Aug. 11, 1942. C. P. CAULKINS 2,292,821

RELEASE GEAR FOR DEPTH CHARGES

Filed Aug. 3, 1940

Fig. 1.

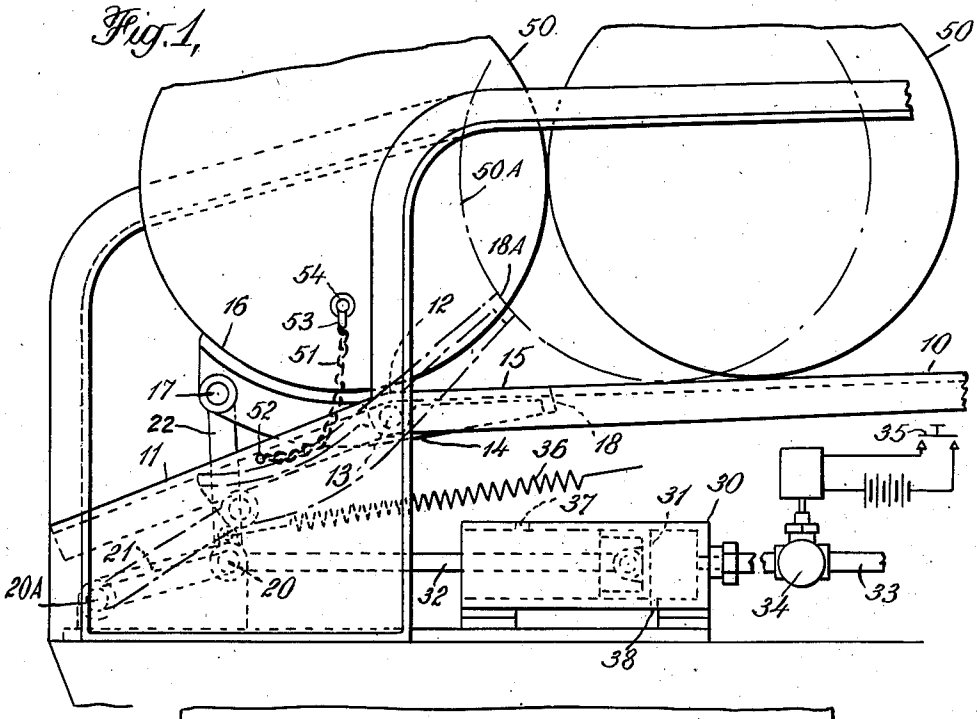


Fig. 2.

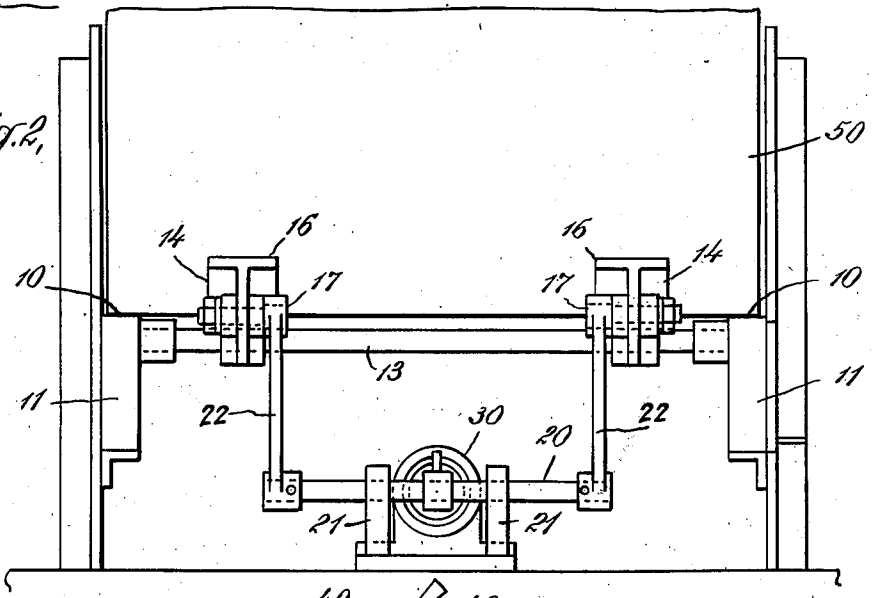
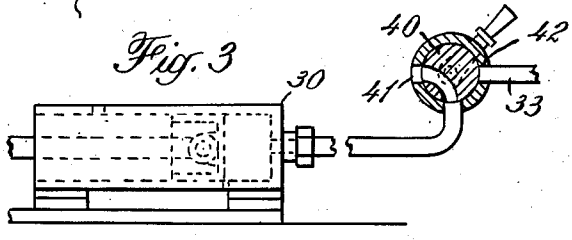


Fig. 3



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RELEASE GEAR FOR DEPTH CHARGES

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2 Claims. (Cl. 193—40)

This invention relates to improvements in release gear for depth charges, and its object is to provide a remote control for dropping depth charges from a moving vessel. Depth charges are dropped from the stern of moving vessels and it is desirable that the points at which they are dropped should be under accurate control. These points can be more precisely determined by the officers who are maneuvering the vessel than they can be by men stationed at the stern of the vessel, and the object of this invention is to provide a device for dropping depth charges which can be controlled from the bridge or other desired part of a vessel.

Another object is to provide a mechanism which is capable of dropping a plurality of depth charges in more rapid succession, which can be handled by a minimum number of men and by men who need not be stationed in exposed positions.

These and other objects of the invention will appear in the following specification in which I will describe the invention, the novel features of which will be pointed out in appended claims.

Referring to the drawing,

Fig. 1 is a side elevation of a device which is made according to and embodies my invention;

Fig. 2 is a rear elevation of some of the parts shown in Fig. 1; and

Fig. 3 is a side elevation of a modified form of manual controller.

10 designates a pair of parallel rails, preferably inclined downwardly a slight amount toward the stem of a vessel. 11 are more steeply inclined extensions of these rails, the rear ends of which terminate at or near the stern of the vessel on which the apparatus is mounted. 12 designates the point of intersection of the rails 10 and the extensions 11. 13 is a transverse shaft supported on bearings on the rails under the points 12. Mounted on this shaft are rocking cradles 14, each of which has a flat portion 15 which is in alinement with the top of the rails when the cradles are in the positions in which they are shown in full lines in Fig. 1. Each cradle also has a curved portion 16 extending rearwardly and upwardly from the flat portion 15. The curvature of these portions 16 corresponds substantially with the radius of cylindrical depth charges or bombs 50, one of which is shown in Fig. 1 resting on them. The weight of the charge thus positioned tends to move the rear ends of the cradles downwardly, but such movement is restrained by the mechanism which I will now describe.

20 is a transverse shaft slidably supported in inclined guides in brackets 21 below the track extensions between and parallel with the latter. Links 22 connect shaft 20 with the cradles 14 to which the links are pivoted at points 17 which are slightly to the rear of shaft 20 when the latter is in its upper forward position. By this arrangement the cradles are kept from tilting and the depth bomb 50 remains supported on them.

30 is a cylinder within which is a piston 31. 32 is a piston rod pivoted to piston 31 and to shaft 20. 33 is a supply pipe from a suitable source of compressed air connected to the forward end of the cylinder 30. 34 is an electrically controlled valve in the air pipe 33 from which electrical conductors lead to a switch 35 located on the bridge or other desired part of the vessel. Obviously, several of such switches may be placed in different positions.

Now, when the valve 34 is opened, piston 31 will be moved outwardly and shaft 20 will be forced rearwardly, and the latter, because of its support in the inclined guides in brackets 21, will move downwardly to the position in which it is shown in dotted lines at 20A (Fig. 1). The cradles will then move to their dotted line positions to allow the charge 50 to move down onto the track extensions 11, down which it will roll and off into the sea.

During this operation the forward ends 15 of the cradle are moved upwardly against the charge 50 to push it, and their forward ends which form abutments 18 are moved up into the path of movement of the next succeeding charge 50A, as shown at 18A in Fig. 1. This next charge will be held in this manner until the cradles are returned to their initial position, when it will roll into the position before occupied by the charge 50.

A cable 51 may be affixed to one of the tracks at 52. At its other end is a snap hook 53 which may be attached to the safety pin 54 of the charge to insure the disconnection of the safety pin as the charge rolls down the rails.

The return of the cradles is effected by a spring 36 connected to the rear end of the connecting rod 32 and a cross piece (not shown), affixed to the tracks 11. The cylinder 30 is provided with ports 37 which release the air pressure when the piston reaches its rearmost position and with a vent at 38 which permits the return of the piston and the parts connected with it under the action of the spring 36.

In Fig. 3 a manually controlled valve 40 is

shown in the air pipe at a point remote from the cylinder **30**. The pipe **33** is shown connected through valve **40** with a discharge port **41**, but the valve may be turned to the left to connect it with a supply port **42**.

By means of the apparatus shown and described, charges may be placed on the rails **10** by men in a protected place and the charges dropped at will by an officer in a place of vantage. The rapidity with which a plurality of charges may be dropped in succession is greatly increased.

Modifications may be made within the spirit and scope of this invention and I intend no limitations other than those imposed by the appended claims.

What I claim is:

1. Release gear for depth charges comprising supporting rails having downwardly inclined end portions, a pivotally supported rocking cradle having curved arms projecting rearwardly from said pivotal support arranged to support the weight of a charge above said inclined portions of the rails, a link with its upper end pivotally connected with the charge supporting arms of the cradle, a movable support for the lower end of the link, said support comprising an inclined guide arranged to hold said lower end of the link at the upper end of the guide beyond the center of gravity of the upper end of the link, mechanism for moving said link support downwardly in its guide past said center of gravity, and means for actuating said mechanism.

2. Release gear for depth charges comprising supporting rails having downwardly inclined end portions, a pivotally supported rocking cradle having curved arms projecting rearwardly from said pivotal support arranged to support the weight of a charge above said inclined portions of the rails, a link with its upper end pivotally connected with the charge supporting arms of the cradle, a movable support for the lower end of the link, said support comprising an inclined guide arranged to hold said lower end of the link at the upper end of the guide beyond the center of gravity of the upper end of the link, mechanism for moving said link support downwardly in its guide past said center of gravity, remote control means for actuating said mechanism, the end of the cradle in front of its pivot being movable when the cradle is released into a position above the charge supporting rails to arrest the movement of another of the charges.

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