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J. E. BROWN.

INDICATOR.

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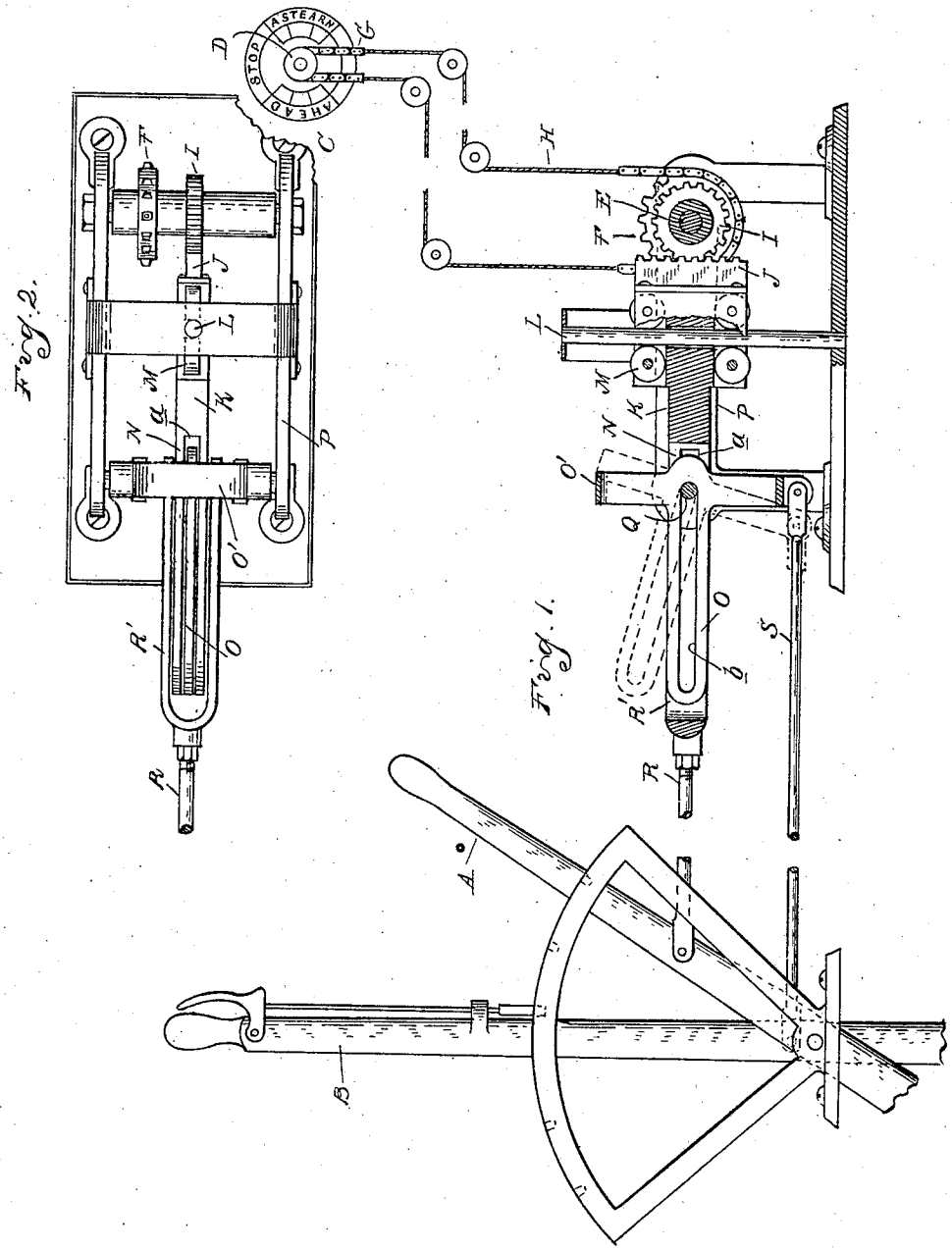

Fig. 2.

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN E. BROWN, OF SARNIA, ONTARIO, CANADA, ASSIGNOR TO CYRUS H. SINCLAIR, OF DETROIT, MICHIGAN.

INDICATOR.

No. 848,628. Specification of Letters Patent. Patented April 2, 1907.

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To all whom it may concern:

Be it known that I, JOHN E. BROWN, a subject of the King of Great Britain and Ireland, residing at Sarnia, in the county of Lambton and Province of Ontario, Canada, have invented certain new and useful Improvements in Indicators, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to indicators particularly designed for use upon boats and for the purpose of indicating to the pilot the exact condition of the controlling-levers of the engine.

The invention consists in certain novel features of mechanism employed, as hereinafter set forth.

In the drawings, Figure 1 is a side elevation, partly in section, of the indicating mechanism in connection with the controlling-levers of an engine. Fig. 2 is a plan view thereof.

A is the throttle-controlling lever, and B the reversing-lever, of the engine.

C is an indicator including a revoluble actuating member D, and E is a revoluble actuating member for the member D. The indicator C is located in the pilot-house or other convenient position for inspection by the pilot, while the actuating member E is located in the engine-room. The two members D and E are connected to each other by suitable means, such as the sprocket-and-chain connections F and G and intermediate cables H.

The revoluble member E has mounted thereon a pinion I, which is inengagement with a reciprocatory rack J. This rack is mounted upon a carriage K, which travels upon a guide member L and is preferably provided within antifriction-rolls M, bearing upon opposite sides of the guide.

N is an arm projecting laterally from the carriage K, being preferably bifurcated and having the furcations thereof longitudinally slotted, as at *a*. O is a rockable member adjacent to the arm N and preferably arranged between the furcations thereof and being correspondingly longitudinally slotted, as at *b*. The member O is pivotally secured to a suitable framework P, preferably through the medium of a slotted T-shaped head O′, which permits of a lateral movement of the arm N in relation thereto.

Q is a slide engaging the solts in the members N and O, and R is a rod having a bifurcated end R′ connected with the slide Q and embracing the member N, the opposite end of the said rod being connected to the lever A.

S is a rod connected to the lever B at one end and at its opposite end to the T-shaped head of the member O.

With the construction as described when the reversing-lever B is in its neutral position, as illustrated, the rod S will hold the rockable member O in a position parallel to the arm N, thereby registering the slots *a* and *b* with each other. If while the lever B is in this position the lever A is adjusted in position, the slide Q is free to travel in these registering slots without imparting any movement to the member N. When, however, the lever B is adjusted to a position on either side of its neutral point, the rod S will communicate movement to the member O, rocking the latter either upward or downward into an inclined position, as indicated by dotted lines. If the lever A is then adjusted, the movement of the slide Q along the inclined slot *b* will cause either the raising or lowering of the arm N and the consequent upward or downward movement of the carriage K upon the guide L. The movement of the carriage will actuate the rack J, and the latter, through its engagement with the pinion I, will revolve the member E and will communicate motion through the connections F, H, and G to the revoluble member D. By means of mechanism described it will be understood that both the direction of movement and the degree of the opening of the throttle will be indicated. The direction of the movement is indicated by the direction of the rotation of the revoluble members D and E, and this is dependent upon whether the member N is rocked upward or downward. The opening of the throttle is indicated by the amount of movement of the revoluble member D, which is determined by the movement of the slide Q along the members N and O, and this is determined by the amount of movement of the lever A.

What I claim as my invention is—

1. In an indicating mechanism, the combination with a revoluble member, of a rack and pinion for actuating the same, a guide for determining the path of the movement of said rack, an arm projecting laterally from

said rack, a rockable guide adjacent to said arm, a coupling member slidably engaging said arm, and rockable guide and connections for operating said slide and for rocking said guide.

2. In an indicating mechanism, the combination with a revoluble member, of a rack and pinion for actuating the same, a guide parallel to said rack, antifriction-bearings at opposite ends of said rack engaging said guide, an arm projecting laterally from said rack intermediate its ends, a guide adjacent to said arm, and pivoted for angular adjustment, a slide engaging said arm, an adjacent guide and separate actuating connections for said slide, and for rocking said angular adjustable guide.

3. In an indicating mechanism, the combination with a revoluble member, a rack and pinion for actuating the same, a guide for said rack parallel thereto, an arm secured to said rack, and an adjacent guide extending laterally from the rack to one being bifurcated to embrace the other, and both being longitudinally slotted; a slide engaging the slots for said guide, an arm means for moving said slide longitudinally into said slot, and separate means for changing the angularity of said adjacent guide.

4. In an indicating mechanism the combination with a revoluble member, of a rack and pinion for actuating the same, a guide for said rack parallel thereto, an arm projecting laterally from said rack, being bifurcated, and longitudinally slotted, a longitudinally-slotted guide embraced by the furcations of said arm and pivoted for angular adjustment, a slide engaging the slots of said bifurcated arm and guide, a bifurcated longitudinally-adjustable rod embracing said bifurcated arm and connecting the said slide, and a connection to said slotted guide for rocking the same to change its angular relation to said arm.

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

JOHN E. BROWN.

Witnesses:

GEO. BROWN,

A. S. BURNHAM.