Sept. 27, 1932. F. T. MACKLIN 1,879,986

TOY GLIDER AND RUNWAY

Filed Aug. 28, 1931

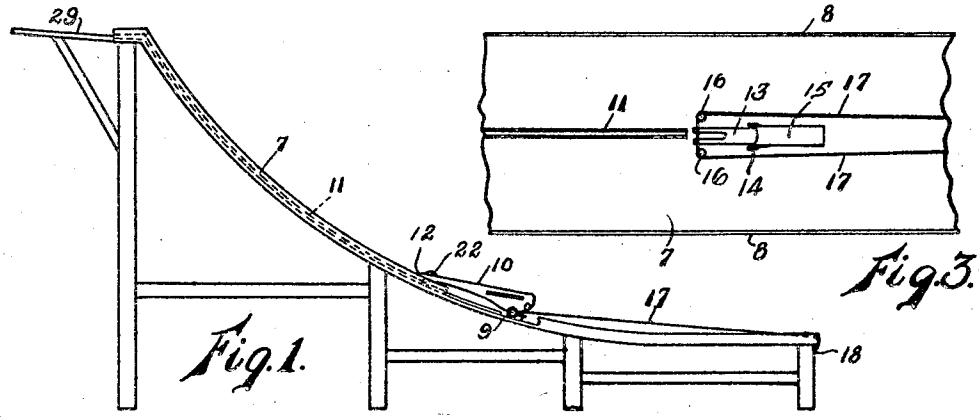



Fig. 1.




Fig. 3.

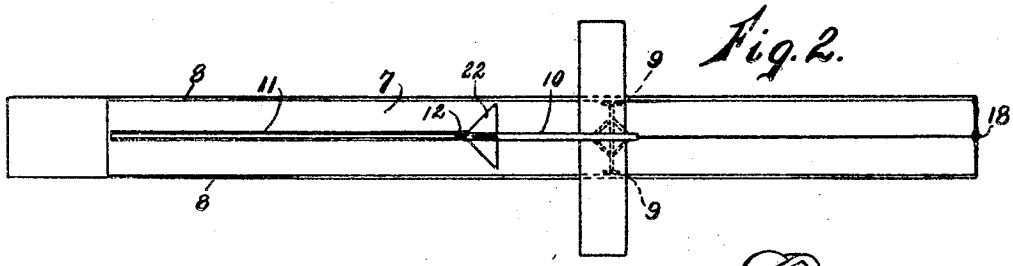



Fig. 2.

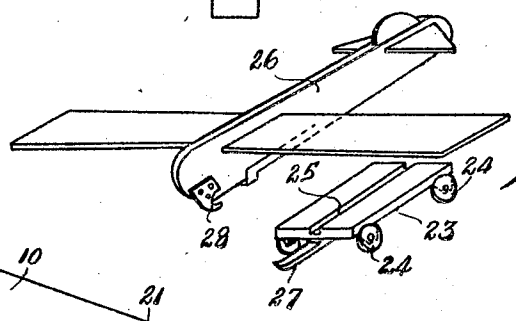



Fig. 5.

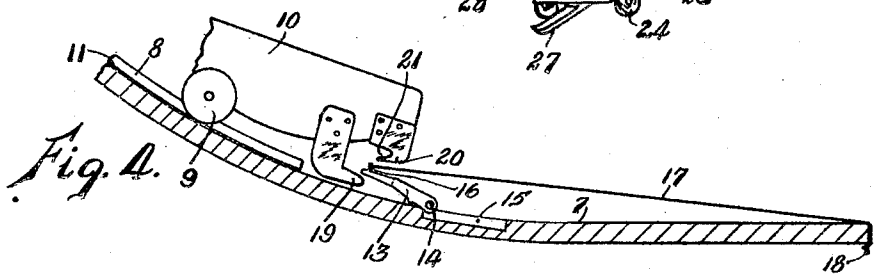



Fig. 4.

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# UNITED STATES PATENT OFFICE

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## TOY GLIDER AND RUNWAY

Application filed August 28, 1931. Serial No. 559,894.

This invention relates to a toy glider and launching runway therefor, and has for its object the provision of a simple mechanism whereby a glider is launched under a power source which is inexpensive and easy to manipulate.

Another object is to provide a fascinating amusement for children.

These and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

Fig. 1 is a side elevational view of a device of the invention with the glider in position to engage and be catapulted by the power means.

Fig. 2 is a top plan view of the device.

Fig. 3 is an enlarged top plan view of the device showing the release mechanism and power means.

Fig. 4 is an enlarged side elevational view of the glider just prior to tripping and release of the power means, parts being shown in cross section.

Fig. 5 is a perspective view of a modified form of glider and a coasting vehicle for carrying it to the catapult.

The device of the invention comprises essentially a curved and inclined plane 7 provided at its opposite sides with guide rails 8 for directing the wheels 9 on the glider 10. The center of the runway 7 may also be provided with a groove 11 in which the tail 12 of the glider may ride. If desired, the tail may carry a single wheel to ride in groove 11. The grove 11 terminates at a distance from the end of the runway 7, but preferably closely adjacent the lowest point thereof so that the glider may be moving at its maximum velocity when it reaches the end of the groove 11 and is about to engage the trip and power means. The trip and power means consist essentially in a fork 13 hinged as at 14 and adapted, when thrown into an inoperative position to rest in a depression 15 in the runway 7. On each side of the fork 13 is disposed a pin 16. With the fork 13 pointing toward the top of the runway, a rubber band 17 hooked as at 18 on the extreme end of the runway is stretched and hooked over the tops of pins 16. The fork extends slightly beyond the pins so that when the fork is pushed forwardly about its pivotal mounting it will disengage the rubber band from the pins and throw it slightly upwardly. The glider 10 in the embodiment shown in Figs. 1 to 4 inclusive carries a forwardly projecting finger 19 which rides close enough to the runway 7 to engage beneath the fork to throw the fork or trip about said pivotal mounting whereby to disengage the power band 17 from pins 16 when the glider coasts down the inclined runway. The glider also carries a rearwardly extending hook 20 which is slightly above and forward of the highest point on the pin 16 so that as the fork or trip 13 is thrown, the band will be released and will hook into the notch 21 of the hook member 20. When the band is released and engaged on the hook it will violently catapult the glider over the remainder of the runway and this action serves to give a final direction to the course of the glider. By providing the glider 10 with an adjustable tail 22 it is possible to cause the glider to travel in a relatively straight-away, ascending, or loop flight.

In a modified form of the device the runway 7 may be employed and the central groove 11 omitted if desired. A car or vehicle 23 is provided with pairs of front and rear wheels 24 to be guided by tracks 8 and this car coasts down the inclined runway in the same manner as the glider of the previously described embodiment. The car has a groove 25 in which glider 26 lightly rests for transportation down the inclined runway. The finger 27 (corresponding to finger 19) in this embodiment is mounted on the car while the hook 28 (corresponding to hook 20) is mounted in substantially the same position as in the foregoing described embodiment. With a relatively light wooden glider and an ordinary rubber band stretched to a somewhat high tension it is possible to launch the glider automatically by merely pushing it over the end of a suitable platform 29 at the top of the runway 7.

In operation the child would place the glider 10 (or the car 23 with glider 26 positioned therein) upon the platform 29 at the

top of the runway. Then the trigger or fork 13 would be pushed forwardly and allowed to drop in between pins 16. The finger is so formed that the forward end thereof is spaced from the floor of the runway when in forward position. The rubber band 7 is then stretched and hooked across the two pins, whereupon the device is ready for action. In releasing the device for action the glider (or car and glider) is pushed forwardly off platform 29, whereupon it will ride down incline 7 under the force of gravity until the finger 19 (or 27) strikes trigger or fork 13 and throws the trigger forwardly and disengages the elastic band from the pins. The loop of the band, whereupon being freed from the pins tends to forthwith contract to its shortest possible condition and in doing so slides into notch 21 on hook 20 and carries the plane with it. When the band has approached the end of its contracting activity the glider has gained sufficient momentum to travel on in its flight while the band drops entirely clear of it. It will be appreciated that the gliders may be very cheaply and lightly constructed and that the number of gliders may be provided so that a child may release them successively before recovering the fallen gliders.

What is claimed is:

1. In a child's toy the combination with an inclined runway, of a glider adapted for gravitational movement down the runway and means comprising an elastic loop under tension, a holding means therefor, a trigger on the runway for releasing the elastic means from the holding means and a finger and hook on the glider for automatically releasing the glider to the action of the elastic loop.

2. In a device of the class described an inclined runway structure, a glider for tractional movement over the runway, an elastic loop, spaced means for holding the loop under tension over a portion of the runway, and means comprising a finger on the glider and a hinged trigger on the runway for releasing the elastic loop from the holding means and connecting it with the glider for submitting the glider to the catapulting action of the released elastic loop.

3. In a glider launching toy the combination with an inclined runway, of an elastic loop member adapted to be tensioned in the path of the glider, spaced holding means for the loop, a hinged trigger adapted to be disposed beneath the loop and between the holding means and means on the glider comprising a finger for tripping the trigger to release the elastic loop and a hook on the glider for receiving the elastic loop as it leaves the holding means.

4. In a device of the class described the combination of an arcuate inclined runway, wheel guides at the opposite sides of the runway, a central guide groove on the runway, a tractionally supported glider comprising wheels to be guided by said wheel guides and means on the runway adapted to be released by impact of the glider on its tractional movement down the runway for projecting the glider into aerial flight.

5. In combination an inclined runway, a tractionally supported glider, means on the runway to guide the glider thereover, an elastic loop member, holding means on the runway to hold the loop under tension and cooperating means on the runway and glider for releasing the elastic loop from the holding means and engaging the loop on the glider whereby the glider is launched into aerial flight under the action of the elastic loop.

6. In a toy of the class described the combination with an inclined runway, of a glider, and means whereby the glider may be caused to tractionally coast down the runway, a rearwardly extending hook at the front of the glider, a tension member, means for holding the tension member under stress in the path of the glider, means for releasing the tension member from the holding means and means movable with the glider for actuating the last mentioned means whereby the tension means, upon release from the holding means engages the hook on the glider for launching the glider into the air.

7. In a device of the class described the combination with an inclined runway, of a tractionally supported member for coasting down said runway a glider adapted to be carried by said tractionally supported member, tension means carried by the runway and adapted to be released through the agency of the tractionally supported member and a hook member on the glider receiving the tension member upon its release for launching the glider into the air.

In testimony whereof, I have hereunto subscribed my name this 25th day of August, 1931.

FREDERICK T. MACKLIN.