May 2, 1944. A. L. SPRECKER 2,348,158

COMMUNICATIONS DEVICE

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FIG. 1.

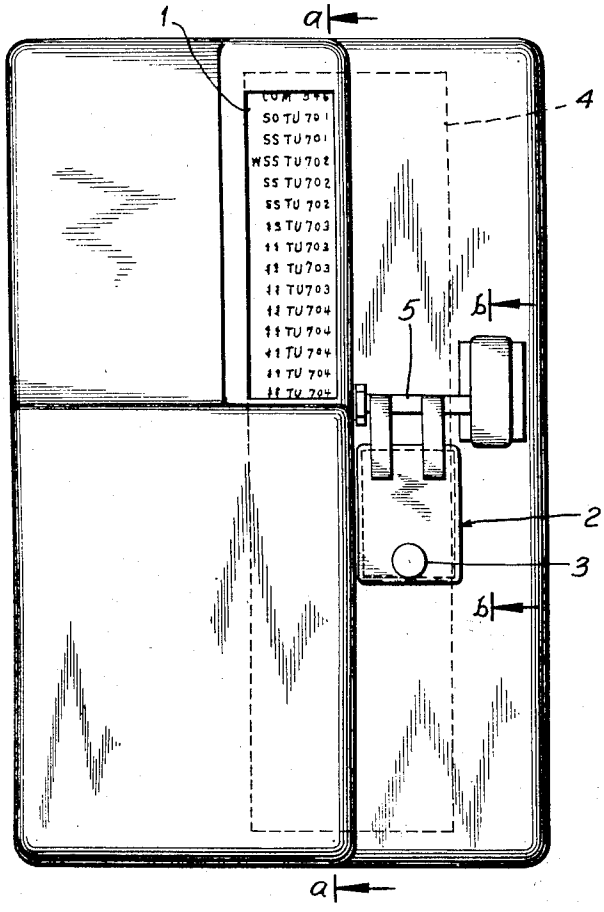


FIG. 2.

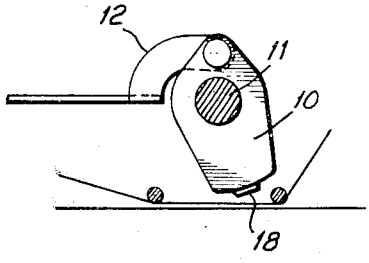
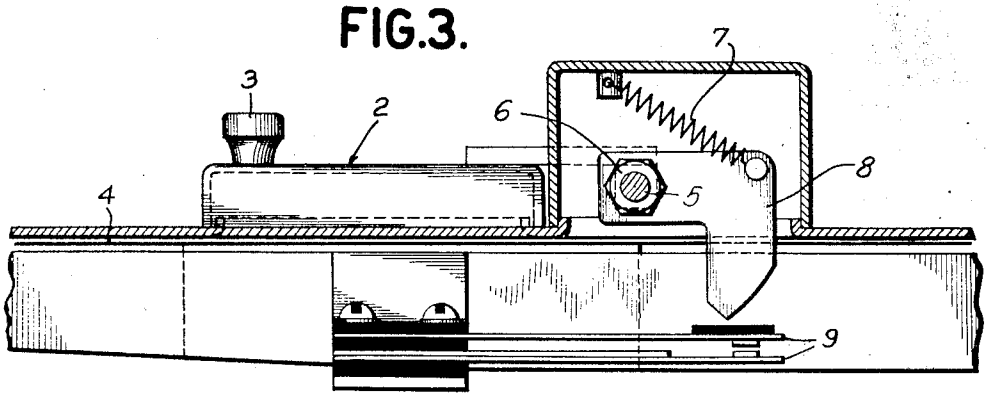


FIG. 3.



INVENTOR
A. L. Sprecker

BY

ATTORNEY

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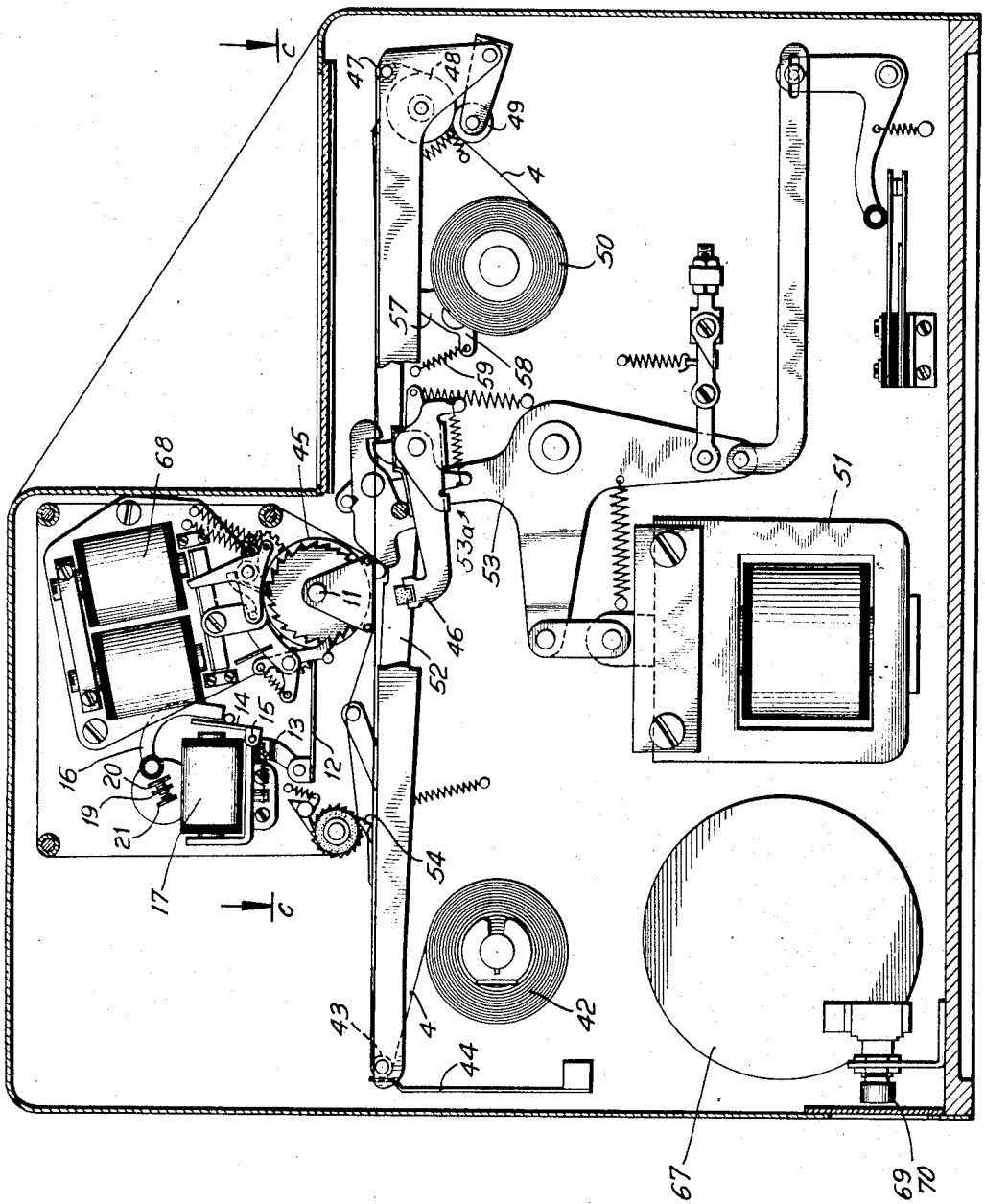


FIG. 4.

INVENTOR.
A. L. Sprecker

BY

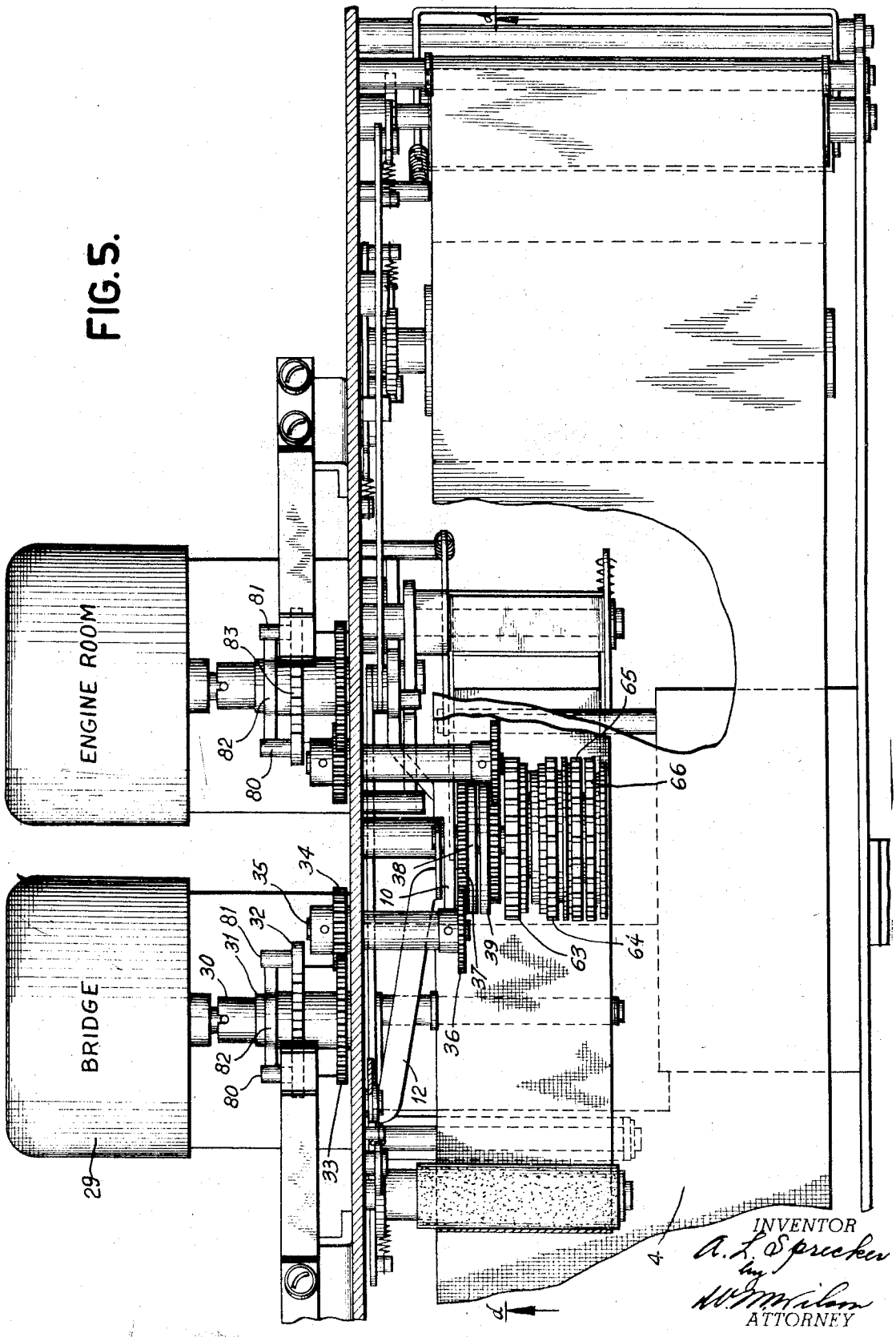
ATTORNEY.

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FIG. 5.

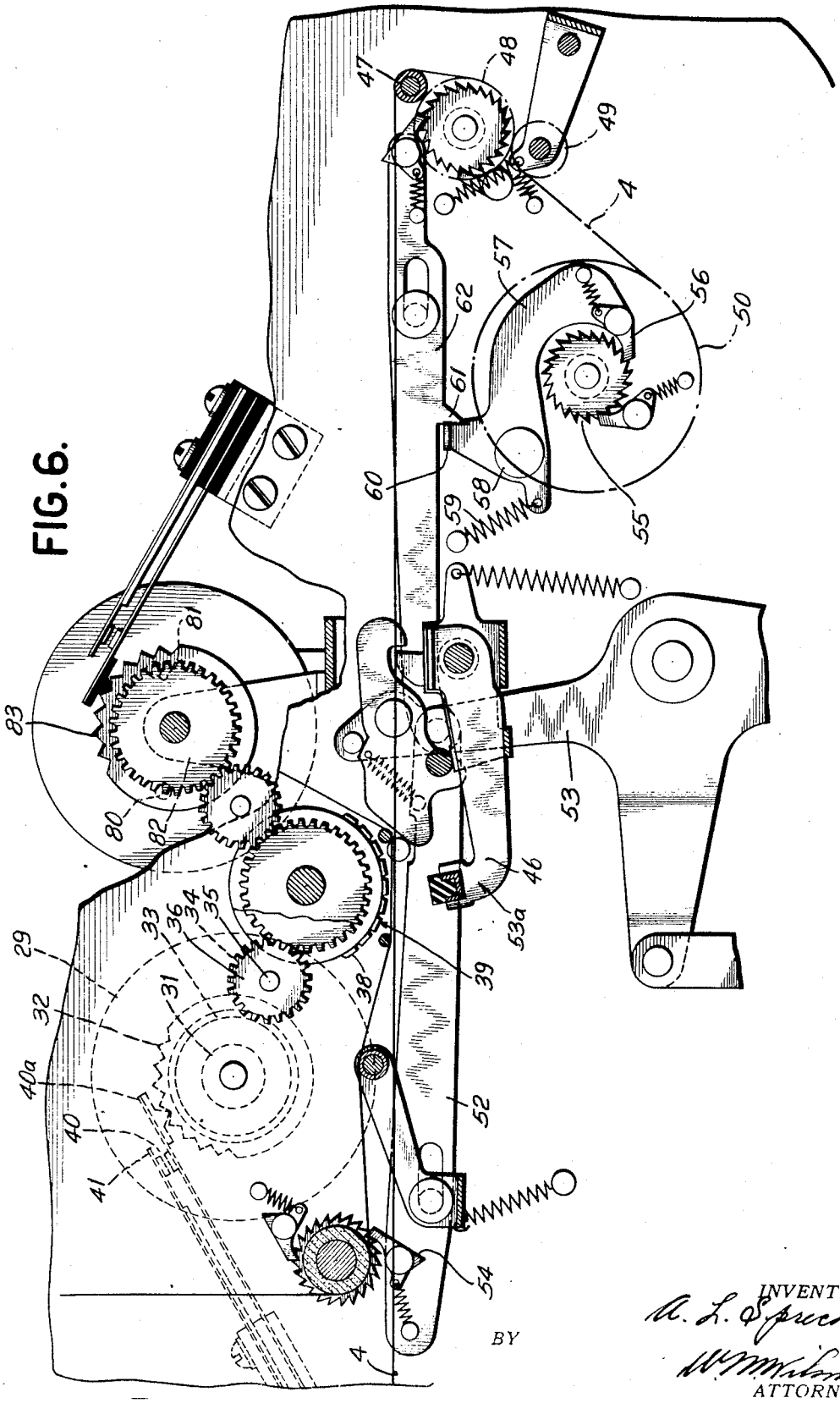


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FIG. 6.



INVENTOR.
A. L. Sprecker
BY
W. M. Wilson
ATTORNEY.

May 2, 1944. A. L. SPRECKER 2,348,158

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FIG. 9.

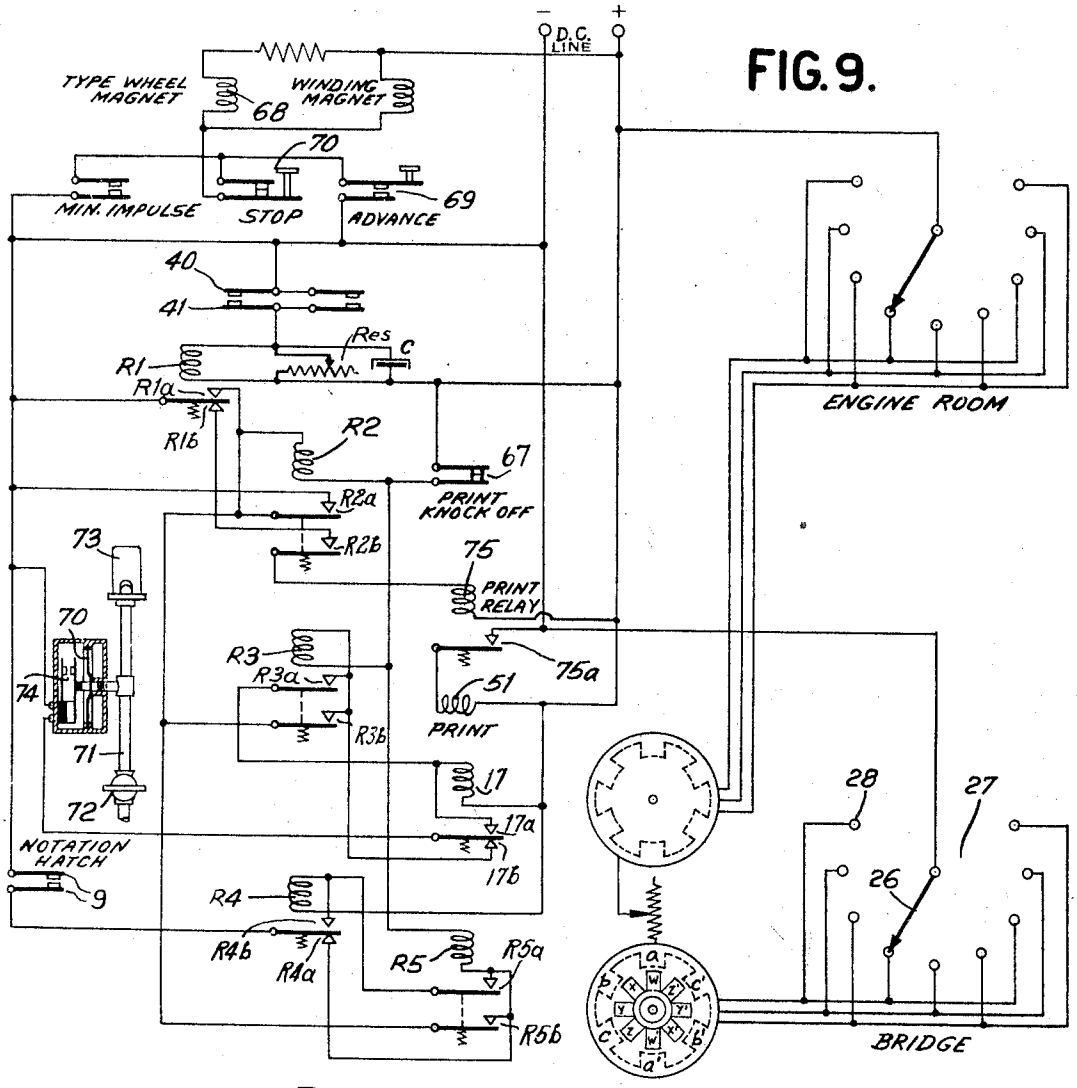


FIG. 7.

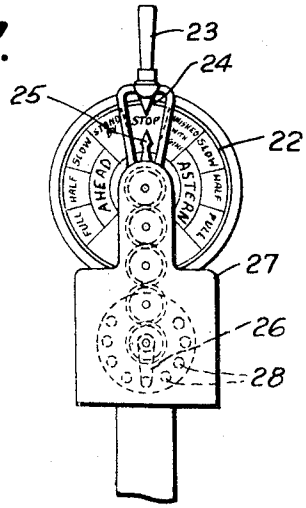
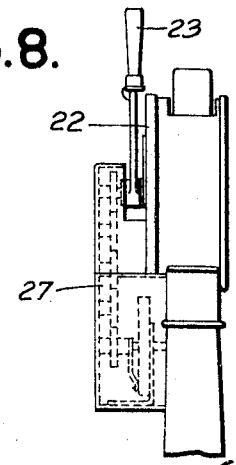


FIG. 8.



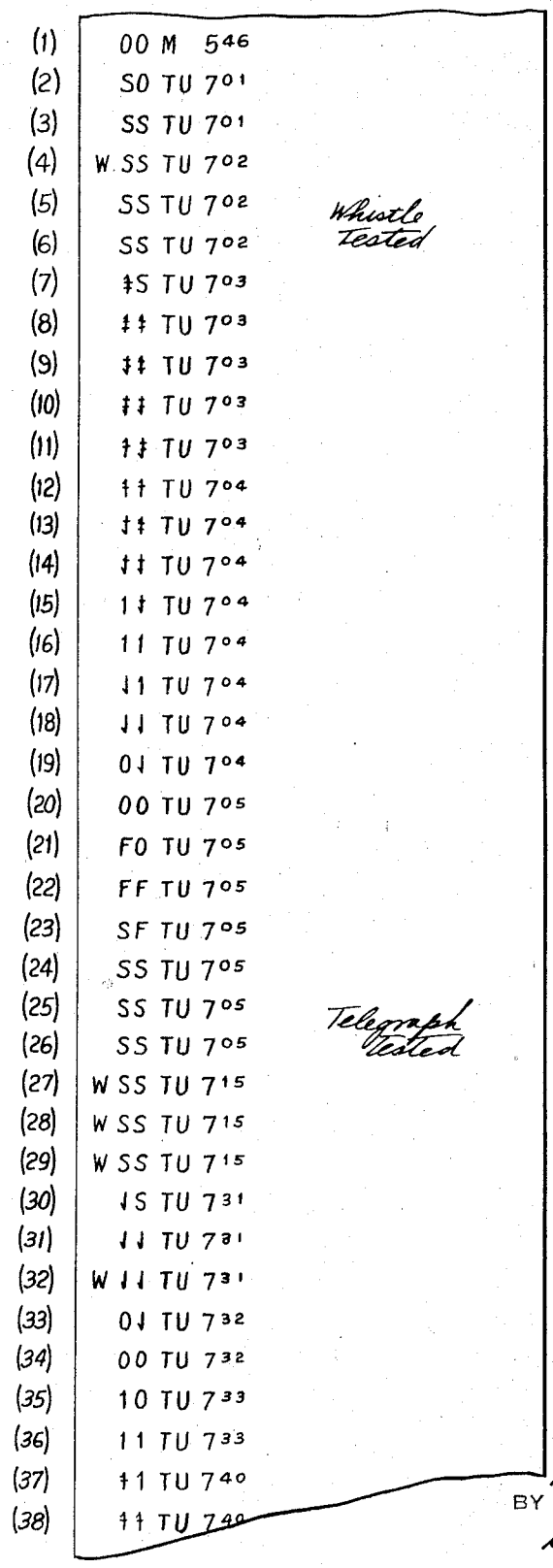
INVENTOR
A. L. Sprecker
BY
W. W. Watson
ATTORNEY

May 2, 1944. A. L. SPRECKER 2,348,158

COMMUNICATIONS DEVICE

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FIG.10.



INVENTOR
A. L. Sprecker
BY
W. M. Wilson
ATTORNEY

Patented May 2, 1944 2,348,158

UNITED STATES PATENT OFFICE

2,348,158

COMMUNICATIONS DEVICE

Alfred L. Sprecker, Freeport, N. Y., assignor to International Business Machines Corporation, New York, N. Y., a corporation of New York

Application October 13, 1941, Serial No. 414,817

13 Claims. (Cl. 234—27.5)

This invention relates to systems of signal intercommunication between nautical vessels and between departments of a single vessel, and more specifically to a recording device for recording automatically the pertinent data normally involved in such intercommunication.

The instant invention in its present embodiment provides for a machine to record the time and the fact of

(1) Each engine order transmitted over the ship's telegraph from the bridge or pilot house to the engine room;

(2) Each engine order repeated back over the telegraph from the engine room to the bridge or pilot house;

(3) Each blast of the whistle;

(4) Each opening and each closing of a "notation hatch" giving access to space for written information on the record tape.

Information relative to the operation of the vessel is always required following an emergency for the settlement of disputes, claims, lawsuits, etc. It is available now in the form of manual entries in memorandum books and ships' logs, and there always arise the questions of accuracy of records and reliability of witnesses.

It is, therefore, an object of this invention to provide a time recording device in which all orders transmitted over a ship's telegraph are automatically and permanently registered.

It is a further object of this invention to provide a time recording device which automatically prints the status of the ship's engine room orders, and acknowledgments thereof, whenever a new order or acknowledgment is transmitted over the ship's telegraph.

Another object is to provide a time recording device which automatically prints the status of the ship's engine room orders, and acknowledgments thereof, whenever the ship's signalling whistle is sounded, along with a registration of the latter.

A still further object of this invention is to furnish a time recording device having a manual entry provision, the status of the engine room orders, and acknowledgments thereof, being automatically printed at the time such manual entries are made.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of example, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawings:

Fig. 1 is a plan view of the recorder.

Fig. 2 shows the typewheel segment carrying the symbol W for whistle records.

Fig. 3 is a section through the notation hatch at *b*—*b* of Fig. 1.

Fig. 4 shows typewheels, printing mechanism and paper feed as seen in section through *a*—*a* of Fig. 1.

Fig. 5 is a plan view of the positioning motors, typewheel assembly and record tape as seen in section through *c*—*c* of Fig. 4.

Fig. 6 shows gearing between the positioning motors and engine order symbol wheels, the printing hammer trip mechanism, and paper feed as seen in section through *d*—*d* of Fig. 5.

Fig. 7 is a front elevation view of a commutator assembled to the bridge telegraph.

Fig. 8 is a side elevation view of the commutator.

Fig. 9 is the wiring diagram.

Fig. 10 shows a section of record tape.

In Fig. 1, 1 is a plastic window through which a portion of the printed record may be seen. 2 is the notation hatch cover.

Referring to Fig. 3, the opening of the notation hatch cover 2 by means of the knob 3 exposes a portion of the right hand edge of the record tape 4 for making entries of information in writing. The cover is fixed to shaft 5 which is journaled at 6 and is normally held in a closed position by spring 7. Fixed to shaft 5 is a cam 8 which closes contacts 9 as the cover is opened but allows them to open again when the cover has been opened sufficiently to permit writing on the record tape. When the cover is closed, contacts 9 are closed and reopened again by cam 8 as it returns to its normal or closed position. Each time contacts 9 are closed, the printing mechanism is actuated, as will be described hereinafter, and a record printed on the paper tape. Hence, a record is printed when the hatch is opened and also when it is closed. Each time a record is printed, the record tape is moved forward. If the amount of tape exposed is insufficient for the notation to be made, additional tape may be fed into position by closing the hatch and reopening it.

Referring now to Figs. 2 and 4, it will be noted that Fig. 2 shows an enlarged view of the whistle symbol typewheel segment 10 journaled on shaft 11 but concealed in Fig. 4 by the typewheel assembly. Segment 10 is connected by link 12 to lever 13 fixed to armature 14 which is pivoted at 15. Fixed to the opposite end of armature 14 is a lever 16. When armature 14 is attracted by winding 17, segment 10 is rotated clockwise bring-

ing the symbol W 18 into printing position, and at the same time lever 16 moves contact 19 away from contact 20 and against contact 21. The printing mechanism is actuated in a manner to be described later, and a record is printed on the paper tape. The circuit to winding 17 is closed while the whistle is sounding under the control of a pressure-operated diaphragm 70 (Fig. 9) installed in the whistle pipe 71 between the valve 72 and the whistle 73. The diaphragm 70 actuates contacts 74 under steam pressure.

Since the diaphragm 70 is provided to operate to close contacts 74 only when sufficient pressure is furnished to the whistle 73 to cause the latter to sound a warning signal, a whistle record is provided every time the whistle is sounded. No record is therefore printed unless an audible signal is produced by the whistle.

Referring to Fig. 7, a dial 22 of a conventional mechanical ship's telegraph is shown with the customary nine orders indicated on it, i. e., stop; stand by; finished with engines; slow, half and full ahead; slow, half and full astern. The outer pointer 24 is fixed to the handle 23 and moves with it. The inner pointer 25 is moved by the operation of a handle similar to 23 on another telegraph located at the other end of the signalling system. The motion of handle 23 (assuming that the unit shown in Fig. 7 is located on the ship's bridge) causes a pointer similar to pointer 25 on the engine room telegraph to move. An order is transmitted by moving pointer 24 to the indication representing the order desired. The order is acknowledged by moving the handle of the engine room telegraph so that its attached pointer coincides with the position of the inner pointer. Since pointer 25 of the bridge telegraph follows the motion of the handle of the engine room telegraph, the order sent from bridge to engine room is thus repeated back to the bridge and its receipt in the engine room verified.

Brush 26 of commutator 27 (see Fig. 7) is geared to the shaft on which handle 23 is fixed, causing the brush 26 to move across the contacts 28 in synchronism with the movement of pointer 24 across the orders printed on the telegraph dial. The commutator 27 controls the operation of an "Elsbert positioning motor" 29 (see Fig. 5) which rotates step by step in agreement with the motion of the commutator in either direction, traveling one twenty-fourth of a revolution for each brush change from one contact to the adjacent one. The Elsbert motor 29 is connected by a universal coupling 30 to sleeve 31 on which are fixed a notched wheel 32 and spur gear 33. Spur gear 33 is connected by idler 34, shaft 35 and idler 36 to spur gear 37 fixed to order symbol wheel 38. The Elsbert motor thus rotates the order symbol wheel 38 clockwise or counterclockwise in synchronism with the movement of handle 23 of the telegraph located on the bridge, keeping in printing position a symbol corresponding to the order indicated by pointer 24. An identical arrangement of the commutator, positioning motor and gearing moves the order symbol wheel 39 (see Fig. 5) to keep in printing position a symbol corresponding to the order indicated by the pointer fixed to the operating handle of the engine room telegraph and by pointer 25 on the bridge telegraph.

Attached to the end of contact spring 40 (see Fig. 6) is a wedge-shaped block of insulating material 40A which normally rests in a notch of wheel 32. As notched wheel 32 moves from one order position to the next, the block is cammed out of one notch and drops into the next following notch, at the same time momentarily closing contacts 40 and 41. The momentary closing of these contacts initiates operation of the printing mechanism through a time delay circuit.

The time delay circuit is a conventional type employing a condenser C and a variable resistor *Res* (see Fig. 9). By changing the setting of the resistor *Res*, the discharge time of the condenser C may be varied over a considerable range. A delay in time is selected of sufficient duration to prevent printing as the handle 23 passes over an undesired order space on its way to a desired location. As explained later, the printing operation is delayed until the condenser C becomes discharged. The energizing of the time delay means blocks operation from the notation hatch or whistle contacts until the engine order has been recorded. In other words, engine orders have the right-of-way.

Means is provided for placing both the bridge and the engine room stations back in synchronism with their respective type carriers in the event that they should in some way get out of step. As will be noted from an examination of Figs. 5 and 6, both the notched wheel 32 which is geared to the symbol wheel 38 for the bridge and the notched wheel 83 which is similar to wheel 32 and is geared to the engine room symbol wheel 39, are provided, respectively, with pairs of pins 80 and 81 which coact with the left-hand and right-hand edges of related frame parts 82. With either pin 80 in engagement with the left-hand edge of its related frame part 82, this normally represents the order for full astern. When either pin 81 engages the right-hand edge of its related frame part 82, this represents the order for full ahead. Synchronism is established positively by moving the telegraph handle 23 (Fig. 7) of either station rapidly from one extreme order position to the other. When either pin 80 or 81 engages its related frame part 82, its related notched wheel 83 or 32 is halted and is thus soon aligned with its respective handle 23.

The record tape 4 (Fig. 4) is furnished from a supply roll 42, around roller 43, under tensioning spring 44, between typewheel assembly 45 and printing hammer 46, around roller 47, between feed roll 48 and pressure roll 49 to take-up roll 50. The printing mechanism 53*a* is a conventional arrangement whereby a printing hammer 46 is drawn back by a solenoid 51 and tripped. The printing ribbon is moved to a new position after each operation of the hammer by pawl 54 (Fig. 6) pivoted to bar 52 which is pivoted to the hammer tripping lever 53. To compensate for differences in the peripheral travel of take-up roll 50 as it becomes filled, a yielding drive is furnished for the take-up ratchet. A take-up drive pawl 56 is mounted on lever 57 which is pivoted on stud 58. When the solenoid 51 is energized, tooth 61 on bar 62, which is pivoted to hammer tripping lever 53, rotates lever 57 counterclockwise against the pull of spring 59, moving the driving pawl 56 back to a new tooth on the ratchet 55. When the solenoid is deenergized, bar 62 returns to its normal position and spring 59 tends to return lever 57 and pawl 56 to the position in which they are shown. If the amount of tape on the take-up roll makes the peripheral travel greater than is required to take up the used tape, the tension on the tape overcomes the power of spring 59.

The time recording typewheel assembly is a conventional type classified as a minute impulse, magnet operated, ratchet and pawl typewheel drive. Minute impulses are furnished by a magnetically wound, spring driven, marine escapement contactor movement housed in a dust cover 67 to energize the typewheel drive magnet 68. A make circuit (see Fig. 4) push button 69 (see Fig. 9) is provided to set the typewheels ahead, if slow, and a break circuit push button 70 to cut out impulses if the typewheels become fast. As illustrated in Fig. 5, the arrangement of typewheels starting from the rear is as follows: whistle symbol segment 10, bridge telegraph order symbol wheel 38, engine room telegraph order symbol wheel 39, day wheel 63, hour wheel 64, minutes tens wheel 65, and minutes units wheel 66. Printed records are made on the left hand half of the record tape 4 (Fig. 1). The right half is reserved for manual entries as mentioned hereinbefore.

A specimen record is shown in Fig. 10 with all the various orders and signals recorded in symbol form. An interpretation of these orders is given below by number with reference to Fig. 10:

(1) Last order of previous day, both telegraphs at "stop";
(2) "Stand by" transmitted to engine room;
(3) "Stand by" repeated back to bridge;
(4) Whistle test;
(5, 6) Manual entry;
(7) Full ahead to engine room;
(8) Full ahead back to bridge;
(9–24) Other combinations of changes in telegraph orders between bridge and engine room;
(25, 26) Manual entry;
(27–29) Warning blasts on whistle for passenger;
(30) "Slow astern" bridge to engine room;
(31) "Slow astern" repeated back to bridge;
(32) Whistle blast—"ship coming out of slip";
(33) "Stop"—bridge to engine room;
(34) "Stop" repeated back to bridge;
(35) "Slow ahead"—bridge to engine room;
(36) "Slow ahead" repeated back to bridge;
(37) "Half ahead"—bridge to engine room;
(38) "Half ahead" repeated back to bridge.

It will be noted that each individual order is recorded when given (after the slight time delay), so that a record of the position of the telegraph handles at each station at the time of each order or signal is determined beyond question.

Wiring diagram

The circuits involved in the operations described above will now be explained (with reference to Fig. 9).

Notation hatch.—When contacts 9 close, a circuit is completed from the negative side of the D. C. line through contacts R4*a*, relay R5, the contacts 67, to the positive side of the D. C. line, energizing relay R5 which closes contacts R5*a* and contacts R5*b*.

When contacts R5*a* close, a circuit is completed from the negative side of the line through the notation hatch contacts 9, contacts R4*a*, contacts R5*a*, relay R4, to the positive side of the line. Relay R4 is energized and contacts R4*a* open while contacts R4*b* close, the latter keeping relay R4 energized. (Note: The contacts R4*b* are adjusted to close before contacts R4*a* open when relay R4 is energized.)

When contacts R5*b* close, a circuit is completed from the negative side of the line through the notation hatch contacts 9, contacts R4*a*, relay R2, print knockoff contacts 67, to the positive side of the line, energizing relay R2 and closing contacts R2*a* and contacts R2*b*.

The closing of the R2*a* contacts completes a circuit from the negative side of the line through contacts R2*a*, contacts R5*b*, relay R5, contacts 67, to the positive side of the line. Relays R2 and R5 are now held energized through contacts R2*a* since contacts R4*a* are open.

Relay R4 is held energized by two different holding circuits at this time, i. e., through contacts R4*b* as described above, and through contacts R2*a* and contacts R5*a*.

When contacts R2*b* close, a circuit is established from the negative side of the D. C. line through the normally closed contacts R1*b*, contacts R2*b*, print relay, to the positive side of the D. C. line, energizing the print relay and closing contacts 75*a*.

The closing of contacts 75*a* energizes the print solenoid 51, connecting it across the D. C. line. The action of the print solenoid trips the hammer to cause printing, feeds the record tape, advances the ink ribbon, and opens the contacts 67 momentarily.

When the contacts 67 open, the holding circuits to relay R2 and relay R5 are broken, and they become deenergized. Relay R4, however, remains energized through its second holding circuit (through contacts R4*b*) until the notation hatch contacts 9 are opened. This prevents more than one printing operation being made for each closing of the contacts 9.

Whistle records.—When the whistle contacts 74 close, a circuit is established from the negative side of the line through contacts 74, normally closed contacts 17*b*, relay R3, contacts 67, to the positive side of the line. Relay R3 is energized and contacts R3*a* and contacts R3*b* close.

The closing of contacts R3*a* establishes a circuit from the negative side of the line through contacts 74, contacts 17*b*, contacts R3*a*, relay 17, to the positive side of the line. Relay 17 is now energized and contacts 17*b* open while contacts 17*a* close. (Note: Contacts 17*a* are adjusted to close before contacts 17*b* open when relay 17 is energized.) The whistle symbol 18, controlled by the armature of relay 17, is moved into printing position.

The closing of contacts R3*b* completes a circuit from the negative side of the line through contacts 74, contacts 17*a*, contacts R3*a*, contacts R3*b*, relay R2, contacts 67, to the positive side of the line. Relay R2 is energized, and contacts R2*a* and contacts R2*b* are closed.

When contacts R2*a* close, holding circuits are established for relays R2, R3, and 17. Relay 17 is also held energized by a second holding circuit through contacts 17*a* and contacts 74.

When contacts R2*b* close, a circuit is completed from the negative side of the line through contacts R1*b*, contacts R2*b*, print relay, to the positive side of the line, energizing the print relay and closing contacts 75*a*. The closing of contacts 75*a* energizes the print solenoid 51, tripping the printing hammer, feeding the record tape and the ink ribbon, and opening the contacts 67, the latter dropping out relays R2 and R3. Relay 17 will remain energized until the contacts 74 are opened, thereby preventing double printing for a single closing of the whistle contacts 74.

Engine room orders.—When contacts 40 and 41 are closed by action of the notched wheel 32, a

circuit is completed through relay R1, also charging the condenser C in parallel with relay R1. Relay R1 is energized, and contacts R1*b* open while contacts R1*a* close.

The closing of contacts R1*a* provides a path for energizing relay R2 from the negative side of the line through contacts R1*a*, relay R2, contacts 67, to the positive side of the line. Contacts R2*a* and contacts R2*b* are consequently closed. The contacts R2*a* provide a holding circuit for relay R2 through contacts 67.

When contacts 40 and 41 open, the relay R1 remains energized by the condenser C, but the latter begins to discharge through the resistor Res and the coil of relay R1. (Note: Since the condenser C is charged, relay R1 will be held energized for a period of time dependent upon the capacity of condenser C and the constants of the leakage path for discharging condenser C, i. e., the winding of relay R1 and the parallel resistor Res.)

When condenser C becomes discharged to a point where the voltage supplied by it across relay R1 falls below a critical value, the armature of relay R1 will release and open contacts R1*a*, at the same time closing contacts R1*b*.

Since contacts R2*b* remain closed (R2 being energized by its holding circuit) a circuit is established from the negative side of the line through contacts R1*b*, contacts R2*b*, print relay, to the positive side of the line, and the print relay becomes energized thereby closing contacts 75*a*.

When contacts 75*a* close, the print solenoid 51 becomes energized, as before, and printing, record tape feeding, ink ribbon feeding, and disabling of contacts 67 are effected. With contacts 67 open all relay holding circuits become broken, and all circuits are returned to their normal condition.

Elsbert motor operation.—This particular type of motor has a six pole wound stator with one common and three point wires. The rotor is eight pole with no windings. As illustrated in Fig. 7, coils *a* and *a'* are energized and the flux is carried across rotor poles *w* and *w'*. If windings *b* and *b'* are also energized, the rotor will be biased counterclockwise so that, when windings *a* and *a'* are deenergized, the rotor will move counterclockwise until poles *x* and *x'* are centered in the magnetic field between stator poles *b* and *b'*.

Conversely, if windings *c* and *c'* (instead of *b* and *b'*) are energized and windings *a* and *a'* are then deenergized, the rotor will be first biased and then moved clockwise until rotor poles are centered in the magnetic field between stator poles *c* and *c'*.

The commutator used with the motor must make a circuit with one contact before it breaks the circuit with the previous contact to maintain control of the rotor.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. In a ship's telegraph system comprising two stations at separate locations and with each station including a signal sending device positionable to send any one of a number of preselected signals to the other station; a recorder common to both stations and comprising a separate type carrier for each station and each type carrier having spaced type thereon corresponding in number and character to the different signals sendable by its respective station; means responsive to the positioning of either signal device to send a signal, for moving its respective type carrier so as to bring the character corresponding to the signal sent into printing position; and means responsive to the actuation of said first-named means for effecting printing from both of said carriers so that each time a signal is sent by either station, both such signal and the signal position of the sending device of the other station are recorded.

2. In a ship's telegraph system comprising two stations at separate locations and with each station including a signal sending device positionable to send any one of a number of preselected signals to the other station, a recorder common to both stations and comprising a separate type carrier for each station and each type carrier having spaced type thereon corresponding in number and character to the different signals sendable by its respective station; means responsive to the positioning of either signal device to send a signal, for moving its respective type carrier so as to bring the character corresponding to the signal sent into printing position; platen means for said carriers; and means responsive to the movement of either sending device to a signal position for effecting relative printing movement between said platen means and both of said carriers so that each time a signal is sent by either station, both such signal and the signal position of the sending device of the other station are recorded.

3. In a ship's telegraph system comprising two stations at separate locations and with each station including a signal sending device positionable to send any one of a number of preselected signals to the other station, a recorder common to both stations and comprising a plurality of printing elements having time-indicating characters thereon; time-controlled means for driving said elements to move into printing position the characters indicating the correct time; a separate type carrier for each station and each type carrier having spaced type thereon corresponding in number and character to the different signals sendable by its respective station; means responsive to the positioning of either signal device to send a signal, for moving its respective type carrier so as to bring the character corresponding to the signal sent into printing position; platen means for said time-indicating printing elements and said type carriers; and means responsive to the movement of either signal device to a signal position for effecting relative printing movement between said platen means and said time-indicating printing elements and between said platen means and both of said type carriers so that each time a signal is sent by either station, the time of sending the signal and both such signal and the signal positions of the sending device of the other station are all recorded.

4. In a ship's telegraph system comprising two stations at separate locations and with each station including a signal sending device positionable to send any one of a number of preselected signals to the other station, a recorder common to both stations and comprising a separate type carrier for each station and each type carrier having spaced type thereon corresponding in number and character to the different signals sendable by its

respective station; a coupling connecting each type carrier for synchronous movement with its respective signal sending device, so that as either signal device is positioned for sending a signal its respective type carrier is moved to bring into printing position the type corresponding to the signal sent; and means responsive to the positioning of either signal sending device to send a signal, for effecting printing from both of said carriers so that each time a signal is sent from either station, both such signal and the signal position of the sending device of the other station are recorded.

5. In a ship's telegraph system comprising two stations at separate locations and with each station including a signal sending device positionable to send any one of a number of preselected signals to the other station, a recorder common to both stations and comprising a plurality of printing elements having time-indicating characters thereon; time-controlled means for driving said elements to move into printing position the characters indicating the correct time; a separate type carrier for each station and each type carrier having spaced type thereon corresponding in number and character to the different signals sendable by its respective station; a coupling connecting each type carrier for synchronous movement with its respective signal sending device so that as either signal device is positioned for sending a signal, its respective type carrier is moved to bring into printing position the type corresponding to the signal sent; and means responsive to the positioning of either signal sending device to send a signal, for effecting printing from both of said carriers and from said time-indicating characters so that each time a signal is sent from either station, said signal, the time of sending said signal, and the signal position of the sending device of the other station are all recorded.

6. In a ship's telegraph system comprising two stations at separate locations and each station including a signal sending device movable to any one of a number of preselected signal positions to send different signals to the other station, a recorder common to both stations and comprising a separate type carrier for each station and each type carrier having spaced type corresponding in number and character to the different signals sendable by its respective station; means responsive to the moving of either signal device to send a signal, for moving its respective type character into position for printing the character corresponding to the signal sent; mechanism initiated in its operation by movement of either of said signal devices to a new signal position, for effecting printing from both of said carriers; and time-delay means for rendering said mechanism ineffective until a predetermined period of time after a signal device occupies a new signal position.

7. In a ship's telegraph system comprising two stations at separate locations and each station including a signal sending device movable to any one of a number of preselected signal positions to send different signals to the other station, a recorder common to both stations and comprising a separate type carrier for each station and each type carrier having spaced type corresponding in number and character to the different signals sendable by its respective station; a coupling connecting each type carrier for synchronous movement with its respective signal sending device, so that as either signal device is moved into position for sending a signal, its respective type character is moved to bring into printing position the type corresponding to such signal; mechanism initiated in its operation by movement of either signal device to a new signal position for effecting printing from both of said carriers; and time-delay means for rendering said mechanism ineffective until a predetermined period of time after a signal device occupies a new signal position.

8. In a ship's telegraph system comprising two stations at separate locations and each station including a signal sending device movable to any one of a number of preselected signal positions to send different signals to the other station, a recorder common to both stations and comprising a plurality of printing elements having time indicating characters thereon; time-controlled means for driving said elements to move into printing position the characters indicating the correct time; a separate type carrier for each station and each type carrier having spaced type corresponding in number and character to the different signals sendable by its respective station; means responsive to the moving of either signal device to send a signal, for moving its respective type carrier into position for printing the character corresponding to the signal sent; mechanism initiated in its operation by movement of either signal device to a new signal position, for effecting printing from both of said carriers and from said time-indicating characters; and time-delay means for rendering said mechanism ineffective until a predetermined period of time after a signal device occupies a new signal position.

9. In a ship's telegraph, the combination with a plurality of separated control stations and at least one of said stations including a signal device movable for sending signals to another station and to any one of a number of different signal-sending positions arranged in a preselected order; of a recorder comprising a type carrier having a plurality of spaced type thereon corresponding in number and order to said signal positions and the type being of distinctive character to represent, respectively, the different signal positions; a coupling connecting said type carrier for synchronous movement with said device so that as said device is moved to a signal position the type corresponding to said position is moved into printing position; platen means for said type carrier; mechanism initiated in its operation by movement of said device to any signal position, for effecting relative printing movement between said carrier and said platen means; and time-delay means for rendering said mechanism ineffective until a predetermined brief period of time after said signal device occupies a new signal position.

10. In a ship's telegraph, the combination with a plurality of separated control stations and at least one of said stations including a signal device movable for sending signals to another station and to any one of a number of different signal-sending positions arranged in a preselected order, of a recorder comprising a type carrier having a plurality of spaced type thereon corresponding in number and order to said signal positions and the type being of distinctive character to represent, respectively, the different signal positions; a coupling connecting said type carrier for synchronous movement with said device so that as said device is moved to a signal position the type corresponding to said position is moved into

printing position; platen means for said type carrier; and mechanism effecting relative printing movement between said carrier and said platen means and comprising an electric circuit, an actuating printing relay operated by said circuit, a first switch in said circuit operated by said coupling means and moved thereby to closed position each time said device is moved from one to another signal position, a second switch in said circuit, and time delay means actuated after said device occupies a signal position a predetermined time for closing said second switch.

11. In a ship's telegraph system, a recorder comprising an enclosing casing; a type carrier within said casing and having a plurality of spaced type thereon corresponding in number and character to the different signals sent by the telegraph; means responsive to the reception of a signal from the telegraph for moving into printing position the type corresponding to such signal; said casing having an opening therein alongside said type carrier; means supporting a record tape for movement beneath said opening so that manual entries can be made on the tape and for supporting such tape in printing posiiton with respect to said carrier; a hatch cover for said opening; and means responsive to the opening of such cover for effecting printing engagement with said carrier and said tape.

12. In a ship's telegraph system, a recorder comprising an enclosing casing; a plurality of co-related printing elements within said casing and having time indicating characters thereon; time controlled means for driving said elements to move into printing position the characters indicating the correct time; a type carrier within said casing adjacent said time driven elements and having a plurality of spaced type thereon corresponding in number and character to the different signals received from the telegraph; means responsive to the reception of a signal from the telegraph for moving into printing position the type corresponding to such signal; said casing having an opening therein alongside said time driven printing elements and said type carrier; means supporting a record tape for movement beneath said opening so that manual entries can be made thereon and supporting such tape in printing relation with said time elements and said carrier; a hatch cover for said opening; and means responsive to the opening of such cover to effect printing engagement between said tape and said carrier and said time elements.

13. In a ship's telegraph system comprising a plurality of stations with at least one of said stations including a signal sending device positionable to send to another station any one of a number of preselected signals, a recorder comprising a plurality of co-related printing elements having time-indicating characters thereon; time-controlled means for driving said elements to move into printing position the characters indicating the correct time; a type carrier having a plurality of spaced type thereon corresponding in number and character to the different signals sent out by said sending device; means for moving said carrier so that the type in printing position always corresponds to the signal position of said device; a second type carrier having a distinctive type to designate the ship's whistle; and mechanism responsive to the sounding of the ship's whistle to move said second carrier into printing position and for effecting printing from said time driven elements, said first named type carrier and said second carrier.

ALFRED L. SPRECKER.