

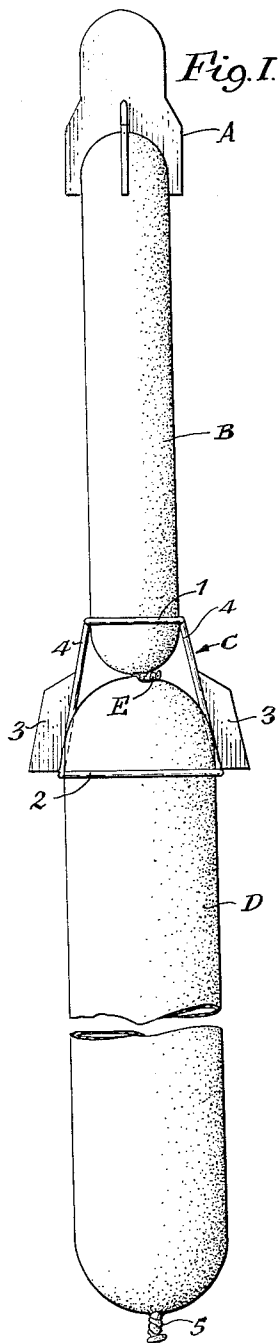
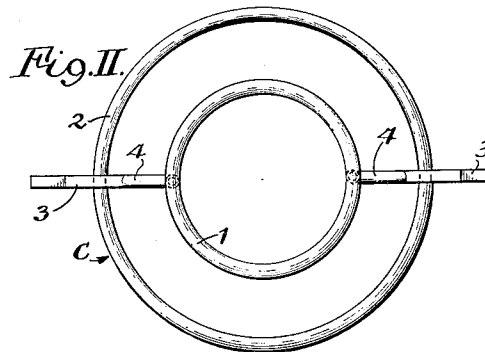
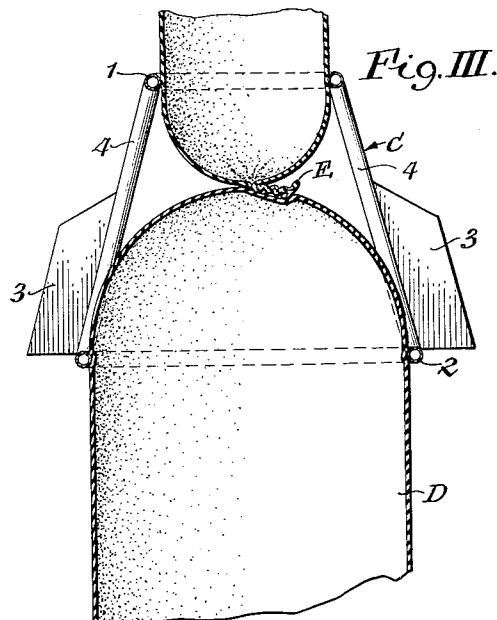
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CONNECTING FRAME FOR MULTI-STAGED INFLATED TOY ROCKET ASSEMBLY

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3,218,756

CONNECTING FRAME FOR MULTI-STAGED INFLATED TOY ROCKET ASSEMBLY

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6 Claims. (Cl. 46—89)

This invention relates to a device by which a second propellant stage may be added to an "Inflated Toy Rocket Assembly" which inflated toy rocket assembly is covered by application for patent dated January 21, 1964, Serial No. 339,160.

The first object of the present invention resides in the provision of two holding rings of different diameters, connected by two or more tubular shafts, which rings are securely held by said shafts, and in which rings sausage shaped propellant balloons are fitted and which device provides for successive and timely release of the first stage booster, its separation and subsequent release of propellant air from the second stage propellant balloon, and further flight.

The second object of the present invention resides in the provision of fins as part of the shafts connecting the holding rings, to stabilize the toy in flight.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein like numerals refer to like parts in all views of the drawing and throughout the description.

FIGURE I is a side elevation of my toy rocket assembly;

FIGURE II is an enlarged top plan view of the connecting frame shown in FIGURE I; and

FIGURE III is a partial cross section of the frame and adjacent parts of the two booster balloons, showing in detail the tubular construction of said frame, and the pre-launching position of the escape nozzle of the second stage booster balloon in relation to the frame and the first and second stage booster balloons.

In the embodiment of the invention shown in the accompanying drawing, D indicates a sausage shaped first stage booster balloon having a forward end of a diameter that fits snugly into ring 2 of a connecting frame C, which ring defines a jaw that is of slightly less diameter than said balloon when inflated for frictional engagement when the escape nozzle 5 is temporarily secured by any desired means to prevent air or gas leakage.

A second stage booster balloon B is provided which is of a smaller diameter than balloon D, and when balloon B is inflated its escape nozzle, or inflating neck E, is twisted to prevent escape of the air or gas. The nozzle E is then held by one finger and the rearward end of balloon B is wedged into ring or jaw 1, which is of slightly smaller diameter than balloon B. The finger is withdrawn and the pressure of the ends of the two balloons B and D in contact with and acting one against the other is sufficient to hold the nozzle E in its twisted position, thereby preventing the escape of the air or gas from balloon B.

The second stage balloon may be equipped with a capsule A as covered by application for patent, dated January 21, 1964, Serial No. 339,160.

The connecting frame C is elongate and its rings 1 and 2 form a pair of jaws which are held in spaced parallel

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relation by means of a pair of shafts 4, which shafts are provided with stabilizing fins 3. Preferably, the jaw rings 1 and 2 are of different diameters, as shown, so that the second stage balloon B may be of smaller inflated diameter than the first stage balloon D.

In operation, the release of the escape nozzle of the first stage booster balloon D by any desired means permits the air or gas to rush out causing the rocket assembly to rise. Stability is provided by the action imparted by the fins. When the propellant air within balloon D is exhausted the balloon shrinks, and drops out of the connecting frame C. The release of pressure by removal of the forward end of the balloon D from the twisted escape nozzle E allows nozzle E to open and the air within the booster balloon B to escape with a resultant continuation of flight. As the air of gas in balloon B escapes the diameter of balloon B reduces, allowing the connecting frame C to drop off. Finally, when all of the air or gas is exhausted from balloon B, separation of capsule A and balloon B occurs, completing the flight sequence.

I claim:

1. A toy rocket assembly comprising, in combination, a pair of inflatable balloons, a connecting frame for joining said balloons for sequential release of air therefrom, said connecting frame being elongate and having opposite end portions defining a pair of jaws, each balloon having forward and rear ends and having an inflating neck, at its rear end, one of said balloons being inflated and having its rear end frictionally engaged in one of said jaws, and the other balloon being inflated and having its forward end frictionally engaged in the other of said jaws with the forward end of said other balloon engaging the inflating neck at the rear end of said one balloon to prevent the escape of inflating gas from said one balloon while said balloons are so engaged.
2. The assembly as defined in claim 1 wherein said connecting frame includes a ring at each end forming said jaws and a pair of shafts joining said rings.
3. The assembly as defined in claim 2 wherein a fin is mounted on each shaft.
4. The assembly as defined in claim 2 wherein one of said rings is smaller than the other.
5. The assembly as defined in claim 4 wherein a fin is mounted on each shaft.
6. A toy rocket assembly comprising, in combination, a pair of inflated balloons, each having an inflating neck at its rear end, said balloons being disposed in aligned relation with the forward end of one balloon engaging the inflating neck at the rear end of the other balloon to prevent the escape of air from said other balloon while said balloons are so engaged, and a connecting frame having spaced jaw portions frictionally engaging the abutting ends of the balloons while such balloons are inflated.

References Cited by the Examiner

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