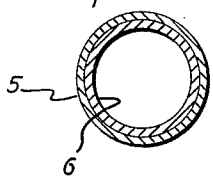
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TOY ROCKET

Filed April 18, 1945

Fig. 4



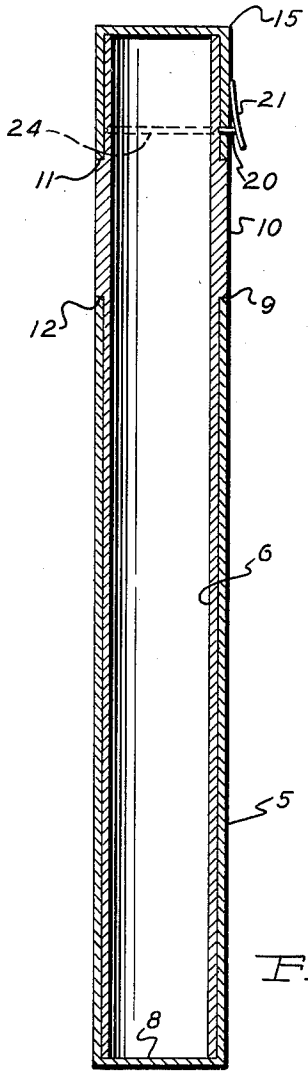


Fig. 1

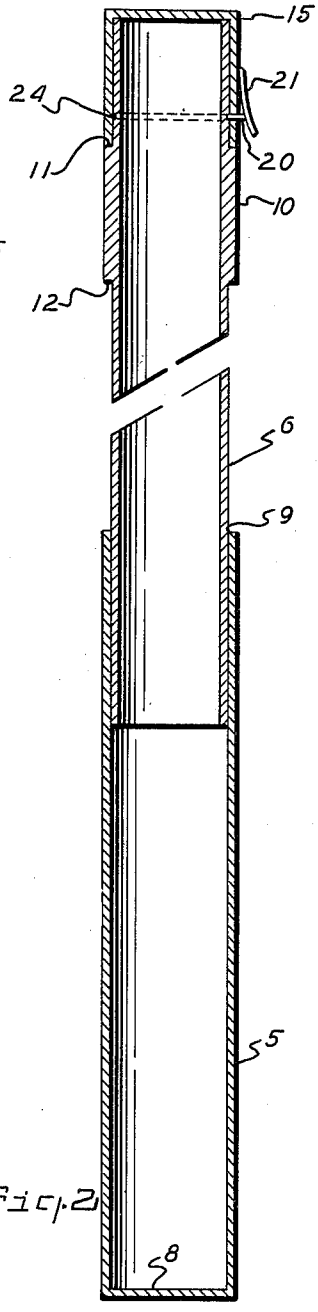


Fig. 2

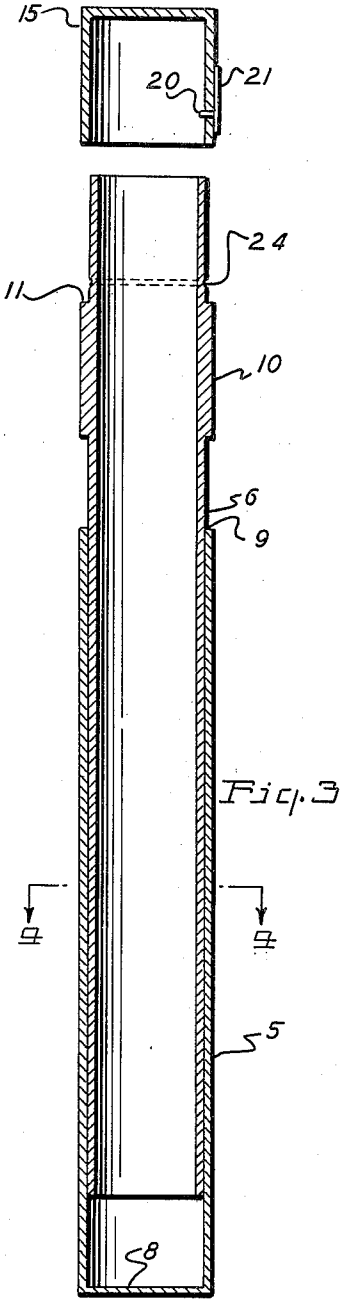


Fig. 3

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TOY ROCKET

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Los Angeles, Calif.

Application April 18, 1945, Serial No. 588,982

2 Claims. (Cl. 124—11)

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Our present invention has to do with toy rockets, having as an object the provision of a rocket propelled by air pressure generated by telescoping one tube within another.

Another object of the invention is the provision of a toy which may be economically made and simply as well as safely operated to provide considerable amusement and entertainment.

More specifically it is an object of the invention to provide a rocket consisting of two telescopically associated tubes, the innermost of which has a detachable end cap which functions as the rocket, and is open at its other end.

Another more specific object is the provision of yieldable detent means to retain the cap in position on the tube until a proper operating pressure is generated in the tubes so that the rocket-like cap is propelled with considerable force and with a sound somewhat similar to an explosion.

We shall now describe one of the presently preferred embodiments of our invention, although it will be understood that within the scope of the appended claims, the invention is susceptible of being embodied in other physical forms differing specifically from the structure now to be described.

For purposes of the following description we shall refer to the accompanying drawings, in which:

Fig. 1 is a longitudinal section showing the tubes fully telescoped;

Fig. 2 is a view similar to Fig. 1 but showing the inner tube partially withdrawn from the outer tube;

Fig. 3 is a view similar to Figs. 1 and 2 but showing the tubes in course of being telescoped and the cap being propelled from the innermost tube; and

Fig. 4 is a section on line 4—4 of Fig. 3.

Referring now to the drawings, we show two telescopically associated tubes 5 and 6, the innermost tube 6 being relatively loosely mounted in the outer tube 5 so that air may pass inwardly therebetween when the inner tube is in course of being withdrawn from the outer tube and so that the inner tube may be pushed relatively rapidly inwardly of the outer tube. Tube 5 is closed at its bottom end by an end wall 8, being open at its top end 9.

Inner tube 6 has an annular flange 10 adjacent but spaced from its top end, which provides an upwardly facing annular shoulder 11 and a downwardly facing annular shoulder 12.

A removable cap 15 frictionally fits over the

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top end of tube 6, to seal said end against escape of air pressure, the bottom edge of the cap fitting against shoulder 11. To retain the cap 15 in sealing relationship to the tube 6 until a predetermined pressure is built up in the tube, we provide a detent pin 20 urged inwardly through a hole in the cap side wall by a spring 21, the inner end of the pin being rounded and projecting into an annular groove 24 in the periphery of tube 6. In some cases the detent pin may be eliminated if a sufficiently tight friction fit of the cap on the tube is provided to maintain the cap in sealing relationship with the tube until a suitable predetermined pressure is reached.

Shoulder 12 acts as a stop, being adapted to abut the top end 9 of the tube 5 when the tubes are fully telescoped.

From the following description of operation of the device the function and cooperation of the parts will be more fully understood.

With the cap 15 mounted on tube 6, as shown in Figs. 1 and 2, the user grasps one of the tubes with one hand and grasps the other tube with the other hand, pulling them apart from the position of Fig. 1 to the position of Fig. 2, or to a distance depending upon the amount of pressure desired. During this initial separation of the tubes, air will be drawn into the tubes through the slight clearance provided by the loose fit of tube 6 in tube 5. Then by relatively rapidly moving the tubes together to telescope the inner tube 6 in the outer tube, a pressure will be developed in the tubes which, at a predetermined point, will suddenly force cap 15 from the end of tube 6, against the retaining pressure of the detent, with considerable force and with an explosive sound. For instance, we have found that, depending upon the speed at which the tubes are telescoped, it is possible to propel the cap a distance of at least twenty-five feet within a fraction of a second.

We claim:

1. A device of the class described comprising a pair of telescopically associated tubes, the outermost of which is closed at one end and the other of which is open at both ends, a cap detachably mounted on the outer end of the innermost tube, and means for retaining said cap in closing engagement with said tube, said means being yieldable to predetermined pressure generated by telescoping the tubes, and comprising an annular groove in the outer end portion of the innermost tube and a spring-loaded plunger slidably carried by the cap for engagement in said groove.

2. A device of the class described comprising

an outer tube and an inner tube member frictionally engageable telescopically in the outer end of the outer tube, the outer tube being closed at its inner end and open at its outer end, and the inner tube member being open at both ends, a closure member frictionally fitting the outer end of the inner tube member and means for releasably retaining the closure member on the outer end portion of the inner tube member, said latter means comprising an annular groove in one of the said members and a resilient projection carried by the other member for engagement in the groove.

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