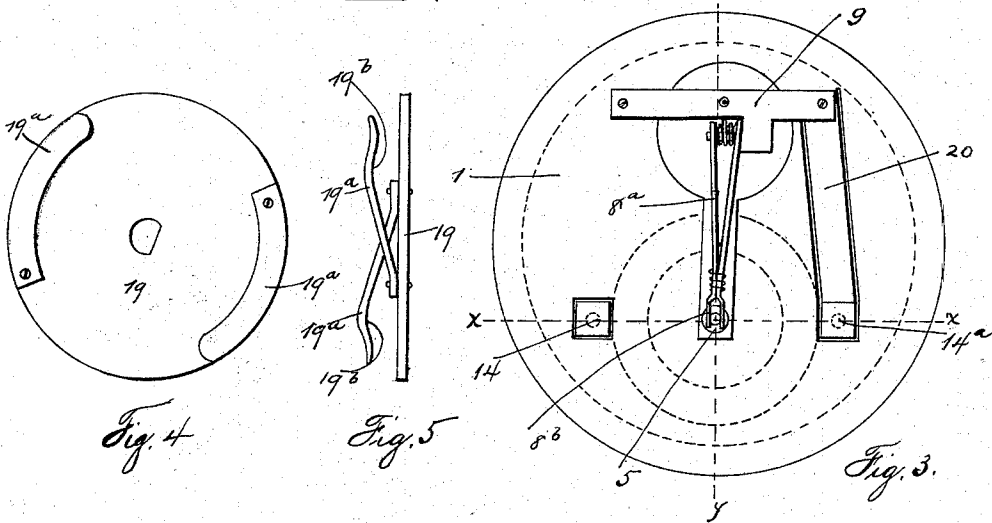
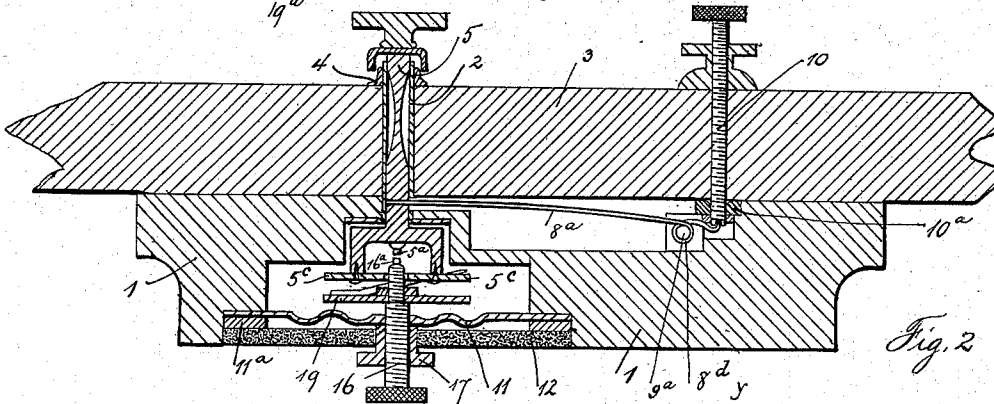
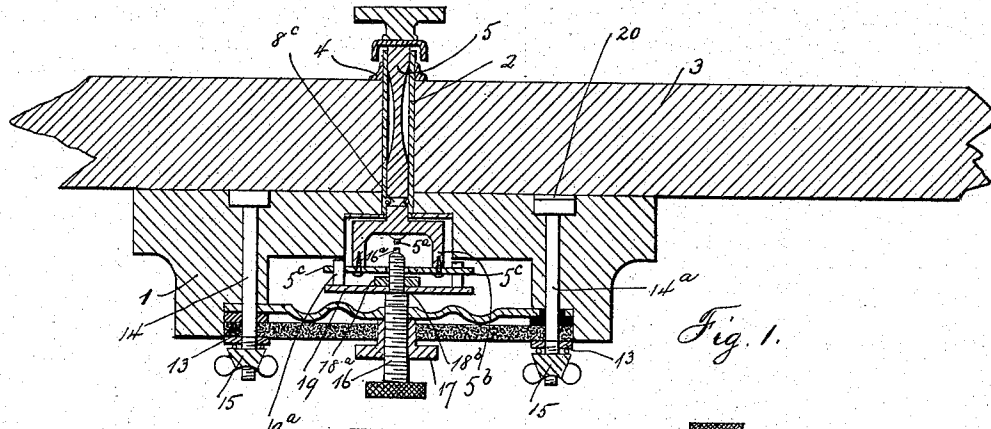


(No Model.)

O. M. RUNKLE.
TELEGRAPH INSTRUMENT.

No. 568,103.

Patented Sept. 22, 1896.



Witnesses
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UNITED STATES PATENT OFFICE.

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TELEGRAPH INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 568,103, dated September 22, 1896.

Application filed June 2, 1896. Serial No. 593,976. (No model.)

To all whom it may concern:

Be it known that I, OTTO M. RUNKLE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Telegraph Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Heretofore no inconsiderable difficulty and annoyance have been occasioned by the sticking of the platinum contact-making or circuit-closing points in telegraphic keys or transmitters. The cause of this has been the accumulation of foreign substances upon those points.

The object of my invention is to provide a telegraphic key or transmitter of simple and economical construction which shall overcome this trouble; and my invention consists of a construction whereby the contact-making points and other working parts are confined in a closed space, so as to exclude all dust, fibers, and other foreign substances from the points and working parts of the instrument.

My invention also embraces other details of construction incident to the main object, all of which are hereinafter fully described, and pointed out in the claims.

Figure 1 is a vertical sectional view taken on the line *xx* of Fig. 3. Fig. 2 is a similar view taken on a plane at right angles to that on which Fig. 1 is taken—that is, on the line *yy* of Fig. 3. Fig. 3 is a plan view of the upper side of the block. Fig. 4 is a top view of a plate that is supported on the screw containing the lower contact-making point, and Fig. 5 is an edge view of the plate shown in Fig. 4.

1 designates the block, preferably of wood, which is bored or hollowed out, substantially as shown, at its under side. Within the smaller portion of the bore fits a plate on the lower end of a tube 2, which passes upward through a hole in the table 3. Upon the upper screw-threaded end of the tube 2 fits a thimble 4, having a flange at its lower end which is turned tight upon the table, thus fixing the tube in place and preventing the

admission of dust and other foreign substances through the opening in the table to the recess of the block and the working parts of the instrument. Fitting and extending through the tube 2 is a stem or rod 5, which has at its lower end a contact-making point 5^a, ordinarily of platinum, and a surrounding hood 5^b, and extending horizontally across and secured to the lower edge of the hood is a bar having fingers 5^c 5^c projecting beyond the edge of the hood. The upper end of the stem or rod 5 has a removable cap 4^a, which covers the upper end of the tube 2 as well as that of the thimble 4, and is held in place by the finger-piece 6, screwed down upon the cap and fastened thereto by a pin. The stem or rod 5 is held normally up or in a balanced position, that is, in a position where force is necessary to move it up or down, by a spring 8^a, located in a proper recess for its reception in the upper side of the block. The spring preferably has at its inner end a fork substantially as shown at 8^b to engage a circumferential groove 8^c in the stem 5, as indicated in the drawings. To secure proper elasticity of the spring, it may have a coil 8^d, which fits on a stud 9^a, formed on a plate 9, screwed to the block, and the outer end of the spring rests in a socketed end of an adjusting-screw 10, operative from the upper side of the table. The position of the inner end of the spring 8 may be varied by means of this adjusting-screw 10. The nut 10^a on the upper side of the block through which the screw 10 passes is concaved at its upper side to facilitate the insertion of the screw.

Covering the recess in the lower side of the block 1 is an elastic concentrically-corrugated plate 11, and below this is a disk 12, of rubber or other non-conductor of electricity. The plate and disk are preferably slightly separated by a ring or washer 11^a, and all are secured to the block by means of nuts 13 on the projecting ends of bolts 14 and 14^a, which are passed down through holes in the block, the heads thereof resting in suitable recesses provided for that purpose in the upper side of the block. The ends of the wires or electric conductors are clamped between thumb-nuts 15 and the nuts 13 on the bolts.

The lower contact-making point 16^a is on the end of a post or screw 16, which threads

into a hole in the middle of the plate 11 and is locked in position by a nut 17. The upper end of the screw 16 is of smaller diameter than the part which threads into the plate 11 and is also threaded to receive between the nut 18^a and shoulder 18^b a plate 19, carrying elastic fingers 19^a, the under surfaces of which have a slight bend 19^b, so that when the fingers 5^c on the stem 5 are turned under the elastic fingers 19^a and into the bend or notch thereof it is not too easily displaced. A strip of metal 20 connects the head of one of the bolts 14^a with the plate 9 to complete the permanent part of the circuit.

One of the bolts 14^a is insulated from the plate 11 to insure the passage of the current through the spindle and contact-points when they are brought together. From the construction described in the foregoing it is obvious that dust, dirt, or other foreign substances cannot accumulate upon the platinum or contact points of the instrument. By means of either the screw 10 or the screw 16 the separation of the points may be regulated with great nicety.

For receiving, the circuit is closed by a slight turn of the finger-piece, throwing the fingers 5^c under the spring-arms of the plate 19^a. As the under sides of the latter are inclined the stem or spindle is drawn down and the contact-making points 5^a and 16^a brought close together, thus closing the circuit.

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

1. A telegraph instrument or transmitter comprising a recessed block to be fastened to the under side of a table, a stem to be passed through the table having a contact-making point on its lower end to operate within the recess of the block and at its upper end a finger-piece to be operated at the upper side of the table, a spring for holding said stem in position, a bar or plate to close the recess of the block at the under side of the table, and an adjustable contact-making point supported in said bar or plate, substantially as described.

2. A telegraph instrument or transmitter comprising a recessed block to be fastened to the under side of a table, a stem to be passed through the table having a contact-making point on its lower end to operate within the recess of the block and at its upper end a finger-piece to be operated at the upper side of the table, a spring for holding said stem in position, a bar or plate to close the recess of the block at the under side of the table, and

a screw 16 having a contact-making point supported in said plate or bar, combined with a finger 5^c on said stem, and a plate 19 on the screw 16 having a spring 19^a, substantially as shown and described.

3. A telegraph instrument or transmitter comprising a recessed block to be fastened to the under side of a table, a stem to be passed through the table having a contact-making point on its lower end to operate within the recess of the block, and on its upper end a finger-piece to be operated at the upper side of the table, a spring for holding said stem in position, and an elastic bar or plate to close the recess of the block at the under side of the table, and an adjustable contact-making point supported in said plate or bar, substantially as described.

4. In combination with a telegraph-operator's table a block having a recess secured to the under side of said table, a diaphragm for dust-tightly closing the recess of said block, a contact-making point supported in said diaphragm, a stem passing through and reciprocable in a hole in said table having a contact-making point on its lower end operating within the recess of the block, and a finger-piece on its upper end to be operated at the upper side of the table, a spring for holding said stem in position over the contact-making point on the diaphragm, and means for preventing the access of dust to the recess of the block from the upper side of the table, substantially as shown and described.

5. A telegraphic instrument or transmitter comprising a recessed block to be fastened to the under side of a table, a stem having a finger-piece, and a contact-making point, a spring for holding the same in position, a post containing a contact-making point supported in a bar or plate closing the recess of the block.

6. A telegraphic instrument or transmitter comprising a recessed block to be fastened to the under side of a table, a stem having a finger-piece, and a contact-making point, a spring for holding the same in position, means for adjusting said spring, an adjustable post or screw having a contact-making point supported in a bar or plate, closing the recess of the block substantially as described.

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

OTTO M. RUNKLE.

Witnesses:

GEO. M. FINCKEL,
C. H. HOUSEMAN.