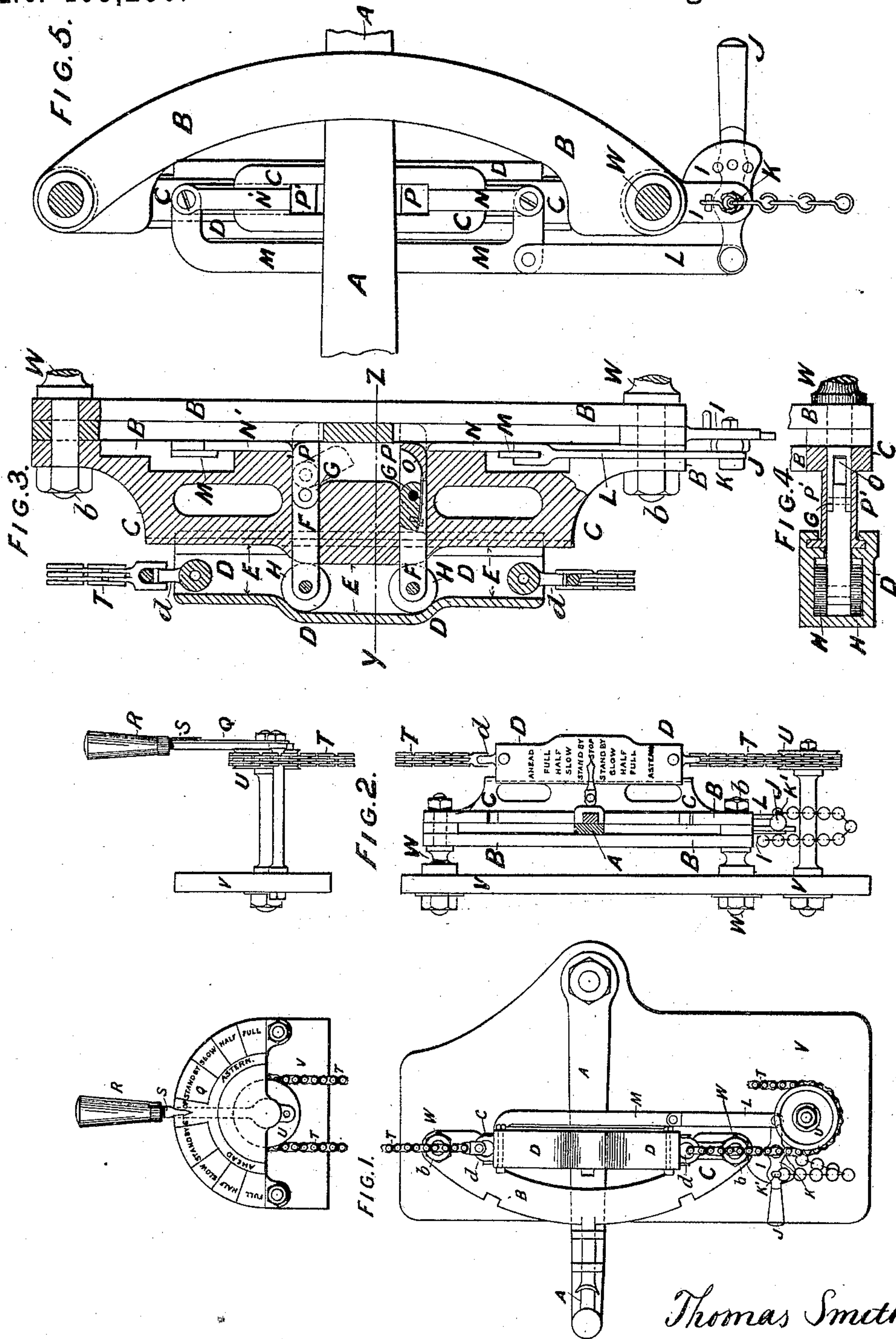


(No Model.)

T. SMITH.
NAUTICAL SIGNALING APPARATUS.

No. 409,250.

Patented Aug. 20, 1889.



Witnesses,
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UNITED STATES PATENT OFFICE.

THOMAS SMITH, OF 74 CYPRUS ROAD, BOOTLE-CUM-LINACRE, COUNTY OF LANCASTER, ENGLAND.

NAUTICAL SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 409,250, dated August 20, 1889.

Application filed October 3, 1887. Serial No. 251,349. (No model.) Patented in England December 10, 1885, No. 15,156.

To all whom it may concern:

Be it known that I, THOMAS SMITH, a subject of the Queen of Great Britain, residing at 74 Cyprus Road, Bootle-cum-Linacre, in the county of Lancaster, England, have invented certain new and useful Improvements in Interlocking-Gear and Safety-Indicator for Reversing-Gears for Steam-Engines, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is an elevation of the indicator on the bridge, the ordinary chain-connection or telegraph, and the indicator and interlocking gear below; Fig. 2, an elevation of same, taken at right angles to Fig. 1; Fig. 3, a detail section of interlocking gear; Fig. 4, a section through Y Z, Fig. 3; Fig. 5, an elevation of parts of mechanism shown in Fig. 3, taken at right angles to same.

A is the reversing-lever; B, quadrant for same; C, cross-slide bolted to quadrant B by means of bolts *b b*; D, sliding box linked to telegraph-chains by means of shackles *d*; E, cam-surface on box D; F F', catches jointed at G and having bowls or rollers H running on cam E; I, continuation of support of quadrant B or other piece firmly secured to or forming part of same; J, handle pivoted on piece I by means of pin K and locked by chain-pin K'; L, connecting-link; M, frame linked to L and carrying two push-pieces N N', sliding in grooves in frame C and bearing against the ends P P' of jointed catches F F'; O, spring in stop F F'; P P', end of stop F F', held in place by spring O when not forced aside. Joint G is a knuckle-joint, so as to enable ends P P' to bend towards each other on joints G, but not to move beyond the perpendicular.

Q is the usual dial on the upper deck, with handle R and pointer S, as usual; T, telegraph-chain passing over grooved and clip or pitched chain-pulleys U U, as usual; V V, frame-plates supporting the mechanism; W, studs supporting quadrant B, lever A, and other mechanism.

The mode of action is as follows: The box D is quadrant and marked, as shown, to correspond with the dial Q on the bridge.

When the engines are stopped, the reversing-lever A of the engines is in the middle of the stroke and the apparatus, as set forth in the drawings. When the officer in charge requires the engines to go ahead or astern—say ahead—he moves the indicator-handle on the bridge of the ship to “Ahead,” chain T conducts this motion to the box D, causing it to move till the word “Ahead” thereon is opposite the pointer on C. (Shown in the drawings at “Stop”.) The box D having traveled downward, the upper stop F has come out of cam-embayment E, and thus presses into the path of lever A, as set forth in dotted lines in Fig. 3. The engineer, if by any chance he misunderstood the signal and tried to move the lever astern, would find it locked by stop F and only capable of moving ahead. If at any time the engineer wished to move the engines independently of orders, he can do so by unlocking handle J and pressing it down or up to correspond with the direction required to be freed. If, say, he pressed it up, bar N' would come against the spring end P P' of stop E' and press it aside, as set forth in dotted lines, so as to enable the handle to clear the stop in the direction of full speed astern. If the stop F has been pressed back, by pulling the handle J downward the reversing-handle would be free to be moved ahead. As in no case is the handle locked for both directions, this hand-freeing apparatus, by freeing the direction locked, leaves both directions open.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. In an interlocking gear and safety-indicator for reversing-gear for steam-engines, the combination of the deck-dial Q with handle R, pointer S, chain-pulleys U and chain T, the base V in the engine-room, reversing-lever A, pivoted to same and connected to engine, quadrant B, secured to said base to hold said lever in position, cross-slide C, held on said base over said lever and provided with pointer, slide-box D, with graduated index-face, having camway E and connected to the chains T, knuckle-jointed stop-bars F F', having ends P P', bedded to slide

in the cross-slide C, and provided with rollers or bowls H, bearing in the camway E, hand-lever J, pivoted to an extension of the quadrant-support and provided with means of locking the same, link L, pivoted to said hand-lever, frame M, connected to the link L, and push-pieces N N', sliding in grooves of the cross-slide C, opposite to the jointed ends P of the stops F F', and secured to the frame M, substantially as set forth.

2. In combination with the reversing-lever A, pivoted to a base, the quadrant B, held on said base and adapted to lock said lever, the cross-slide C, held on said base over said quadrant, the stops F F', sliding in said cross-slide and having knuckle-jointed ends P P', adapted to project in the way of the reversing-lever, and the slide-box D, sliding on the cross-slide C and operated by the chains T, and having camway E, operating the ends of the stops F F', substantially as set forth.

3. The combination of the reversing-lever A, pivoted to a base, the quadrant B and cross-slide C, held on said base, the hand-lever J, pivoted to an extension of the quadrant and provided with means of locking the same into position, the link L, pivoted to said hand-lever, a frame M, connected to said link, and the pushers N N', connected to said frame and sliding in the cross-slide and adapted to operate the jointed ends P P', held slidingly in the cross-slide C, substantially as set forth.

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

THOMAS SMITH.

Witnesses:

FRANCIS HENRY KINDALL,
Solicitor, Liverpool.

GEORGE CHARLES DAWSON,
His Clerk.