

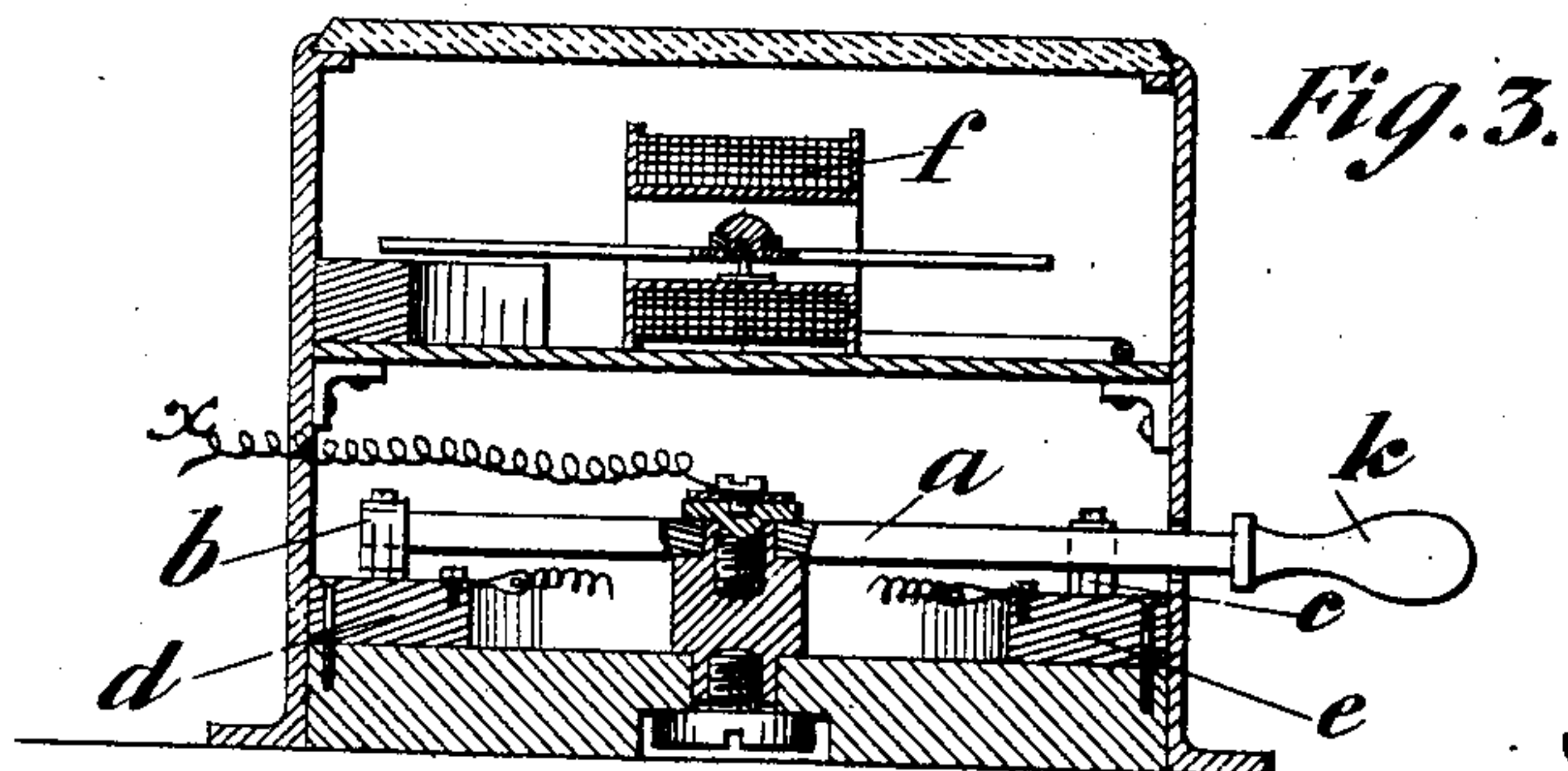
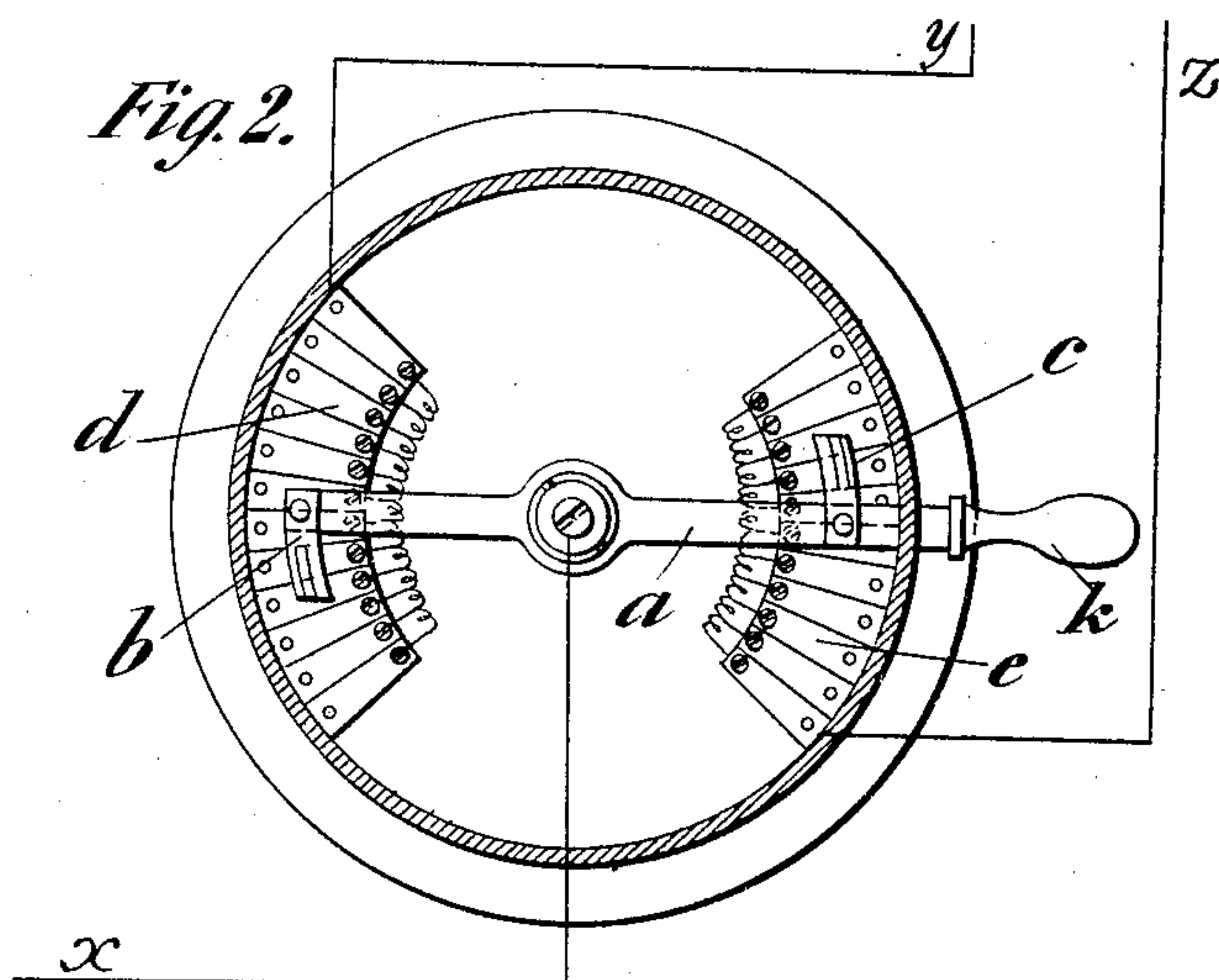
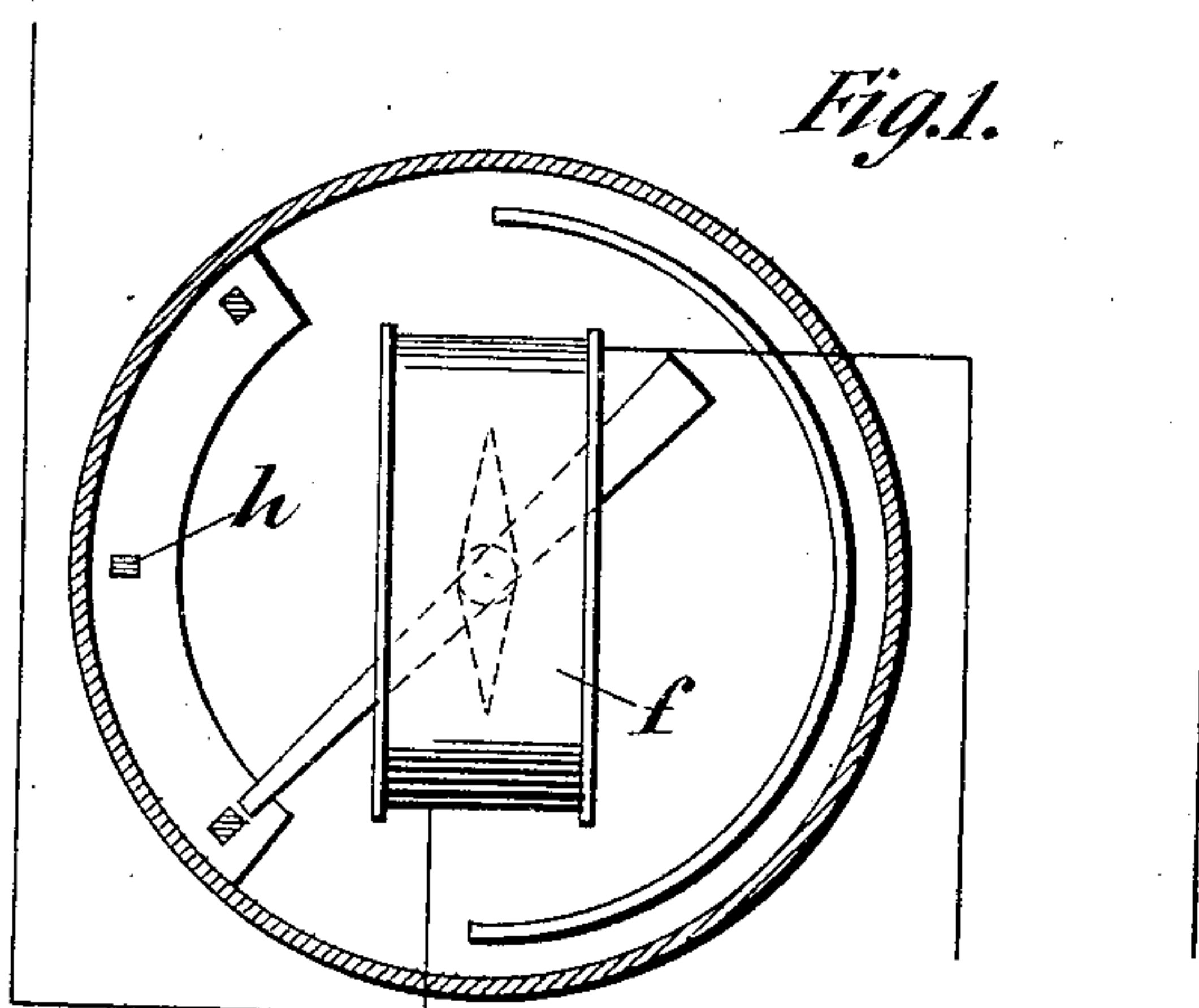
No. 765,441.

PATENTED JULY 19, 1904.

F. RITCHIE.
DEVICE FOR USE WITH TELAUTOGRAPHS.

APPLICATION FILED JAN. 3, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

FOSTER RITCHIE, OF HAMPSTEAD, ENGLAND.

DEVICE FOR USE WITH TELAUTOGRAPHS.

SPECIFICATION forming part of Letters Patent No. 765,441, dated July 19, 1904.

Application filed January 3, 1902. Serial No. 88,356. (No model.)

To all whom it may concern:

Be it known that I, FOSTER RITCHIE, a citizen of the United States of America, residing at 15 Mackeson road, Hampstead, in the county of London, England, have invented certain new and useful Devices for Use with Telautographs, (for which I have applied for a patent in Great Britain, dated December 13, 1901, No. 25,496,) of which the following is a specification.

This invention relates to telautographs.

The object of the invention is to provide an apparatus for adjusting and indicating the resistance in the line-wires of telautograph systems, so that a subscriber can see at a glance if the resistance of the line-wires is in proper condition and to bring it into proper condition if it is not so.

A further object of the invention is to provide an indicator for informing a subscriber whether or not his communication is cut off at the exchange or elsewhere through accident or otherwise.

Other objects of the invention will appear more fully hereinafter.

The invention consists, substantially, in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claim.

Referring to the accompanying drawings, and to the various views and reference-signs appearing thereon, Figure 1 is a view in plan, showing an ordinary galvanometer employed in connection with an indicator apparatus embodying my invention. Fig. 2 is a view in plan of two rheostats employed in connection with my invention. Fig. 3 is a view in vertical central section of the rheostats and galvanometer embodying in their relative arrangement and location the principles of my invention.

In telautograph apparatus and systems such as is described in Patent No. 610,274, dated September 6, 1898, to Leon McPherson, it is necessary to maintain the resistance of the external line-wires substantially constant in order to secure the best results.

In the case of lines of various lengths radi-

ating from an exchange it may often occur that the resistance of the external circuit is less than that for which the apparatus is designed, so that an artificial resistance is required to be introduced in order to bring the total resistance up to that for which the apparatus is sought. It may also sometimes occur that a subscriber is cut off accidentally or otherwise by the exchange operator before his communication is finished without the sender knowing that his communication has been interrupted, and in such case the sender will continue writing messages which are not received or recorded at the receiving-station. It is the special purpose of the present invention to avoid these objections and to provide an apparatus which will indicate to the sender whether or not the resistance condition of the line-wires over which he is operating is in proper adjustment and whether or not his line of communication has been interrupted or cut off through accident or otherwise.

In accordance with my invention I employ two rheostats, (indicated on the drawings at *d* and *e*,) preferably arranged in arcs of a circle concentric with the pivot of a lever *a*, said lever provided with brushes *b* *c*, respectively, operating over the rheostat-segments *d* and *e*, and the lever *a* is provided with an operating-handle *k*. One terminal of the telautograph-battery is connected electrically with the lever *a*—as, for instance, at the point of its pivotal support, as shown at *x*—from which point the current will divide, part passing from one arm of said lever and brush *b* and the coils of the rheostat *d*, terminal *y*, (see Fig. 2,) and out to return through the left-hand rheostat of the telautograph apparatus. (Not shown.) The other part of the current passes through the other arm of lever *a*, through contact-brush *c*, the coils of resistance or rheostat *e*, wire *z*, and out to line through the right-hand rheostat of the telautograph apparatus. (Not shown.) In one of these line connections from the rheostats *d* *e*—as, for instance, in the form shown, but to which my invention is not to be limited—in the wire extending from the rheostat *d* I place a signal device—such, for instance, as a galvanometer—the coil *f* of which is included in this line-circuit.

It is obvious that the rheostat may be included in the circuit from rheostat *e*, if desired. Only one rheostat is ordinarily necessary, because the two circuits are generally under conditions so nearly equal that the same resistance has to be introduced into both of them for the purpose of adjustment.

The complete device is conveniently made in the form of a closed box with three external connections *x*, *y*, and *z* extending therefrom. The terminals *y* and *z* do not, of course, appear in Fig. 3.

The apparatus is operated as follows: The telautograph operator brings his sending-pencil to an extreme position where all the resistance of the left telautograph-rheostat is cut out. If the external circuit has not the resistance that is suitable for the working of the telautograph, the signal device will indicate the fact. For instance, in the form illustrated, to which the invention is not limited, the index of the galvanometer will be deflected to the one side or the other of the middle point *k* of the dial in connection with which said index operates. The operator then moves the lever *a* and its brushes *b c* by means of the handle *h* in one direction or the other to introduce or cut out resistance of the rheostats *d e* until the signal device again indicates proper resistance condition in the line-circuits—as, for instance, to bring the galvanometer-index to middle position—the proper adjustment of the external circuit in respect of resistance being thus effected. It is convenient to arrange the galvanometer and its connections in case a galvanometer is employed as the signal device in such a way that the index thereof moves in the same direction as the handle *h*, so that the operator

seeing that the index has to move to the right or to the left in order to be brought to its middle or neutral point moves the handle *h* to the right or left accordingly. It will also be obvious that in case the operator or sender should have his communication cut off while he is transmitting or sending the fact will be at once indicated by the signal device—as, for instance, by variations of the position of the galvanometer-index.

Having now set forth the object and nature of my invention and a construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent, is—

An instrument adapted to be used with a telautograph apparatus for adjusting and indicating the resistance of the external circuits, comprising a frame having two series of contacts with interposed resistances, a swinging arm having spring-brushes to slide upon said contacts, and in electrical connection with one another, and terminals upon the instrument connected respectively to said arm and the end contacts of said series, the said terminals being connected to add corresponding resistances in each series upon movement of the arm, and a current-indicator device mounted upon the instrument and in series with one of said circuits, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FOSTER RITCHIE.

Witnesses:

W. J. NORWOOD,
JOSEPH LAKE.