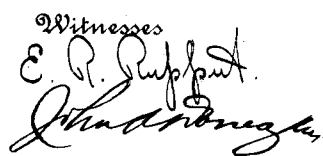


LOCK CONTROL.

1,064,608.

2 SHEETS—SHEET 1.



Charles F. Burt

384 Victor J. Evans

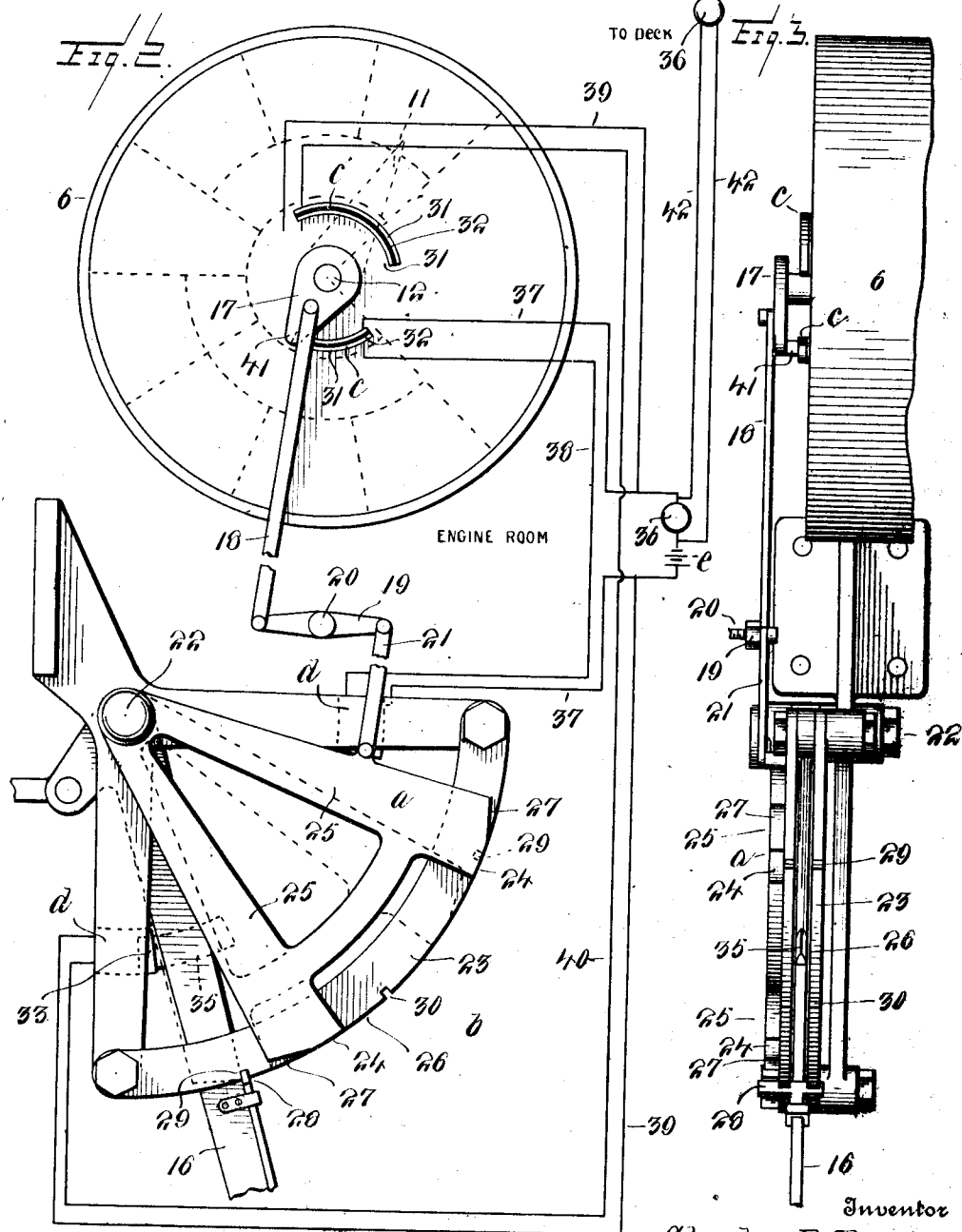
Attorney

C. P. BURT.
 LOCK CONTROL.
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1,064,608.

Patented June 10, 1913.

2 SHEETS-SHEET 2.



Witnesses
E. P. Ruppert
John A. Ruppert

Inventor
Charles P. Burt
 By *Victor J. Evans*
 Attorney

UNITED STATES PATENT OFFICE.

CHARLES P. BURT, OF ATLANTA, GEORGIA.

LOCK CONTROL.

1,064,608.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, CHARLES P. BURT, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented new and useful Improvements in Lock Controls, of which the following is a specification.

It is well known that, in bringing a power driven vessel to a standstill, such as when coming to anchor or into a dock, frequent signals are passed between the officer in charge on deck and the officer located in the engine room. These signals, which are made for the purpose of indicating to the engineer the rate of speed at which it is desired to have the motor turn in a certain direction, are, in many cases, made in rapid succession. Thus, while the engine is turning in one direction a signal may be given to the engineer to cause the engine to turn in a reverse direction and, just after the parts have been arranged to enable the motor to turn as indicated, this last signal may be followed by a signal to have the motor turn as at first. Now, in the operation of what is known as reversing, the valves are arranged in new or different positions with respect to those which they previously occupied and while effecting this new arrangement, it is frequently necessary to have recourse to what is known as "jockeying." This jockeying is invariably made use of when, with the motor running in one direction, a signal is made to run in the reverse direction and the operation, which consists in oscillating the reversing lever between what is known as the neutral point and the point where it must be moved in order to arrange the valves in the positions desired, is performed chiefly for the purpose of admitting steam to the proper end of the cylinder.

With the foregoing in view and when a number of rapidly succeeding signals are made such as from ahead to astern and then again to ahead, it can be easily imagined how the engineer may, as he frequently does, become mentally confused while jockeying the reversing lever and finally move the same to a position in opposition to that required. Heretofore, so far as known, no construction has been provided for preventing the securing of the reversing lever when adjusted to a position in opposition to that required. It is true that what are known as "telltale", in the shape of audible signals, have been proposed and, in some few

cases, used to indicate when certain controllers and the like have been erroneously adjusted but these have no control whatever on the operation of the controlling devices and in some instances are rendered practically useless by the noise of the operating machinery. Thus, the absence of means for preventing the securing of reversing mechanism when the same has been erroneously adjusted, and the impracticability of telltales, have led me to provide a device, the general object of which is to prevent the locking or securing of the reversing mechanism of a motor when this mechanism has been arranged in opposition to a required position. And to this end the invention consists in a device which, if desired, may form a part of an engine room telegraph so that when a signal is made to have the motor turn in a required direction the device will, in unison with the signaling apparatus, operate to render inoperative that portion of the reversing mechanism's locking device which is arranged in opposition to the position in which the reversing mechanism must be adjusted in order to comply with the signal.

Other objects will appear and be better understood from the following description taken in connection with the accompanying drawings, in which,

Figure 1 is a diagrammatic view of the invention. Fig. 2 is a contracted side elevation. Fig. 3 is a front elevation. Fig. 4 is a detail side elevation of the cutout. Fig. 5 is a detail section showing certain of the contacts of the reversing quadrant and the means for closing the circuit. Fig. 6 is a view similar to Fig. 5 but showing certain of the contacts of the annunciator and the means for closing the circuit.

Inasmuch as the number and the positions of the various deck annunciators of a vessel depend on the size and type or character of the vessel, such as when the vessel is a man of war, or a freight or a passenger vessel, I do not deem it necessary to illustrate nor to specify these various arrangements, since to do so, would not materially aid one skilled in the art to a better understanding of my invention than may be obtained from the present drawings and description. Therefore, the present arrangement shown in the drawings together with the following description must be taken as simply illustrative of one embodiment of my invention. And the number, shape and

size of the parts shown may, within the scope of the claims, be modified to conform to the requirements of the vessel in which the invention is to be installed.

5 In the embodiment shown in Fig. 1 the device is employed in connection with a vessel having only one engine room and one deck annunciator. However, I contemplate the use of this device with a vessel having
10 a plurality of deck annunciators connected to a single engine room annunciator, also with a vessel having a plurality of engine rooms and a common annunciator for the same connected to one or more of the deck
15 annunciators, and further with a vessel having a plurality of engine rooms each having its own annunciator connected to one or more deck annunciators, whereby, to admit of its being operated either simultaneously with or independently of the other engine room annunciators.

In Fig. 1, 1 indicates the telegraph which includes the deck and engine room annunciators 5 and 6 which are of usual construction
25 and connected by the flexible elements 7. In operating this system and assuming the dial hands are pointing to "Stop," the handle 9 of the deck annunciator is moved to that panel of the dial 10 whose legend indicates
30 the required speed. This will have the effect of moving the pointer 11 mounted on the arbor 12 of the engine room annunciator 6, to a legend in one of the divisions of the dial 13 corresponding to the legend indicated by the handle on the deck annunciator
35 5. This done, the operator in the engine room moves the operating handle 14 around to the pointer 11, and this movement of the handle 14 causes the pointer 15 on the deck
40 annunciator to coincide with the handle 9 thereof. When the pointer of the engine room annunciator moves as just described an audible or other suitable signal is made in the engine room and when the pointer on the deck annunciator coincides with the
45 handle, a corresponding signal is made to those on deck, thus indicating that the signal from deck has been received in the engine room. As the arbor 12 of the engine
50 room annunciator is turned as previously described, movement is imparted to a cutout *a* which is suitably connected to the arbor 12. The cutout *a* is adapted, when moved in one
55 coaction between the elements of the locking device of the reversing mechanism *b* when the lever 16 of the said reversing mechanism is moved in the same direction as the cutout *a* and sufficiently far so as to
60 set the valves. If, however, the adjusting lever is moved in a direction opposed to the direction of movement of the cutout *a* then coaction of the said locking devices will be permitted when the lever is moved sufficiently
65 far so as to adjust the valves. The

connection between the arbor and the cutout *a* is such as not to materially disturb the position of the cutout *a* with respect to the locking device when the pointer 11 on the engine room annunciator is moved to indicate the various speeds in one direction, but
70 when the parts are operated so that the engine room indicator is moved to any panel indicating a certain speed in the opposite direction, then the cutout *a* will be moved
75 so as to prevent coaction of the locking device of the reversing mechanism when the lever 16 thereof is moved so as to set the valves in a position which would cause the motive fluid to turn the motor in the same
80 direction as before the signal to reverse was made.

Any preferred form of connection may be established between the arbor 12 and cutout *a* for operating the said cutout in the manner just described. Since the form or type
85 of this connection will depend in most cases on the relative positions of the engine room annunciator and the cutout *a*, and also on the number of engine room annunciators
90 used, I do not intend to limit myself to the specific form of connection about to be described.

Referring now to the drawings the crank 17 is suitably connected to the arbor 12 so
95 as to turn therewith. The crank may be arranged on any suitable portion of the arbor such as at one end thereof and beyond one face or dial of the annunciator. The rod 18 connects the crank 17 with a walking
100 beam 19 which turns on an axle 20 connected to any suitable form or support. A link 21 connects the walking beam with the cutout *a*. The cutout *a* may be of any suitable material such as metal and of any suitable
105 form such as an inverted A. The pointed end portion of the cutout *a* is adapted to turn on an axle 22 and is centered with the quadrant 23 which is rigidly held by any preferred means such as by the axle 22.
110 Portions 24—24 of the end surfaces of the sides 25—25 of the cutout coincide with the outer surface of the curved side 26 of the quadrant 23. The portions 27—27 of the end surfaces of the sides 25—25 slope with
115 respect to the portions 24—24 and act as cams for disengaging the latch 28 from the keepers or notches 29—29 at the opposite end portions of the curved side 26.

The quadrant 23 may be of any preferred
120 type such as that shown in the drawings, wherein it will be seen that the quadrant is made up of spaced sections between which the reversing lever 16 is secured to any suitable support such as the axle 22 and is
125 adapted to turn independently of the cutout *a*. The keepers 29 of one section of the quadrant aline with the keepers of the other section and the lower end of the latch 28 projects beyond the quadrant 23, whereby, 130

to enable the surfaces 24 and 27 to contact therewith.

In Fig. 2 the parts are shown as positioned for full speed astern. Assuming
 5 now that the vessel is moving astern as indicated and it becomes necessary to change the direction of progressive movement had by the vessel to full speed ahead, the officer at the deck annunciator operates the handle
 10 thereof as previously described and this will have the effect of moving the cutout from the position shown by full lines in Fig. 2 to that shown by dotted lines in the same figure. Now it will be observed that while
 15 the cutout is moving to the position shown by dotted lines, one of the surfaces 27 will contact with the latch 28 and as the movement of the cutout continues the said latch will be disengaged from its keeper, where-
 20 by, and owing to the tendency of the valves to move to the neutral, the reversing lever will, through its connections with the valves, be likewise moved toward the neutral notch or keeper 30. It is assumed, however, that
 25 during this automatic movement of the reversing lever the same is not held by the engineer. Now as the surface 27 which disengaged the latch, moves beyond the keeper the latch will be prevented from entering
 30 the said keeper by the presence of the surface 24. This position of the cutout *a*, however, will not prevent the jockeying of the reversing lever between the cutout keeper and the intermediate nor between the
 35 latter and the keeper at the opposite end portion of the curved side 26. But after jockeying if the engineer moves the reversing lever so that the latch thereof will overlie the cutout keeper and then releases the
 40 reversing lever, the same will invariably move to the neutral notch or keeper 30. This, of course, will indicate to the engineer that he has moved the reversing lever in the wrong direction so that in order to
 45 lock the same he will have to move it to the keeper remote from the cutout keeper and this last named direction is that in which the lever must be moved in order to set the valves as inferred from the signal.
 50 In order to further indicate an erroneous adjustment of the reversing lever to the engineer and to the officer on deck, I make use of audible signals 36—36 which are, by preference, operated electrically and the circuits
 55 of which are closed when the lever is adjusted to a position other than that required. By preference I adapt certain of the elements of my invention as previously described for closing the electric circuits at
 60 predetermined times. Since the parts may be adapted in any suitable manner to close the circuit it will be understood that the description of the following construction is simply illustrative of one embodiment of
 65 the construction and disposition of the cir-

cuit closing means. The metallic strips *c—c* are connected to and insulated from the engine room annunciator 6. These strips are suitably connected with a suitable source
 70 of electric energy *e* and have portions 31—31 insulated from each other as at 32. The sockets *d—d* on the quadrant 23 comprise spaced metallic portions 33—33 insulated from each other as at 34. The circuit closer
 75 35 connected to the reversing lever 16 comprises a metallic plate the ends of which project beyond the sides of the lever so that when the parts are positioned as shown by
 80 full lines in Fig. 2 one end portion of the circuit closer will extend into one of the sockets *d* and when the lever is moved to an opposite position, the other end of the circuit closer will enter the other of said sockets.

The bells 36—36 are connected together
 85 by conductors 42—42, and conductors 37—37 connect the bells with one jaw of one of the sockets *d* and with a portion of one of the contact plates *c*, the other portion of the
 90 said contact plate *c* being connected to the other jaw of the said socket by a conductor 38. The bells 36—36 are also connected by means of conductors 39—39 with a portion
 95 of the other contact plate *c* and a jaw of the other of said sockets, and the conductor 40 connects the other portion 31 of the last named contact plate *c* with the other jaw
 100 of the last named socket *d*.

Now when the contact plates *c* are arranged as shown and the crank 17 provided with means such as a strip 41 to contact
 105 with the portions 31—31 of the said plates, it will be seen that when the said contact piece bears, for instance, on the portions 31—31 to the right in Fig. 2 and the reversing lever moved to the position shown
 110 by full lines in said figure, the circuit will be closed and the alarm sounded, thus additionally indicating an erroneous adjustment. It will be observed, however, that
 115 when the lever is moved to the position shown by full lines in the said figure the circuit, by virtue of the position of the crank 17, will not be closed even though one end of the circuit closer 35 is in the
 120 adjacent socket *d*. Thus it will be seen that the closing of the circuit not only depends on the contact between the closer 35 and one of the jaws *d* but also on the position of the crank 17, and inasmuch as the position of the crank controls the position of the cutout
 125 *a* and the arbor 12 controls the position of the crank and pointer 11, it is manifest that the parts can only be locked and the closing of the circuit prevented when the reversing lever is adjusted as required.

In conclusion it may be stated that although I have shown and described the device as adapted for use in connection with
 130 a ship, nevertheless, I do not intend to re-

strict myself to such use, since, from what has already appeared, it can be readily seen how the device could be used in connection with excavation or construction work, or in fact with any work involving the use of a motor and in which frequent reversals of the motor are required.

What I claim as new is:

1. A motor control element, means for locking said element in predetermined control position, and remotely governed means to prevent the operation of the control element locking means in other than a selected position of said element.

2. In combination with motor reversing mechanism and a locking device therefor; of means for rendering the locking device inoperative when the said mechanism is arranged differently from a required position.

3. In combination with motor reversing mechanism, and a locking device therefor; of a deck annunciator, and means controlled thereby for rendering the locking device inoperative when the mechanism is arranged in opposition to a required position.

4. In combination with motor reversing mechanism and a locking device therefor; of an engine room annunciator, and means controlled thereby for rendering the locking device inoperative when the mechanism is arranged in opposition to a required position.

5. In combination with motor reversing mechanism, and a locking device therefor; of a signaling device including an annunciator, and means controlled thereby for rendering the locking device inoperative when the mechanism is arranged in opposition to a required position.

6. In combination with motor reversing mechanism and a locking device therefor; of a signaling device including deck and engine room annunciators, and means controlled

thereby for rendering the locking device inoperative when the reversing mechanism is arranged in opposition to a required position.

7. In combination with motor reversing mechanism and a locking device therefor; of means for unlocking the locking device and preventing the relocking thereof when the reversing mechanism is arranged in opposition to a required position.

8. In combination with motor reversing mechanism and a locking device therefor; of a signaling apparatus, and means controlled thereby for unlocking the locking device and preventing the relocking thereof when the reversing mechanism is arranged in opposition to the position indicated by the signaling device.

9. In combination with motor reversing mechanism and a locking device therefor; of a signaling device including an engine room annunciator and means controlled thereby for automatically unlocking the locking device and preventing the relocking thereof when the reversing mechanism is arranged in opposition to a position indicated by the annunciator.

10. In combination with a motor reversing mechanism and a locking device therefor adapted to lock the mechanism in any of its adjusted positions; of means including an oscillating cutout having a plurality of cam surfaces located in the engine room of a vessel and adapted through said cam surfaces for controlling the operation of said locking device.

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

CHARLES P. BURT.

Witnesses:

H. W. CASTON,

Geo. H. PARKER.