

C. B. & J. D. E. ISAKSON.
ENGINE ROOM TELEGRAPH RECORDER.

APPLICATION FILED FEB. 25, 1903. RENEWED JUNE 14, 1904.

Patented Feb. 25, 1913.

3 SHEETS—SHEET 1.

1,054,206.

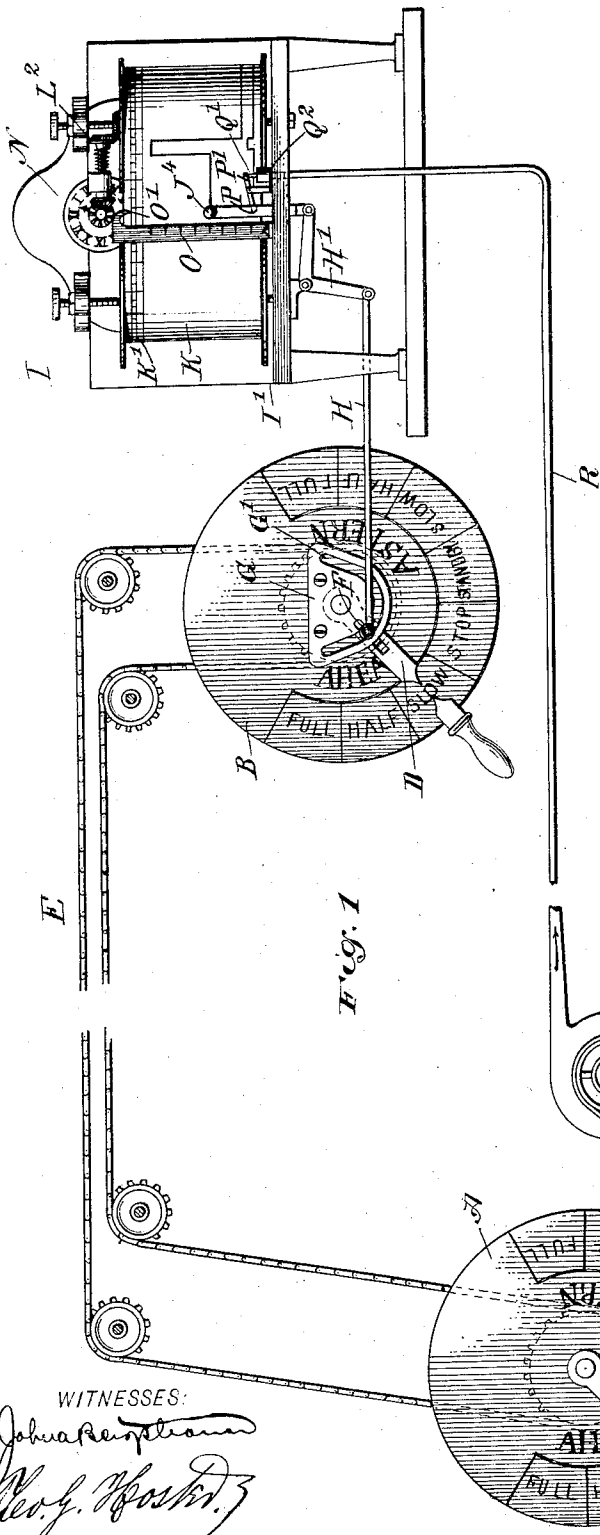


Fig. 1

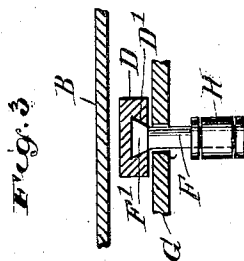


Fig. 3

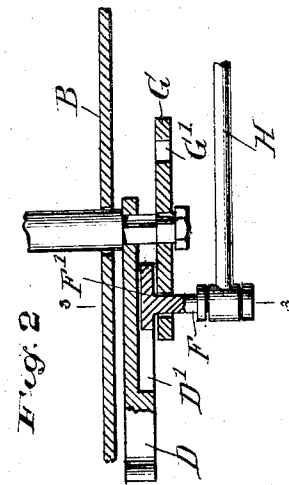


Fig. 2

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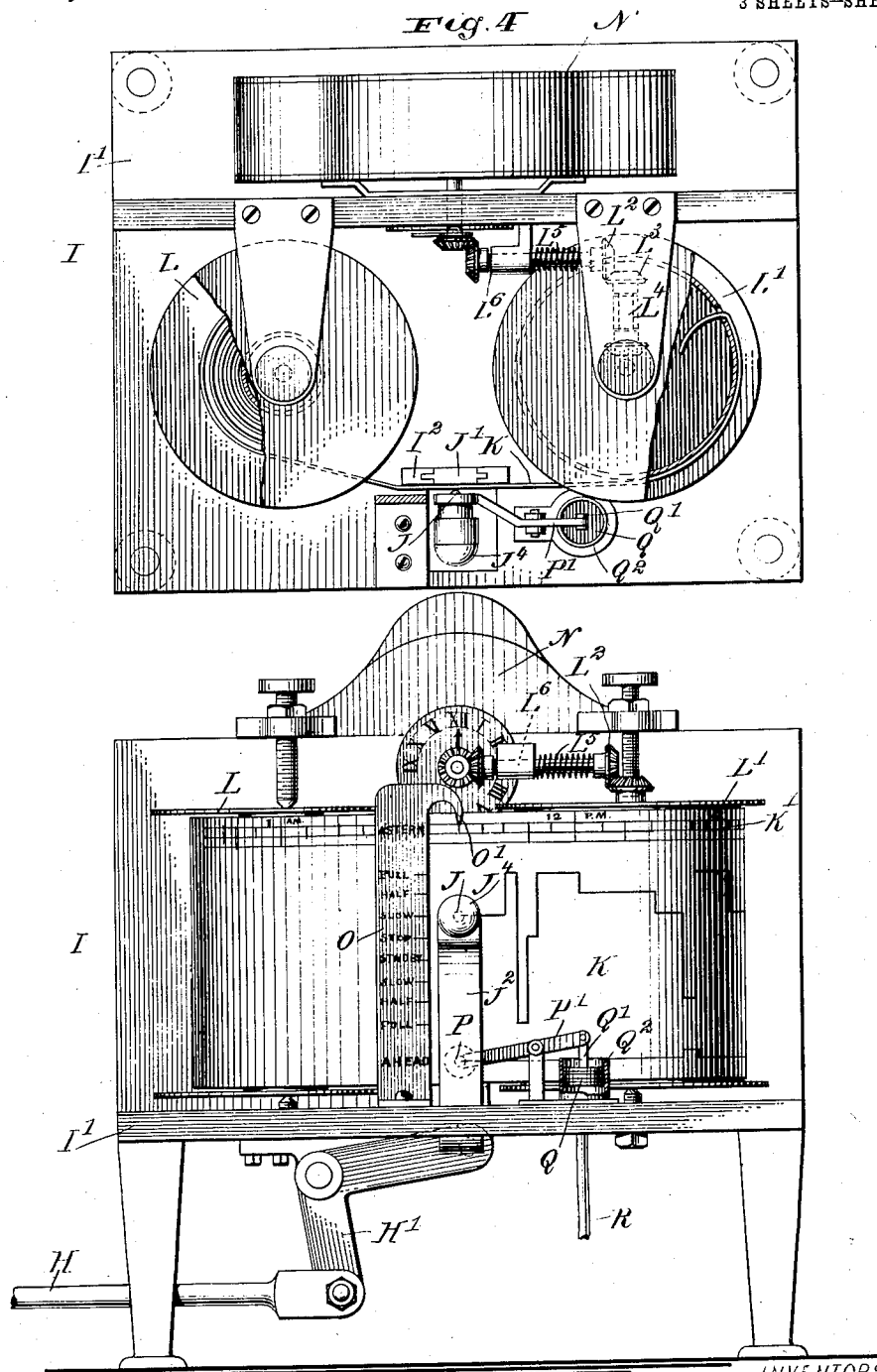
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Fig. 5

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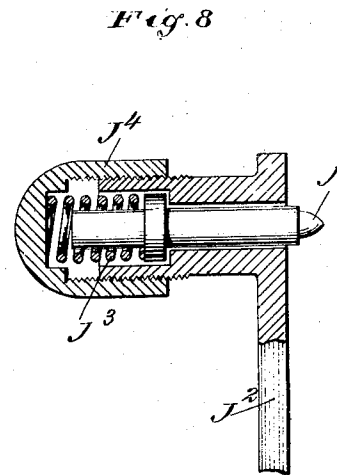
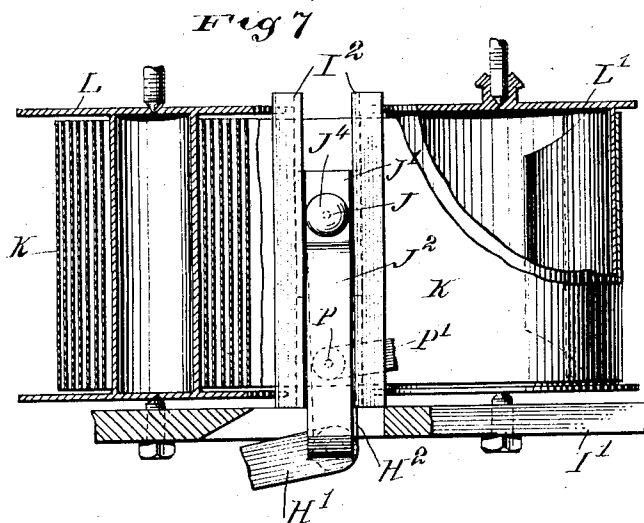
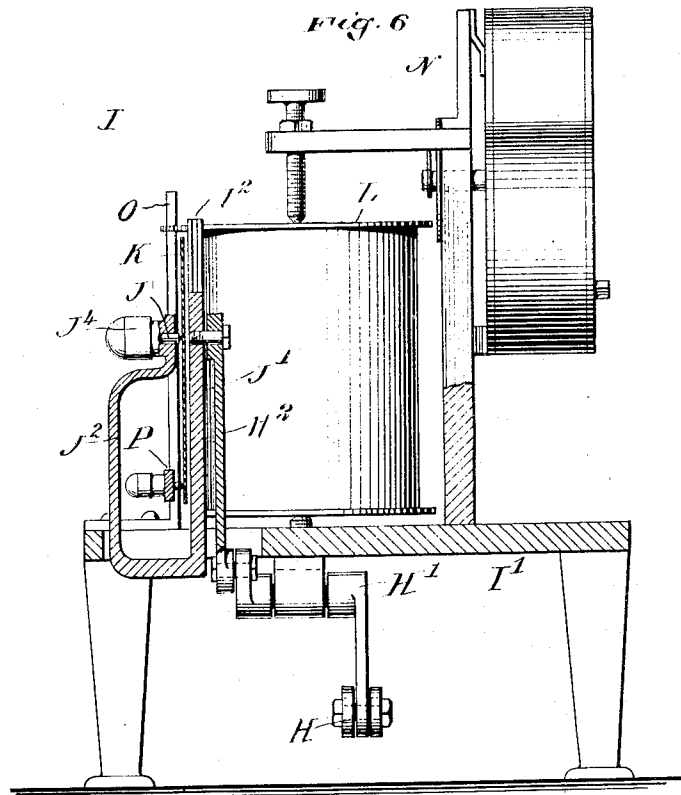
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3 SHEETS—SHEET 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES B. ISAKSON AND JOHN D. E. ISAKSON, OF BROOKLYN, NEW YORK.

ENGINE-ROOM TELEGRAPH-RECORDER.

1,054,206.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed February 25, 1903, Serial No. 144,950. Renewed June 14, 1904. Serial No. 212,506.

To all whom it may concern:

Be it known that we, CHARLES B. ISAKSON and JOHN D. E. ISAKSON, citizens of the United States, and residents of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Engine-Room Telegraph-Recorders, of which the following is a specification.

10 This invention relates to telegraphs on board ship, used for giving signals from the bridge or other part of the vessel to the engineer in charge of the engines.

15 The object of the invention is to provide a new and improved recorder, arranged to produce a permanent record of the signals transmitted by the telegraph to the engine room, to record the forward or backward running of the engine, and to record the time at which the signals were sent or the direction of the engine changed.

20 The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and pointed out in the claims.

25 A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

30 Figure 1 is a face view of the improvement as applied; Fig. 2 is a sectional plan view of the engine room dial, and part of the connection with the recorder; Fig. 3 is a transverse section of the same, on the line 3—3 of Fig. 2; Fig. 4 is a plan view of the improvement, parts being in section; Fig. 5 is a face view of the same; Fig. 6 is a transverse section of the same; Fig. 7 is a sectional front elevation of the same, parts being broken out; and Fig. 8 is an enlarged transverse section of the recording pencil and its holder.

35 The engine room telegraph on board a marine vessel usually consists of similar dials A and B, of which one is located on the bridge and the other in the engine room, and on the dials indicate pointers C and D, connected with each other by a suitable long-distance controlling means, such as the mechanism E, to cause the pointers to move in unison and to indicate alike on the graduations of the dials A and B. Thus, when the pointer C is moved by the officer in charge of the vessel, say to indicate "slow ahead", on the dial A, then the pointer D

moves to a corresponding position on the graduations of the dial B, for the engineer to change the running of the engine correspondingly, by turning the engine-reversing controller, which is shown in Fig. 1 as mounted to turn about the same axis as the pointer D, the handle of this controller being shown as in line with said pointer.

40 In the pointer D is formed a dovetailed groove D', in which is mounted to slide the correspondingly shaped head F' of a pivot pin F, extending through a cam slot G' formed in a cam G, held in a fixed position on the stationary dial B. The outer end of the pivot pin F is pivotally connected by a link H with a bell crank lever H', fulcrumed on the stand or framework I' of a recorder I, located preferably in the immediate neighborhood of the dial B in the engine room of the vessel. The bell crank lever H' is connected by a link H² with the rear arm J' of a pencil carrier, supporting in its front arm J² a pencil J, adapted to trace a line on a web K, unwinding from a drum L and winding up on a drum L', as plainly shown in the drawings, the drums L and L' being journaled in suitable bearings on the stand I', and the drum L' receiving a continuous rotary motion from a clock N, by a suitable intermediate mechanism, as shown. The clock N is also preferably mounted on the stand I'. The pencil J is held in contact with the web K by a spring J³, arranged in the cap J⁴ of the pencil holder (see Fig. 8), and the pencil point is located directly opposite the rear arm J', it being understood that the web K passes between the said arms, as plainly indicated in Fig. 6. The rear arm J' is mounted to slide vertically in suitable guideways I², fixed on the stand I', and hence when the pointer D is moved on the dial B, as above described, then the pointer, by the pin F, link H, bell crank lever H' and link H², imparts an upward or downward movement to the pencil holder and its pencil J, for the latter to correspondingly trace a line on the web K in a vertical direction, as plainly indicated in Figs. 1 and 5. The web K is provided with graduations K', indicating time, and as the web is caused to travel past the pencil J by the clock N, it is evident that the graduations K' indicate the exact time at which the pencil J is moved up or down on the web K. Thus a permanent record is made, indicating the signals transmitted by the telegraph

to the engine room, and the time at which such signals were sent. The cam groove G', engaged by the pivot pin F, is curved, to move the said pivot pin the necessary distance, especially when the pointer D moves into uppermost positions on the dial B. In order to allow the pivot-pin to follow the cam groove G', it is necessary for the pivot-pin to have a sliding connection with the pointer D.

In order to allow of conveniently reading the record made on the web K, a vertical indicating plate O is provided, extending in front of the web K and secured to the framework I', and on the face of said indicating plate O are arranged graduations corresponding to the graduations on the dials A and B (see Fig. 5). The upper end of the plate O is provided with an index finger O', indicating on the graduations K' and in vertical alinement with the pencil J.

The gearing for turning the drum L' from the clock N may be of any approved construction, and is preferably provided with a pinion L², adapted to be thrown out of mesh with a pinion L³ on a shaft L⁴, to allow of turning the drum L' by hand whenever a new web K is placed in position on the drums L, L'. The pinion L² is pressed on by a spring L⁵ and is mounted to slide on its shaft L⁴, but is normally held in mesh with the pinion L³ by the spring L⁵.

On the web K, preferably near the lower end thereof, a second line is traced by a pencil P, to indicate the reversing of the engine. The pencil P is mounted in a lever P', fulcrumed on the stand I' and connected with the piston-rod Q' of a piston Q, mounted to reciprocate in a vertically disposed cylinder Q², held on the stand I'. The bottom of this cylinder Q² is connected by a pipe R with an air-pump S, driven from the main shaft T or other part of the engine, so that when the engine runs in a forward direction, the air pressure sent by the pump S by way of the pipe R into the cylinder Q² acts on the piston Q therein, to hold the lever P' and pencil P in the positions shown in Figs. 1 and 5. Now when the engine is reversed, the pump S is reversed, and consequently the air pressure is drawn out of the cylinder Q², and the piston Q therein is forced downward by atmospheric pressure, to impart a swinging motion to the lever P' and thereby move the pencil P upward, to make a corresponding mark on the web K. Now the pencil P stands in vertical alinement with the pencil J and the pointer O', so that the line traced by the said pencil correctly indicates the time at which the engine is reversed, and when the engine is again caused to run forward, then the pump forces the air back into the cylinder Q², to change the position of the piston therein and thereby move the pencil P back to its former position, thus

again indicating on the web K the time at which the running direction of the engine was changed.

What we claim is:

1. In an engine room telegraph recorder, the combination of a dial, a pointer therefor, a pivot having guided movement and slidably connected with the pointer, means for holding a traveling web, a marker for indicating on the web, and an operative connection between the marker and the pivot carried by the pointer, as set forth.

2. In an engine room telegraph recorder, the combination of a dial, a pointer therefor, a slotted cam on the dial, a pivot slidably connected with the pointer and working in the slot of the cam, means for holding a traveling web, a slidable marker for indicating on the web, a bell crank lever having one member connected with the marker, and a link connecting the other member of the bell crank lever with the pivot carried by the pointer, as set forth.

3. A reversing recorder for engines said recorder embodying means for holding a record medium, a time-train for imparting a continuous movement to said record medium, a recording device, and an air-pump controlled by the movements of the engine-shaft and in communication with said recording device and operative for shifting the position of the recording device to record the direction of rotation of the engine-shaft in an irregular line on the continuously moving record medium.

4. A reversing recorder for engines said recorder embodying means for holding a record medium, a time-train for imparting a continuous movement to said record medium, a recording device, and an air-pump having a rotary member movable in unison with the engine-shaft said air-pump being in communication with said recording device and being operative for shifting the position of the recording device to record the direction of rotation of the engine-shaft in an irregular line on the continuously moving record medium.

5. A reversing recorder for engines said recorder embodying means for holding a record medium, a time-train for imparting a continuous movement to said record medium, a recording device, an air-pump having a rotary member movable in unison with the engine-shaft, a cylinder, a conduit connecting said air-pump and cylinder, and a piston working in said cylinder and connected with said recording device and operative for shifting the position of the recording device to record the direction of rotation of the engine-shaft in an irregular line on the continuously moving record medium.

6. A combined engine-room telegraph and reversing recorder for engines embodying means for holding a record web, a time-train

for imparting a continuous traveling movement to said record web, a pair of recording devices positioned to cooperate with different portions of the width of said web, means
 5 for normally pressing said recording devices into contact with the traveling web, a signal device located at a distance from said recording devices, means controlled by said signaling device for shifting the position
 10 of one of said recording devices in accordance with the movements of said signaling device, and an air-pump having a rotary member movable in unison with the engine-shaft and in communication with the other
 15 recording device and operative for shifting the position of said recording device to record the direction of rotation of the engine-shaft in an irregular line on the continuously moving record web.

20 7. A combined engine-room telegraph and reversing recorder for engines, embodying means for holding a record web having at one edge thereof graduations indicating time, a time-train for imparting a continuous
 25 traveling movement to said record web, a pair of recording devices positioned to cooperate with different portions of the width of said web and movable independently at right angles to the line of travel of the web,
 30 a signaling device located at a distance from the recording devices and indicating both forward and reverse movements and different speeds for each, long-distance means controlled by said signaling device for shifting
 35 the position of one of said recording devices crosswise of the line of travel of the web in accordance with, and to the signal positions indicated by, the movements of said signaling device to form a record line

indicating opposite the time graduations the
 40 movements signaled, and means controlled by the movements of the engine-shaft for shifting the position of the other recording device crosswise of said line of travel to
 45 form a record line indicating opposite said time graduations the direction of rotation of the engine-shaft.

8. A combined engine-room telegraph and reversing recorder for engines, embodying means for holding a record web, a time-train
 50 for imparting a continuous traveling movement to said record web, a pair of recording devices positioned to cooperate with different portions of the width of said web, a signaling device located at a distance from
 55 said recording devices and indicating both forward and reverse movements and different speeds for each, long-distance means controlled by said signaling device for shifting the position of one of said recording devices
 60 in accordance with the movements of said signaling device and to a corresponding number of signal positions, means controlled by the movements of the engine-shaft for shifting the position of the other recording
 65 device to record the direction of rotation of the engine-shaft, and an indicating device common to the record lines made by said recording devices and extending in front of
 70 and at a right angle to the traveling web.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES B. ISAKSON.
 JOHN D. E. ISAKSON.

Witnesses:

THEO. G. HOSTER,
 EVERARD BOLTON MARSHALL.