

No. 159,664.

Patented Feb. 9, 1875.

Fig. 2.

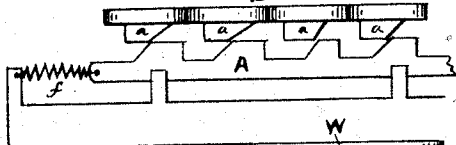


Fig. 3.

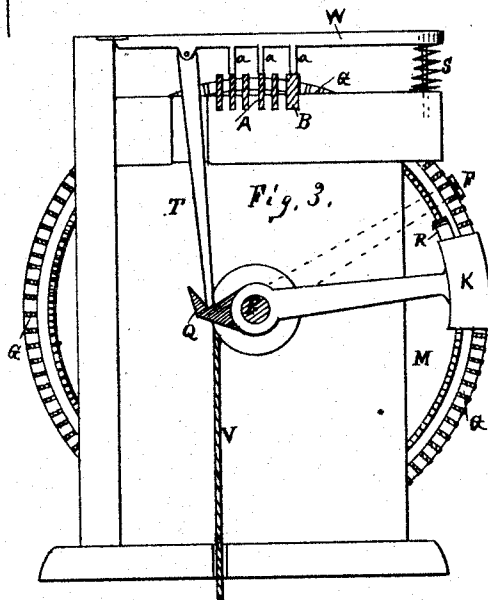


Fig. 4.

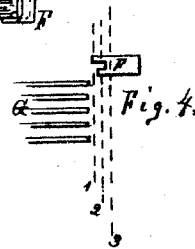
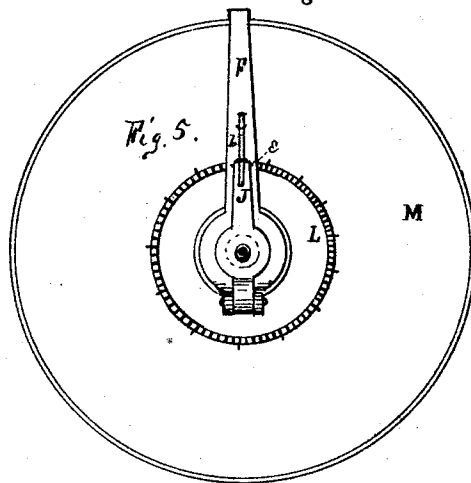


Fig. 5.



WITNESSES.

J. F. Quincy
John Thomson

INVENTOR.

Meritt Gally

UNITED STATES PATENT OFFICE.

MERRITT GALLY, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN TELEGRAPH APPARATUS.

Specification forming part of Letters Patent No. **159,664**, dated February 9, 1875; application filed November 2, 1874.

CASE B.

To all whom it may concern:

Be it known that I, MERRITT GALLY, of Rochester, in Monroe county and State of New York, have invented certain new and useful Improvements in Telegraphic Apparatus; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a plan of the instrument with key-board, showing only a partial set of keys. Fig. 2 is a front view of one of the assembling-rods with keys, showing the key-action. Fig. 3 is a transverse section of the instrument, showing the accumulating-wheel with its conductors, the propelling-weight, and key-action. Fig. 4 is a diagram representing the method of producing the signals, with the conductors and connector. Fig. 5 is a view of the wheel, looking toward the end of the instrument, and showing the connector with its detent.

This invention is designed to be an improvement on that described in specification marked A, of same date, its principal object being to enable an operator to collect within his instrument, by manipulation, an accumulation of message matter, to be automatically transmitted without the use of the ordinary perforated or prepared message-strip.

In the drawings, M represents a wheel, the rim of which is furnished with a continuous line of small adjustable conductors, G, which may be arranged and rearranged in different orders, as shown in Fig. 1. These small conductors form conducting-points for closing and breaking the electric circuit as a connector, F, passes in contact over them.

Fig. 4 is a diagram from which I will describe an improved method of producing, from a comparatively few conducting-points, the letters of the alphabet. The connector F has three connecting-faces, varying in position and width. Three dotted lines, 1 2 3, lie in the track of the connector F. If one of the conductors G is thrust forward to the first dotted line, the connector F will make contact only with its longest projection, and produce a dot; at the second dotted line, two dots, and

at the third dotted line, a dash. Any entire letter of the Morse alphabet may be produced by arranging the five conductors G properly upon the three dotted lines.

The flange d of wheel M, Fig. 1, lies in the track of the connector F, and upon this flange the ends of the conductors G are arranged, when driven forward by the assembling-rods A, to correspond with the desired letters of the alphabet. The manipulating-keys W X Y, &c., act upon the assembling-rods A, each key forcing forward a sufficient number of the conductors to proper positions to produce the letter indicated by the key. The wheel M has a constant tendency to turn backward, produced by the propelling-weight K. The stop C, however, prevents the turning of the wheel by contact with the conductors G, except as one or more of the conductors are freed from the stop C by the action of the assembling-rods A. An additional rod, B, is used to drive forward two conductors before each letter, to form the space between the letters. These two conductors are moved forward only far enough to be relieved from the stop C, but not far enough to come in contact with the connector F.

As the representative letters are formed upon the rim of the wheel, one after another, by manipulating the keys, the wheel turns backward, and the message matter is accumulated, if desired, during an entire or any part of an entire revolution of the wheel. The connector F is attached to an arm pivoted at a common center with the wheel M, but with a separate journal-bearing. The connector-arm is furnished with a detent, J, as shown in Fig. 5, and is carried backward with the wheel in its revolution until the desired accumulation is made. The hub of the connector-arm is furnished with a coiled spring or a weighted cord, V, Fig. 3, and when the operator desires to transmit the accumulated matter, he slips the detent J, and the connector passes over the accumulated message matter back to its first position, which is at M, Fig. 1. The operator does not

cease his manipulating, but goes on while the transmission is being made, the connector taking in all the matter produced before the arrival at M.

When the detent is tripped it rests upon a notch, *e*, which prevents its taking hold of the wheel again until it arrives at M. At this point it again takes hold of the wheel, and turns backward with it, as before, until the detent J is again tripped for another movement of the connector.

The accumulation of message matter may be allowed to remain any desired length of time without transmission.

For tripping the detent for the intervals of multiplex telegraphy, or the connection of a number of instruments for different lines, I use the means described in Case A, or the method shown in the present drawings.

In Fig. 1 the transmitting-circuit is shown at N² N², the transmission being produced by the positive current. A tripping-bar, I, extends from a polarized magnet, H, and by a reversed current relieves the detent J for each movement of the connector. In multiplex telegraphy the detent slips a number of the teeth of ratchet-wheel L of Fig. 5 before it is relieved from attachment to wheel M. The number of teeth slipped corresponds to the number of intervals employed, each instrument working upon any one of the intervals to which it is for the time adjusted. The cam-action of the keys upon the rods A is shown in Fig. 2, but is subject to so many easy modifications that it does not form an essential part of the invention. A pawl attached to weight K at R, Fig. 3, takes hold of a ratchet in the side of wheel M, and the movement of each key lifts the weight by the action of bar T, so that after the working of each key the wheel has its tendency to turn, being weighted on one side by weight K. The weight K may be acted upon by other than the key movement, if desired. An independent spring or weighted cord may be wound up to give a constant turning tendency to wheel M; or the weight K may be raised at proper times by means of foot-treadle.

The accumulation of message matter can only extend to a single revolution of wheel M, as shown in the drawings, as the conductors G, which easily slide in grooves made in a raised portion of the face of the wheel, are brought back to their first position by the action of the inclined cam D. The wheel, however, may be provided with a number of sets of conductors upon different flanges, so that the accumulation may be extended, if desired.

A number of adjustable wheels may be used for the same purpose, or a single key-board be made to act upon a number of wheels. A reciprocating bar or continuous belt, provided with the adjustable conductors, may be used instead of the wheel, if preferred.

For direct telegraphing, without the accumulation of message matter, the connector F may be set stationary at C, and the signals produced as the wheel turns backward; or the wheel may be removed, and with a reciprocating or revolving motion of the connector F it may be made to connect directly with the ends of the rods A, producing letter after letter as the keys are manipulated. The adjustable conductors G are represented in the drawings as small sliding bars, the end of each of which is thrust out upon the flange *d*, forming the conducting-points for contact with connector F. The particular construction of the conductors G as slides is not necessary, as they might rock upon pivots or have other convenient construction. The gist of this part of the invention lies in the adjustability of the conductors for proper arrangement, and the capacity of readjustment after the use of one arrangement.

In the key-action, as shown in Figs. 2 and 3, each key is furnished with a spring, *s*, for returning the keys to place after the cams *a* have moved forward the rods A. Springs *f* then draw back the rods A to their first position, prepared for the action of the next depression of a key.

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

1. In a telegraphic instrument, a number of electrical conductors or contact-points, adjustably attached to a suitable revolving or otherwise moving base, and capable of being arranged and rearranged to represent different letters, words, or collections of words for automatic transmission, in combination with a circuit closing or breaking device, substantially as and for the purpose specified.

2. The combination, with the adjustable conductors G, of manipulating-keys, each key making by its action an arrangement of a sufficient number of the conductors to produce the letter represented by such key.

3. An accumulation of arranged conductors, representing an accumulation of message matter to be thereafter transmitted, the same conductors admitting of a rearrangement for other message matter, substantially as specified.

4. The combination, with the adjustable conductors G, of the restoring-cam D, for restoring the conductors after having been used, to prepare them for a rearrangement, substantially as specified.

5. The combination, with the adjustable conductors G, of the stop C, to prevent the wheel M from turning, except at such times as the conductors are moved out of contact, substantially as specified.

6. The wheel M, provided with adjustable conductors, in combination with propelling-weight K, substantially as and for the purpose specified.

7. The connector F, having a detent, J, in

combination with magnet H, operated by means of a reversed current, causing the movement of the connector at any desired time after message matter is accumulated by the arrangement of the conductors upon which it is to act, substantially as specified.

8. The connector F, constructed with conducting-faces of different dimensions, for pro-

ducing a variety of signals, when connecting with conducting-points arranged in different positions in its track, substantially as specified.

MERRITT GALLY.

Witnesses:

JNO. THOMSON,
JOHN HAY.