed, to force the roller into the path of the plug as it returns to its seat.

20. A plug seat switch including a seat portion adapted to receive a plug, a switch actuating lever device, and an actuating element serving to engage said lever device, and, when the plug is removed, to force a portion of the lever device into the path of the plug as it returns to its seat.

21. A plug seat switch including a seat portion, switch actuating mechanism including a pivotally mounted element adapted to lie in the path of the plug as it descends to its seat, and means for placing a portion of said element in the path of the descending plug upon a removal of the plug.

22. A plug seat switch including a seat portion, switch actuating mechanism including a pivotally mounted element adapted to lie in the path of the plug as it descends to its seat, and means for placing a portion of said element in the path of the descending plug upon a removal of the plug, said means being included in the switch to be controlled.

23. A plug seat switch including a seat portion, switch actuating mechanism including a pivotally mounted lever adapted to lie in the path of the plug as it descends to its seat, and means included in the switch to be controlled, for placing a portion of said element in the path of the descending plug upon a removal of the plug.

In witness whereof, I hereunto subscribe my name this 17th day of July, A. D. 1906.

ERNEST E. YAXLEY.

Witnesses:

G. L. CRAGG,

LEON G. STROHL.