(No Model.)

3 Sheets—Sheet 1.

J. S. GISBORNE.

SHIP TELEGRAPH.

No. 266,987. Patented Nov. 7, 1882.

FIG 1

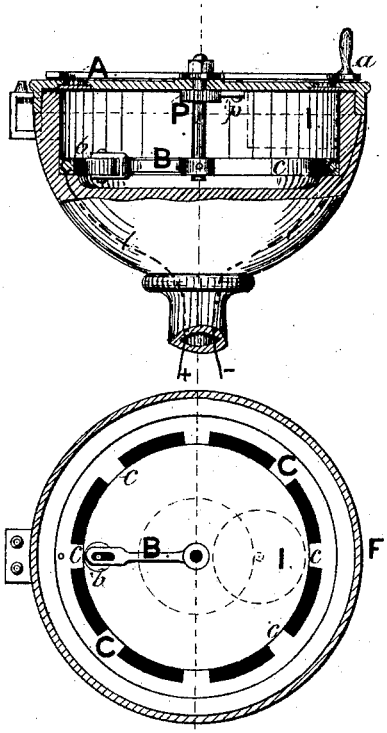

FIG. 2.

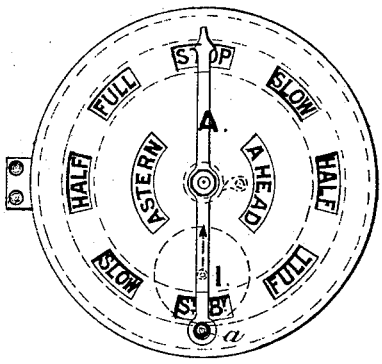

FIG. 3.

Witnesses.
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FIG. 4.

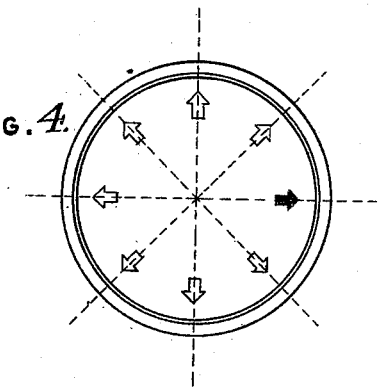
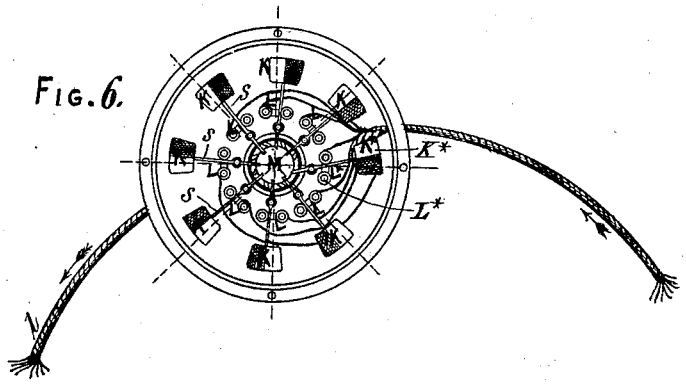


FIG. 6.



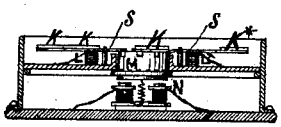
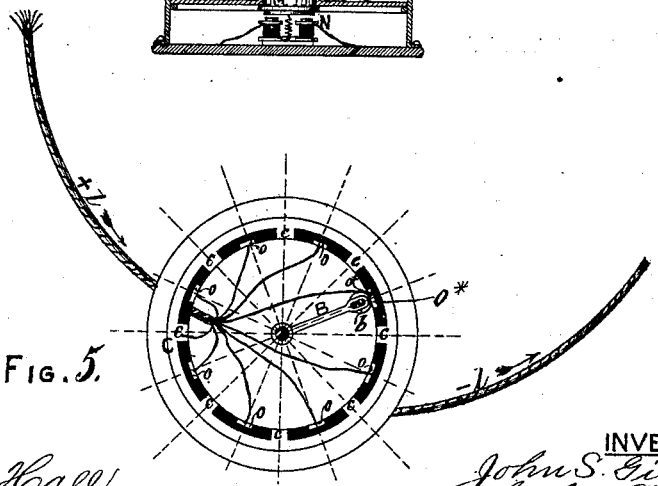


FIG. 7.

FIG. 5.



WITNESSES

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INVENTOR

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by his Attorney
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SHIP TELEGRAPH.

No. 266,987. Patented Nov. 7, 1882.

Fig 8.

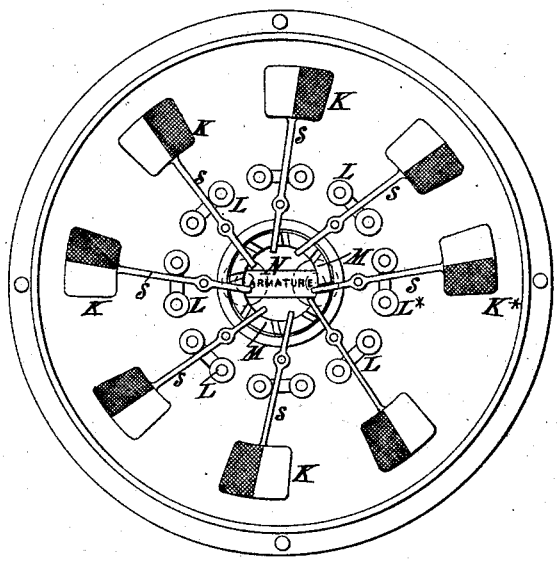
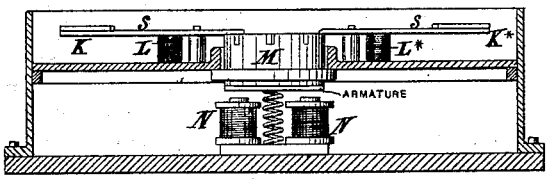


Fig 9.



Witnesses-
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George H. Botts

Inventor-
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by his Attorney
Edwin H. Brown.

UNITED STATES PATENT OFFICE.

JOHN S. GISBORNE, OF CHARING CROSS, COUNTY OF MIDDLESEX, ENGLAND.

SHIP-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 266,987, dated November 7, 1882.

Application filed August 31, 1880. (No model.) Patented in England August 30, 1878, No. 3,428.

To all whom it may concern:

Be it known that I, JOHN SACHEVERELL GISBORNE, of Charing Cross, in the county of Middlesex, England, have invented a certain new and useful Improvement in Ship-Telegraphs, of which the following is a specification.

My invention relates to telegraphs to be used on shipboard for the purpose of conveying orders from officers to engineers, steersmen, gunners, or other attendants, and of repeating back such orders to show that they have been received, similar apparatus being applicable for the purpose of communicating the direction and rate of the engines and the angle of the rudder. For this purpose I provide in a convenient part of the vessel a transmitting-instrument or transmitter having a dial with divisions marked with the orders which are to be transmitted and an index movable by hand over said dial, and in some other part of the vessel I provide a receiving-instrument or receiver which has a dial upon which are indicated the orders transmitted.

My invention relates only to the receiving-instrument; and it consists in the combination, in such an instrument, of a dial having in it a circular series of openings, a series of screens arranged below or behind said dial, pivoted arms to which said screens are fixed, electro-magnets whereby any one of said screens may be moved to cause it to appear opposite an opening in the dial, a ring comprising notches which receive said pivoted arms to lock said screens, and an electro-magnet for moving said ring to release said screens and arms, as hereinafter more fully described.

In the accompanying drawings, Figure 1 represents a vertical section of the transmitting-instrument, which may be advantageously mounted on a pedestal or column with its face in a horizontal position. Fig. 2 represents a plan or face view of said instrument. Fig. 3 represents a horizontal section thereof below the dial. Fig. 4 represents a face view of the receiving-instrument. Figs. 5 and 6 represent respectively horizontal sections of the transmitting and receiving instruments with their line-connections. Fig. 7 represents a central vertical section of the receiving-instrument. Fig. 8 represents a horizontal section of the receiving-instrument on a larger scale, and Fig. 9 represents a central vertical section of the receiving-instrument on the same scale as Fig. 8.

Similar letters of reference designate corresponding parts in all the figures.

A designates the index hand or finger, which is turned by the handle *a* to any one of the divisions of the dial, as shown in Fig. 2.

On the axis of the index A, under the dial, is fixed an arm, B, carrying a roller, *b*, which is pressed by springs against the interior surface of an insulated ring, C. This ring has notches fitted or filled with non-conducting material—such as ebonite—as indicated in black in Figs. 3 and 5. When, on turning the index, the roller *b* is made to pass over a conducting portion, *c*, of the ring C, an electrical circuit is completed through line-wires, one of which is connected to the dial and handle and the other with the ring C, and in which is a battery and a receiving-instrument; but as the roller *b* passes over the non-conducting portions of the ring C the circuit is interrupted.

A transmitting and my improved receiving instrument are shown in Figs. 4, 5, 6, and 7. The transmitter has a dial similar to that shown in Fig. 2; but the receiver has a dial, as shown in Fig. 4, in which is a circular series of openings, each corresponding with one of the orders to be signaled. Behind each of these openings is mounted a light screen, K, as seen in Fig. 6, which is a section taken behind the receiver-dial, and in Fig. 7, which is a vertical section of the receiver, and as seen more clearly in Figs. 8 and 9. Each of the screens K is colored one half, say, white and the other half, say, red, and is mounted on a radial arm, *s*, which is made to oscillate from one side to the other by means of electro-magnets *b*, of which there is a set for each screen, acting on them in the manner well known in telegraph-instruments employed for block signaling on railways. In order to maintain a signal securely until it is observed and acknowledged by the attendant, the screens K may be locked in the following manner: The arm *s*, on which said screen is fixed, has a spring-tail projecting beyond its pivot and resting lightly on the edge of a ring, M, which has cut in it a number of notches—one for each

arm *s*. This ring is fixed on or carried by the armature of an electro-magnet, N, and kept up by a spring or springs. In the same circuit in which is the magnet N may be another magnet for working a bell or gong, and both the transmitting and receiving instruments may have secondary dials for indicating that the orders have been received and attended to.

The transmitting-instrument shown in Fig. 5 is similar in vertical section to that shown in Fig. 1, and is in electrical communication with a battery or batteries by means of the telegraph-cable $+l$, containing the requisite number of insulated copper wires. These wires, on arriving at the transmitting-instrument, are all except one soldered or attached to the several contact-pieces *o*, while that one is soldered or attached to the ring C.

The said transmitting-instrument is in electrical communication with the receiving-instrument, Fig. 6, which receives the outgoing or negative current conveyed from the transmitter by a telegraph-cable, $-l$, through an insulated copper wire soldered to the metal case of the transmitter, which is in constant contact with and receives the current from the index-handle *a*, (see Fig. 1,) forming a part of the arm B and roller *b*. The other end of said cable consists of a number of insulated wires, which, upon reaching the receiver, diverge, and are all except one connected with the positive poles of the several electro-magnets L, while that one is connected to the positive pole of the electro-magnet N. (See Fig. 7.) The number of the electro-magnets L corresponds with the number of screens K, and also with the number of orders on the dial of the transmitting-instrument. From the negative poles of all the magnets L and the magnet N the several wires converge and are collected in a cable, *l*, (see Fig. 6,) and, thence proceeding to the above-mentioned battery or batteries, are severally connected with the negative plates thereof. These wires are not shown on the drawings, as they would be likely to lead to confusion.

The ring M has cut in it a number of oblique notches—one for each screen—and into one of which the tail of the arm *s* of a screen will fall when the screen is moved over by its electro-magnet L. It is, however, released at once when the roller *b* travels over the space or contact-piece *c* of the ring C and puts in action the magnet N, thereby releasing the ring M.

From the foregoing it will be seen that the roller *b*, when in operation and during its course round the interior of the transmitting-instrument, passes necessarily over the parts *o*—*c*—*o*—*c*, (the — representing the non-conducting portion of the ring C,) alternately making the electric circuits between the dial of the transmitter and the electro-magnets L L L, which work the screens K K K, and between the ring C and the magnet N, which latter, when attracting its armature, draws down ring M and releases at each operation a screen from the position in which it was previously secured.

In Figs. 5 and 6 the electric circuit is shown to be completed between the two instruments. In this instance it is effected by the contact of the roller *b* with the contact-piece *o**, corresponding to the order "half ahead" on the dial of the transmitting-instrument, Fig. 2. This circuit sets in action the electro-magnet L* and deflects the screen K*, which now presents its red half through the opening in the dial of the receiving-instrument, Fig. 4, corresponding to the signal "half ahead," while all the other screens, having been successively released, present their white portions opposite the openings.

In order to prevent the roller *b* from ever being left at rest against a conducting part of the ring C in such position as is shown in Fig. 5, which would involve a continued and unnecessary expenditure of electrical force, the index-spindle has fixed on it a wheel, P, (shown in Fig. 1,) having inclined teeth, with which a spring-pawl, *p*, engages. This pawl, by its effort to enter the space between two inclined teeth, causes the index-spindle to turn far enough one way or the other to bring the roller *b* off from a conducting portion of the ring C—such as *c* or *o*—and on a non-conducting portion, breaking the circuit and leaving the battery quiescent.

I am aware that dial telegraph instruments have been made in which are embodied the combination of a dial upon which are delineated the orders to be transmitted, a finger or index movable over said dial, and an arm fixed upon the spindle of said index and carrying a roller, which bears upon a ring comprising contact-points and non-conducting portions, and as the index and arm are turned makes and breaks contact with said points and transmits a succession of electric currents through wires extending from said contact-points. I therefore do not claim the transmitting-instrument herein illustrated as of my invention.

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

The combination, in the receiving-instrument of a dial-telegraph, of a dial having in it a number of openings, a series of screens arranged below or behind said dial, pivoted arms to which said screens are fixed, electro-magnets whereby any one of said screens may be moved to cause it to appear opposite an opening in the dial, a ring comprising notches which receive said pivoted arms to lock said screens, and an electro-magnet for moving said ring to release said screens and arms, substantially as specified.

In witness that the above is what I claim as my invention I hereunto subscribe my name in the presence of two subscribing witnesses.

JOHN SACHEVERELL GISBORNE.

Witnesses:

EDWARD HOLLAND,

ARTHUR EDWIN BRINDLE.