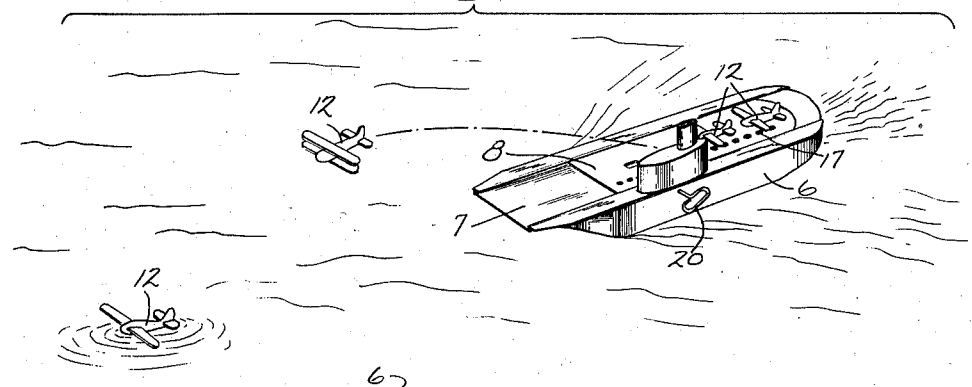
July 14, 1942. R. R. FAST 2,289,702

TOY PROJECTILE-LAUNCHING VEHICLE

Filed March 15, 1940

Fig. 1.



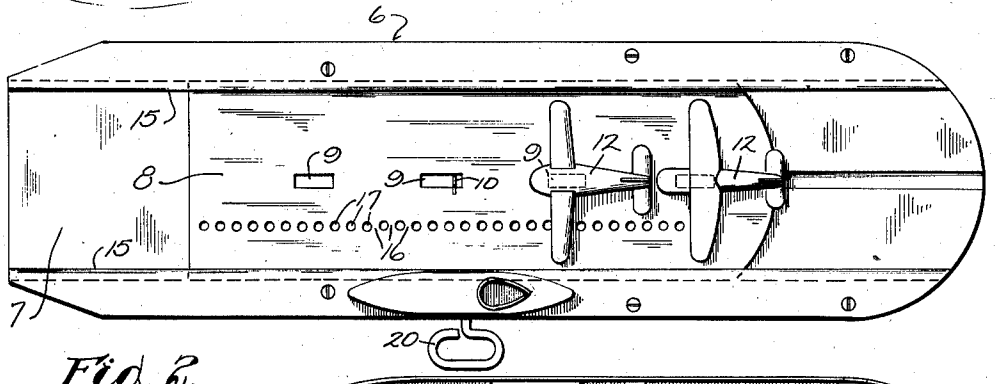


Fig. 2.

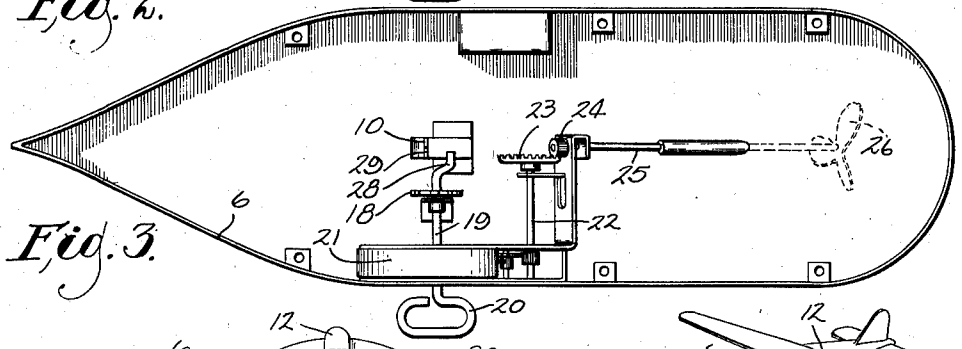


Fig. 3.

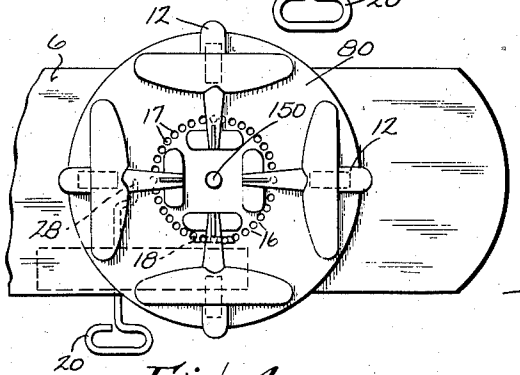


Fig. 4.

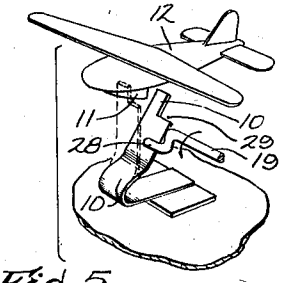


Fig. 5.

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Patented July 14, 1942

2,289,702

UNITED STATES PATENT OFFICE

2,289,702

TOY PROJECTILE-LAUNCHING VEHICLE

Robert R. Fast, Milwaukee, Wis.

Application March 15, 1940, Serial No. 324,073

11 Claims. (Cl. 46—93)

This invention relates to improvements in toy projectile-launching vehicles.

It is the primary object of the invention to provide a toy vehicle, preferably self-propelled, with means for automatically launching or catapulting a series of projectiles or the like. In the preferred embodiment herein disclosed by way of exemplifying the invention, the vehicle is an airplane carrier and the projectiles are miniature airplanes which are launched or catapulted into the air successively during the operation of the carrier vehicle.

It is a further object and important object of the invention to provide means whereby such a device as that above indicated may be made at modest cost and with the greatest simplicity whereby it will withstand hard usage without damage.

Other objects will be apparent to those skilled in the art upon scrutiny of the following disclosure of the invention.

In the drawing:

Fig. 1 is a view in perspective showing my improved toy in use.

Fig. 2 is an enlarged plan view of the toy exemplifying the invention.

Fig. 3 is a plan view of the toy with the deck and super structure removed.

Fig. 4 is a fragmentary plan view of a modified embodiment of the invention.

Fig. 5 is a fragmentary detail view in perspective diagrammatically illustrating the catapulting mechanism.

Like parts are identified by the same reference characters throughout the several views.

While my invention is applicable to a variety of vehicles, such as automobiles, tanks, bombing planes, airplane carriers and submarines and to a variety of projectiles, such as machine gun bullets, tank gun shells, bombs, airplanes and torpedoes, I have chosen an airplane carrier and its airplanes to exemplify the invention, this being one of the most attractive embodiments. The particular airplane carrier herein illustrated is a boat actually adapted to be operated in the water. It will, of course, be understood, however, that, as is frequently done with such toys, the boat may be made up for use on a dry surface and may either be provided with wheels or endless treads for self-propulsion or may merely have a flat bottom to be pulled across the floor.

In the preferred form of my invention, the boat hull **6** is made to float in the water. It is provided with a deck **7** on which there is a moving slide **8** or a rotary turntable **80** which, in either case, serves as a carrier to feed successive projectiles to the catapulting or projecting device.

The slide **8** has a series of slots **9** in its surface through which the catapult spring **10** finds access to lugs **11** on the under surfaces of the projectiles **12** which, for the purposes of the present disclosure, comprise miniature airplanes. The lugs **11** are preferably ballasted so that the catapult spring **10** strikes the projectile close to its center of mass to increase the realistic effect of flight.

The slidable deck section or carrier **8** shown in Fig. 1 and Fig. 2 is guided for reciprocation longitudinally of hull **6** by means of overhanging flanges **15**. The slide has teeth at **16** comprising narrow strips of metal intervening between the punched apertures **17** which receive the teeth of a propelling gear **18** mounted on the shaft **19** of the winding key **20** for the spring motor **21**. This motor is connected through its gear train with a driven shaft **22** provided with a crown gear **23** in mesh with pinion **24** to turn the propeller shaft **25** and the propeller **26** which, for the purposes of this disclosure, exemplifies any means for the self-propulsion of the vehicle.

As the spring motor turns the propeller, the key shaft turns in an unwinding direction and the gear **18** transmits motion from the key shaft to the slide **8** to cause the slide to move forwardly upon the deck of the toy vessel. This brings each successive projectile or miniature plane **12** into registry with the catapult spring **10**.

As the key shaft **19** turns in an unwinding direction (counter clockwise, as viewed in Fig. 5), its crank **28** moves over the notched portion **29** of the catapult spring **10** and engages the spring at a point below the notch to flex it rearwardly and thereby to store up energy in the spring. At a predetermined point in the rotation of the crank **28**, the crank **28** will again move through the notch at **29**, thus suddenly releasing the spring and the release if the spring is so timed to the advance of the slide that when the spring is released the advancing slide will present in the path of the spring the lug **11** of the next projectile **12**, whereby the spring, engaging the lug **11** of said projectile, will catapult it upwardly and forwardly into space as indicated in Fig. 1.

The arrangement shown in Fig. 4 is identical in principle of operation except that in this device the carrier **80** is a disk pivoted to the deck at **150** and rotated to bring successive projectiles into registry with the catapult.

It will be obvious that any type of projectile

might be simulated and an appropriate type of vehicle for that projectile might be provided with means along the lines of that herein disclosed for launching or catapulting the appropriate projectile in the course of vehicle advance. The particular driving connections and the particular catapulting spring herein disclosed represents the simplest and least expensive construction I have devised for the purpose, but I do not regard the invention as being limited to these specific structures.

I claim:

1. The combination with a vehicle and a launching device, of means for operating the launching device at intervals in the course of movement of the vehicle, a carrier movable with respect to the launching device, and means for moving the carrier to present a plurality of projectiles successively to the launching device in synchronism with the operation of the launching device to be launched thereby as the vehicle advances.

2. The combination with a vehicle, of self-propelling means therefor, a catapult mounted on the vehicle, a projectile carrier, and mechanism for driving the carrier from said vehicle propelling means in synchronism with the operation of said catapult device, said carrier constituting means for advancing successive projectiles into operative relation to said catapult device to be catapulted thereby from said vehicle in the course of vehicle advance.

3. The combination with a vehicle having propulsion means and a spring motor provided with a winding shaft, of a projection spring, means connected for operation in synchronism with the winding shaft for repeatedly flexing and releasing said spring, a projectile carrier movable with respect to said vehicle and adapted to present a series of successive projectiles to said spring to be projected thereby, and means operable in accordance with the motion of said winding shaft for actuating said carrier to advance successive projectiles into the path of said spring in synchronism with the release of said spring in a projecting direction.

4. In a device of the character described, the combination with a boat hull and propelling means therefor, of a carrier provided with means mounting it for movement with respect to said boat hull, said carrier being adapted to deliver successive miniature airplanes to a predetermined point on said hull, a catapult spring mounted in said hull at said point, means operable in the course of movement of said hull for repeatedly flexing and releasing said spring, and driving connections between said spring flexing means and said carrier for moving successive projectiles on said carrier to said point in synchronism with the release of said spring whereby said projectiles will successively be launched by said catapult spring during the forward movement of said hull.

5. A device of the character described comprising the combination with a boat hull having a guideway, of a slide reciprocable longitudinally in said guideway, said slide being provided with notches adapted to receive lug portions of projectiles mounted in a series on said slide, a catapult spring within said hull beneath said slide in the path of movement of projectiles carried by the slide, self-propelling mechanism for said hull comprising a spring motor having a winding shaft, means on said winding shaft for successively flexing and releasing said spring, and means on said winding shaft comprising a gear meshing with said slide for the advance of said slide in synchronism with the flexing and release of said spring to bring the lug portions of successive projectiles into position in advance of said spring in timed relation to the release thereof, whereby said projectiles are successively launched by said spring in the advance of said hull.

6. In a device of the character described, the combination with a vehicle, of a carrier pivoted to rotate with respect to the vehicle, said carrier being provided with means for supporting a series of projectiles and said vehicle having a catapult with which successive projectiles are adapted to register in the rotation of said turntable, together with common means for actuating said catapult and said turntable in synchronism whereby said catapult launches successive projectiles registered therewith in the rotation of the turntable.

7. The combination with a vehicle, of a carrier provided with means mounting it for movement with respect to the vehicle, a catapult spring disposed in the path of carrier advance, and means for synchronously operating said carrier and catapult spring, said spring operating means comprising mechanism for alternately flexing and releasing said spring and said carrier comprising supports for a plurality of successive projectiles so disposed on said carrier as to register successively with said spring upon the release thereof, whereby to be launched from said vehicle.

8. A device of the character described comprising the combination with a boat hull and a carrier slide provided with means guiding it for reciprocation on the deck of said hull and provided with a series of apertures adapted to receive the lug portions of successive projectiles, of a catapult spring disposed in the path of advance of said carrier slide to register with successive apertures of the slide, means for periodically flexing and releasing said catapult spring, and means for the synchronous advance of said slide in timed relation to said spring flexing and releasing means whereby a projectile lug is brought by said slide into registry with said spring to receive the impact thereof upon the release of the spring whereby to launch successive projectiles.

9. In a toy of the character described, the combination with an air plane carrier hull provided with a slidable deck portion, said deck portion having successive apertures, of a series of miniature airplane projectiles mounted on said slidable deck portion and having lug portions projecting through the successive apertures therein, a catapult spring having one end anchored within the hull and a free end portion movable beneath said slide into engagement with the lugs of successive airplane projectiles registered therewith in the advance of the slide and synchronized means for advancing the slide and for alternately flexing and releasing the free end of said spring as the lug portions of successive airplane projectiles are brought into registry with the spring whereby to launch said miniature airplane projectiles successively as the slide advances.

10. In a device of the character described, the combination with a vehicle, of a catapult mounted thereon and comprising a spring and a shaft provided with a crank movable against a face of the spring and over an end portion thereof,

whereby alternately to flex and release said spring, and means for delivering articles across the path of the catapult to be projected thereby upon the release of the spring, together with driving mechanism operatively connected for movement in vehicle operation and provided with connections for the synchronous operation of said shaft and said article delivering means, whereby said catapult is operative to project articles successively delivered thereto in the course of vehicle movement.

11. In a device of the character described, the combination with a vehicle, of a catapult comprising a spring having a notch and provided with a mounting on the vehicle for one end of said spring, the other end of the spring being free, in combination with means mounted on the vehicle comprising a crank movable against the face of the spring for the flexing of the free end thereof, said notch being positioned to permit said crank to slip through the notch when the spring is flexed, whereby to release the free end of the spring for catapulting action, means carried by the vehicle for delivering an article across the path of the free end of the spring in synchronism with the release thereof, whereby said article may be projected into space from the vehicle by the spring, and driving mechanism operative in the movement of the vehicle and operatively connected with said crank and said article delivering means for delivering successive articles to the spring and projecting successive articles from the vehicle in the course of vehicle movement.

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