No. 676,436. Patented June 18, 1901.

H. T. JOHNSON.

TELEGRAPHIC INSTRUMENT.

(Application filed July 5, 1900.)

(No Model.)

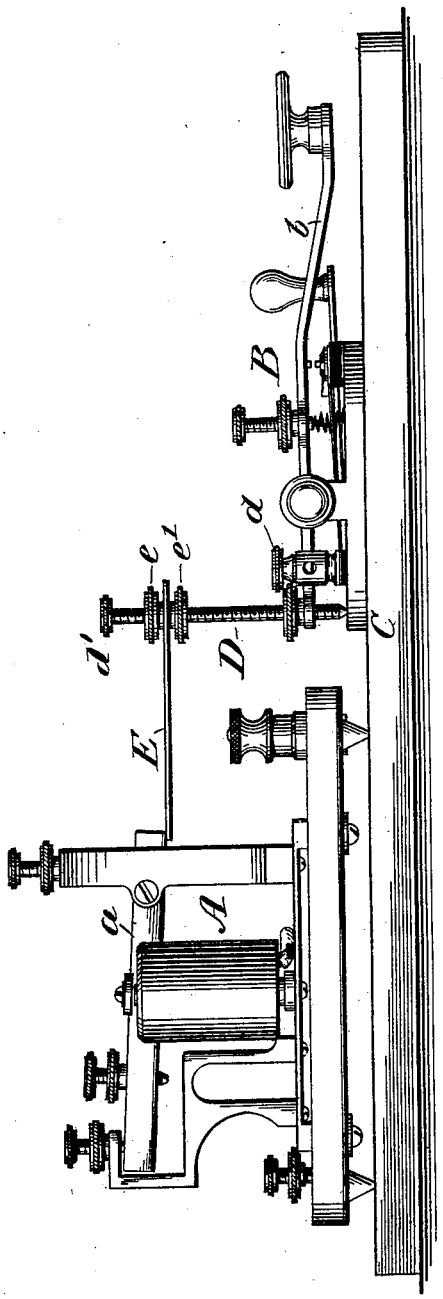

Fig. 1

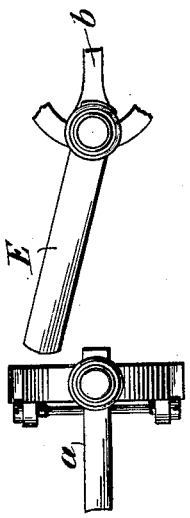

Fig. 2.

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TELEGRAPHIC INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 676,436, dated June 18, 1901.

Application filed July 5, 1900. Serial No. 22,558. (No model.)

To all whom it may concern:

Be it known that I, HARRY T. JOHNSON, a citizen of the United States, and a resident of Jersey City, Hudson county, New Jersey, (post-office address 32 Cortlandt street, borough of Manhattan, city of New York,) have invented certain new and useful Improvements in Telegraphic Instruments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

In the practice of the art of telegraphy the operator in sending a message depends upon the operation of his sounder to guide him in the manner in which his message is being transmitted over the line. Under perfect line conditions the movements of the key are accurately and satisfactorily transmitted through the relay to the sounder; but when owing to atmospheric conditions or to escapes and induction on the line the relay operates sluggishly and the sounder fails to respond promptly to the movement of the key and the two instruments do not work in exact unison the operator experiences great difficulty in properly transmitting and the nervous strain imposed upon him by the effort to bring his key and sounder into unison soon becomes extremely exhausting. This fact is well recognized by practical telegraphers; and the object of my invention is to overcome the difficulty by the provision of a mechanical connection between the key and the sounder (the two being also connected electrically in the customary manner) by which the movement of the key is mechanically transmitted directly to the sounder-lever without in any way interfering with or affecting its electrical operation. The sender is thus enabled to determine exactly and easily how the message is being transmitted without being required to follow and allow for any sluggishness which may exist in the operation of the relay, while the sounder, notwithstanding the mechanical connection between the sounder-lever and the key, will be free to operate electrically in the normal manner and to respond without interference or modification of its action to the operator at the other end of the line.

To this end my invention consists in the construction, combination, and arrangement of parts and details herein shown and described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a key and sounder of ordinary construction arranged for practical operation, the circuits and electrical connections not being shown. Fig. 2 is a plan view showing the connecting-lever swung to one side and out of engagement with the sounder-lever.

Similar reference characters are employed to designate corresponding parts in both views.

The sounder A and key B are secured to a suitable base or support C in the usual manner, but in approximately the relative position shown. The sounder A is of the usual construction and is provided with the pivoted armature-lever *a*. The key B, except as hereinafter described, is also of the usual construction. The key-lever *b*, however, instead of being provided with the ordinary contact-screw at its rear end is fitted to receive a screw-threaded adjustable support D, the lower end of which projects below the key-lever to serve as a contact to limit the movement of the key-lever. A lock-nut *d* serves to secure the support D in the position to which it may be adjusted. An arm E is carried by the support D, one end of said arm being apertured to fit loosely upon said support. The arm E may be adjusted at any desired height upon the support D and is clamped firmly in position by the lock-nuts *e* and *e'*. The free end of the arm E (which is preferably made of spring metal, so that it will flex slightly under transverse strain) extends under the rear end of the sounder-lever, and the position of the arm on its support D is so adjusted that when the sounder-lever *a* is in its normal position, as shown in Fig. 1, the end of the arm E will be just in contact with the under side of the sounder-lever. The arm E and the sounder-lever *a*, however, are not connected in any way, so that the sounder-lever is entirely free to operate electrically in the normal manner and without readjustment or manipulation of any kind. The upper end of the support D may terminate in a head *d'*, by which the adjustment previously mentioned may be conveniently made.

It will now be apparent that any movement of the key-lever will be accurately reproduced by the sounder-lever without any interference with the electrical operation of the latter and that the operator can determine exactly how his message is being transmitted notwithstanding the existence of abnormal or unsatisfactory circuit conditions.

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

1. The combination with a telegraphic key and a telegraphic sounder, of an arm connected with the key-lever and arranged to engage with and exert an upward pressure on the sounder-lever when the key-lever is depressed, said arm being free from positive connection with the sounder-lever, whereby said sounder-lever may be operated electrically without operating the key-lever.

2. The combination with a telegraphic key and a telegraphic sounder, of an arm connected with the key-lever and arranged to engage with and exert an upward pressure on the sounder-lever when the key-lever is depressed and means for adjusting the position of said arm without varying the adjustment of the sounder-lever.

3. The combination with a telegraphic key and a telegraphic sounder, of an arm arranged to engage with and exert an upward pressure on the sounder-lever when the key-lever is depressed, a support for said arm carried by the key-lever and forming a stop therefor and means for adjusting the position of said support to vary the limit of movement of the key-lever.

4. The combination with a telegraphic key and a telegraphic sounder, of a resilient arm connected with the key-lever and arranged to engage with and exert an upward pressure on the sounder-lever when the key-lever is depressed, said arm being free from positive connection with the sounder-lever, whereby said sounder-lever may be operated mechanically by the key without interfering with the electrical operation of the sounder-lever.

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