J. I. ORKIN.

TOY.

APPLICATION FILED JUNE 25, 1919.

1,360,676.

Patented Nov. 30, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

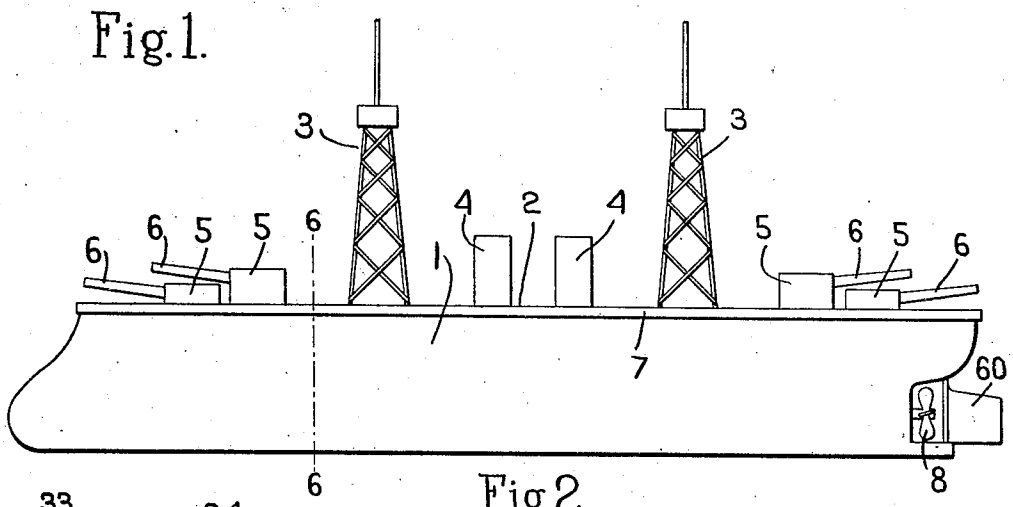


Fig. 2.

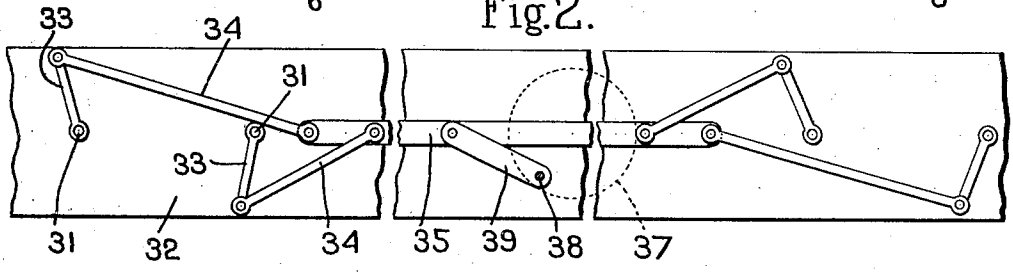


Fig. 3.

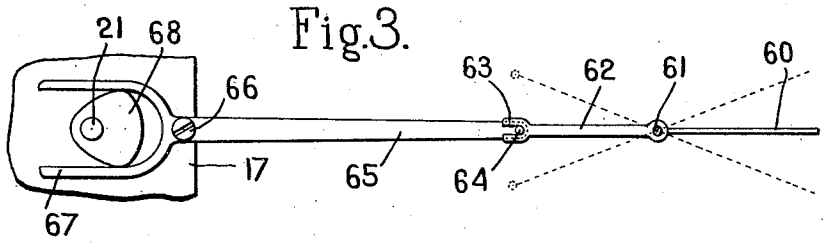


Fig. 4.

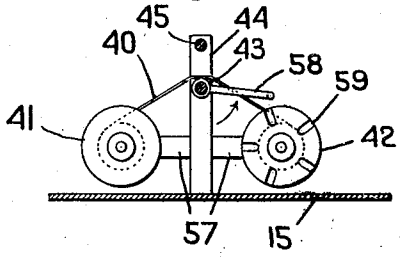


Fig. 6.

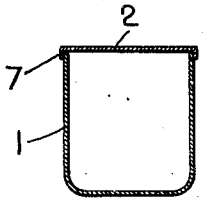
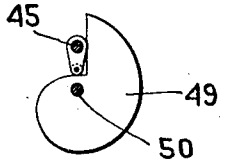


Fig. 5.



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2 SHEETS—SHEET 2.

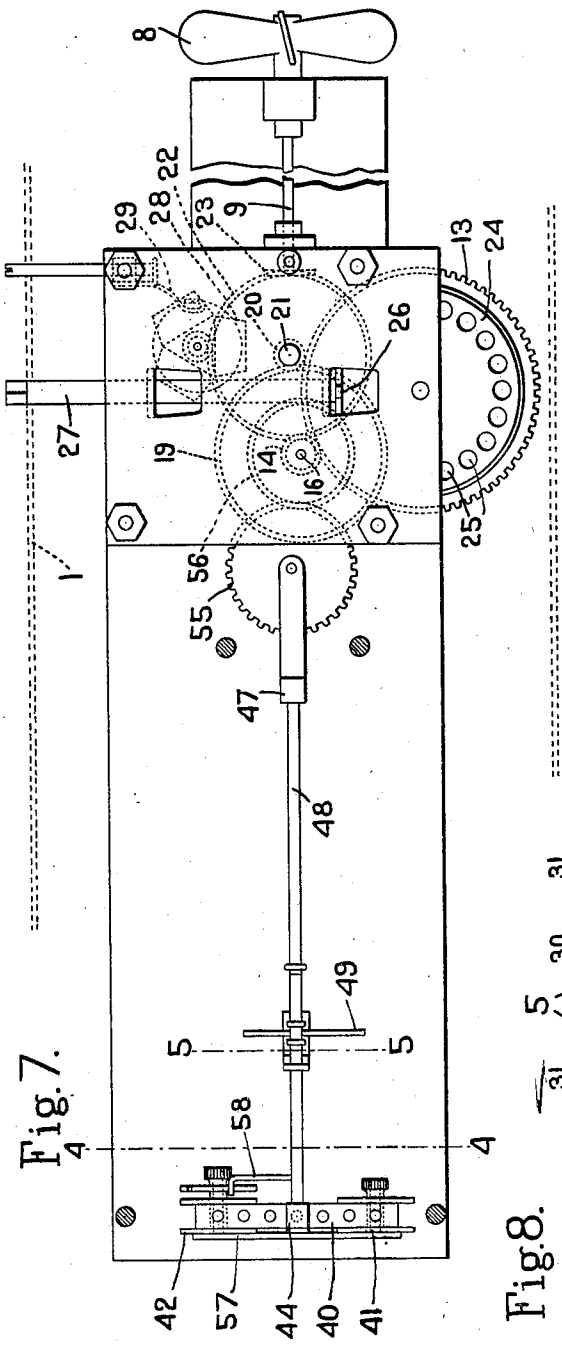


Fig. 7.

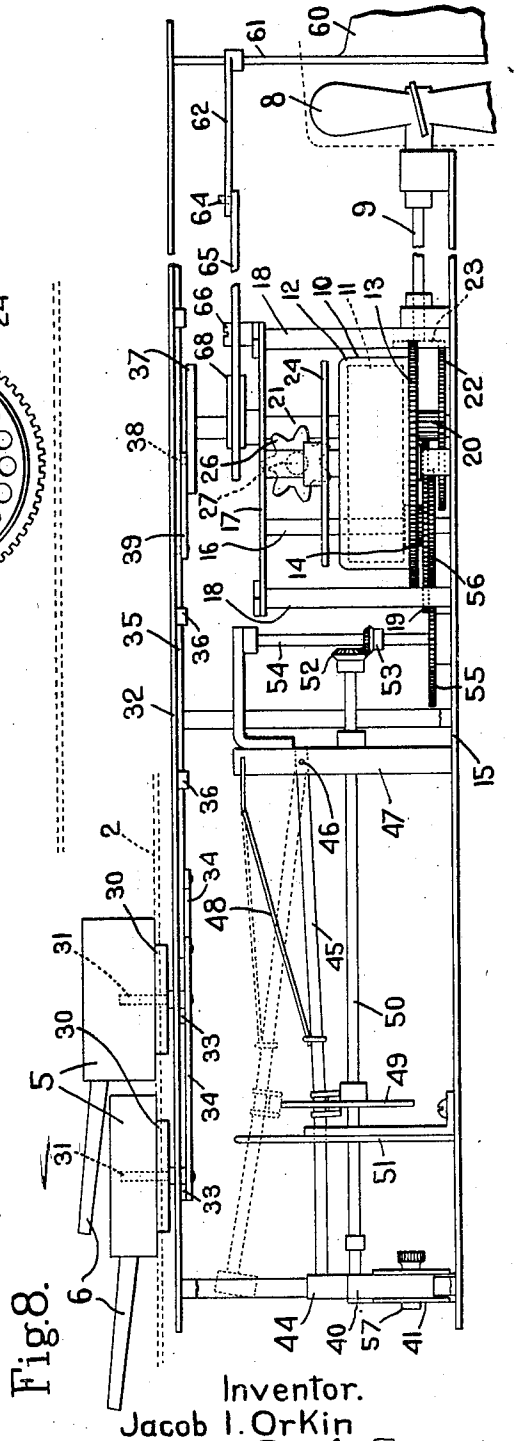


Fig. 8.

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UNITED STATES PATENT OFFICE.

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TOY.

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To all whom it may concern:

Be it known that I, JACOB I. ORKIN, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Toys, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to self-propelled toys in the form of toy boats, and has for its object to provide a toy boat which is constructed to simulate a battleship and which is arranged so that as it propels itself through the water the gun turrets will be moved from side to side, and a detonating noise will be produced in imitation of the firing of the guns.

Further objects of the invention are to provide a novel arrangement by which the boat will automatically steer itself and also to provide other novel features, all as will be more fully hereinafter set forth.

In order to give an understanding of my invention, I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claims.

In the drawings, Figure 1 is a side view of a boat embodying my invention;

Fig. 2 is a bottom plan view of the mechanism for turning the gun turrets automatically;

Fig. 3 is a detail of the automatic steering device;

Fig. 4 is a section on the line 4—4, Fig. 7;

Fig. 5 is a section on the line 5—5, Fig. 7;

Fig. 6 is a section on the line 6—6, Fig. 1;

Fig. 7 is a plan view of the mechanism for operating the boat;

Fig. 8 is a side view of Fig. 7.

In the drawings 1 indicates the hull of a boat and 2 the deck thereof. While the boat may have various shapes without departing from my invention, I have illustrated in the drawings a boat which simulates a battleship, it having on the deck the usual open-work masts 3 which may be used for observation posts and to support the wireless apparatus and also having the smoke stacks 4. 5 indicate gun turrets, each of which may be provided with one or more guns 6.

The hull 1 is preferably made hollow and the deck 2 is removable from the hull, said deck being provided at its edge with a downturned flange 7 which fits over the upper edge of the hull, as shown in Fig. 6, thus permitting the deck with its superstructures to be bodily removed from the hull.

The boat is propelled by means of a propeller 8 which is carried by a propeller shaft 9, and this shaft is operated from a spring motor indicated generally at 10 and mounted on a suitable base plate 15. This spring motor may have any suitable or usual construction, and it comprises a main spring 11 confined in a spring barrel 12, one end of the spring being connected to said barrel and the other end to a gear 13. The gear 13 is connected to the propeller shaft 9 through a suitable train of gears which is herein illustrated as comprising a pinion 14 fast on a shaft 16 journaled at one end in the base 15 and at the other end in a plate 17 that is connected to the base by means of posts 18, a gear 19 fast on the shaft 16 and which meshes with a pinion 20 fast on a main shaft 21 that is also journaled in the base 15 and plate 17, and a gear 22 fast on the shaft 21 which meshes with the crown gear 23 on the propeller shaft 9.

The spring drum 12 has a winding plate 24 rigid therewith which is provided with openings 25 to receive the teeth 26 of a wheel fast on a winding shaft 27. The spring is wound by applying a key to the shaft 27 and rotating the spring barrel, as usual in spring motors of this type. The base 15 and the operating mechanism carried thereby are placed inside of the hull 1 and the winding shaft 27 will preferably extend through the side of the hull where it is accessible, as indicated in Fig. 7, the sides of the hull being shown in dotted lines in said figure. The speed at which the spring will unwind is controlled by a governor 28, as usual in spring motors of this type, and the motor is held from rotation by means of the usual stop device 29 which cooperates with the governor, said stop device being constructed so that when it is in its operative position it will prevent the governor from rotating, and when in its inoperative position will allow the governor to rotate. This is the usual controlling device for spring motors and forms no part of my present invention and hence is not illustrated more in detail.

One of the features of my invention relates to novel means for automatically turn-

ing the turrets 5 from one side to the other as the vessel is propelled. Each turret is provided at its lower end with a hub 30 which extends through and is journaled in an opening in the deck 2, and each turret is frictionally held on a vertically-extending pin 31 which is journaled in a plate 32 that is secured inside of the hull 1. Each of the pins 31 has an arm 33 extending laterally therefrom, and each arm is connected by a link 34 to a slide 35 that is slidably mounted on the plate 32 and is held in position by suitable guides 36. The slide is connected to the main shaft 21 so that the rotation of the shaft will move the slide 35 back and forth, such movement operating through the links 34 and arms 33 to oscillate the pins 31 thereby oscillating the turrets 5.

For connecting the slide 35 to the main shaft 21, the latter has fast thereon at its upper end a crank disk 37 provided with a crank pin 38, said pin being connected to the slide 35 by a link or connecting rod 39.

I have also provided novel means for producing a series of detonations as the turrets are oscillated. This is produced by exploding fulminate patches formed on a strip 40. This strip 40 is shown as carried by two reels 41 and 42 and as passing over an anvil 43 in its travel from one reel to the other. The reel 42 is intermittently rotated so that the strip 40 will be fed forward with a step-by-step movement, each step bringing a fresh fulminate patch onto the anvil 43. The patches are exploded by a hammer 44 which is carried at the end of an arm 45 pivoted at 46 to an upright 47 rising from the base 15. The hammer is acted upon by a cam which raises it into the dotted line position Fig. 8, and then releases it, and it is also acted on by a spring 48 which moves it down against the anvil with a hammer-like blow. The cam for elevating the hammer is shown at 49, and it is fast on a shaft 50 which is journaled in the upright 47 and in another bearing member 51 and is actuated from the spring motor by some suitable means. In the construction shown, the shaft 50 is provided with a bevel gear 52 which meshes with a bevel gear 53 carried by a vertical shaft 54, said shaft having fast thereon at its lower end a gear 55 which meshes with and is driven by a gear 56 fast on the shaft 16. The reels 41 and 42 are journaled in the bracket 57 which supports the anvil 43 and the reel 42 is intermittently fed forwardly by means of a finger 58 which extends laterally from the shaft 50 and is adapted to engage notches 59 formed in said reel 42. The shaft rotates in the direction of the arrow, Fig. 4, and at each rotation thereof the finger 58 will enter one of the notches 59 and feed the reel 42 forward one step. A fresh fulminate patch will thus be brought onto the anvil at each rotation of the shaft 50.

The boat is provided with a rudder 60 by which it may be steered, and the mechanism herein shown is constructed so that the rudder will be oscillated from one side to the other automatically, thus causing the boat to travel in a zig-zag course. The rudder 60 is carried by a shaft 61 as usual in boats, and said shaft has an arm 62 fast thereon which extends forwardly therefrom. This arm is provided at its forward end with a fork 63 which embraces a pin 64 on the end of a lever 65 that is pivoted at 66 to the plate 17. This lever is provided with a forked end 67, the arms of which embrace a cam 68 fast on the shaft 21. The rotation of the shaft 21, therefore, will vibrate the lever 65, thus oscillating the rudder, as shown by dotted line positions Fig. 3.

I claim:

1. In a toy, the combination with a body, of automatic means for propelling the body, a plurality of gun turrets carried by said body and mounted to swing about vertical axes, and means actuated by the propelling means to give the gun turrets a to-and-fro oscillating movement in unison.

2. In a toy, the combination with a body, of a motor on said body for propelling the same, a gun turret mounted on the body to swing about a vertical axis, a crank disk, connections between the crank disk and turret by which rotation of the crank disk oscillates the turret, and means to rotate said crank disk from the motor.

3. In a toy, the combination with a body, of a propeller therefor, a motor to actuate said propeller, a plurality of gun turrets mounted on said body to swing about vertical axes, a crank disk, connections between said crank disk and said turrets by which rotation of the crank disk oscillates the turrets in unison, and means actuated by the motor to rotate the crank disk.

4. In a toy, the combination with a body, of a motor to propel the body, two reels at the front of the body for carrying a strip having fulminate patches, said strip extending transversely of the body, an anvil situated between the reels over which the strip passes, a pivoted arm extending longitudinally of the body, a hammer carried by said arm and coöperating with said anvil, a shaft also extending longitudinally of the body parallel to the hammer arm, means for driving said shaft from the motor, a cam on the shaft for actuating the hammer, and means to rotate one of the reels from said shaft.

5. In a toy, the combination with a body, of a motor for propelling the body, two reels carrying a strip having fulminate patches, a notched disk connected to one of said reels, an anvil over which said strip passes, a pivotally-mounted hammer, a shaft extending longitudinally of the body and connected to

the motor, a cam on said shaft for actuating the hammer, and an arm extending from said shaft and coöperating with said notched disk to rotate the reels.

6. In a toy, the combination with a boat-like body, of a rotary propeller therefor, a motor for actuating the propeller, a rudder, an arm rigid therewith, a forked lever connected to said arm, a cam operating between the arms of the fork of said lever, and means to actuate said cam from said motor.

In testimony whereof, I have signed my name to this specification.

JACOB I. ORKIN.