

[72] Inventor **Gerald C. Fels**  
**St. Louis, Mo.**  
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 [73] Assignee **Jay V. Zimmerman Company**  
**Clayton, Mo.**

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*Primary Examiner*—Louis G. Mancene

*Assistant Examiner*—D. L. Weinhold

*Attorney*—Ralph W. Kalish

[54] **ROCKET-SIMULATIVE TOY**  
**10 Claims, 8 Drawing Figs.**

[52] U.S. Cl..... 46/145

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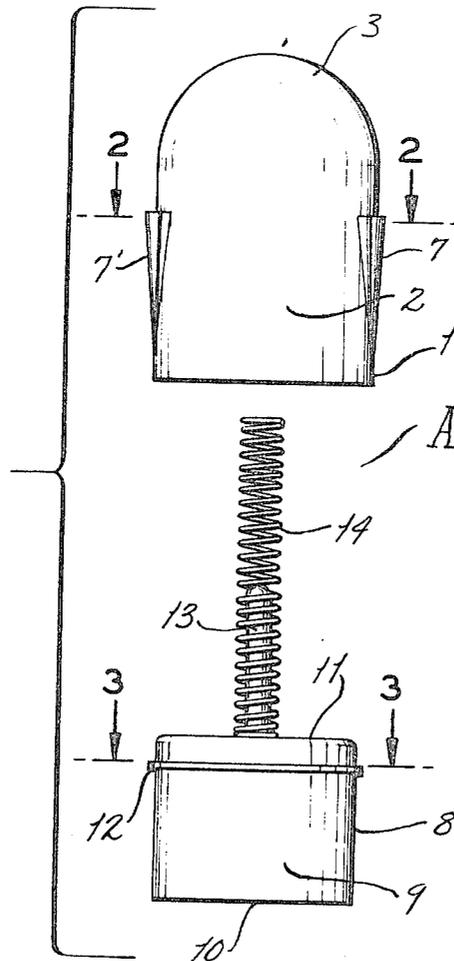
[50] Field of Search..... 46/145,  
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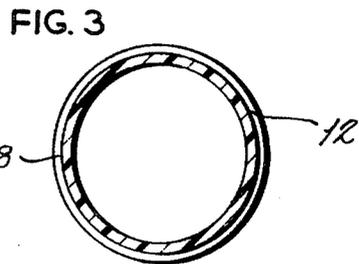
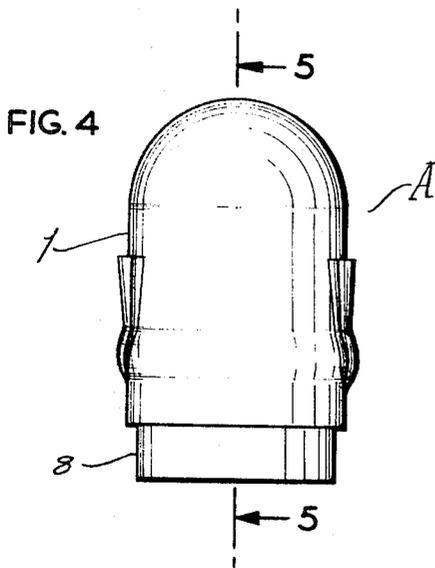
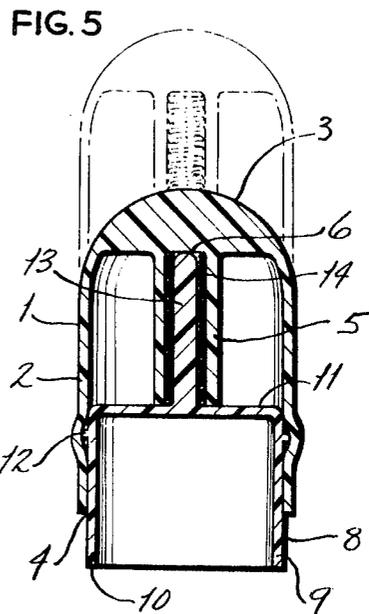
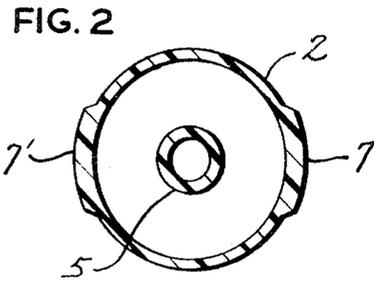
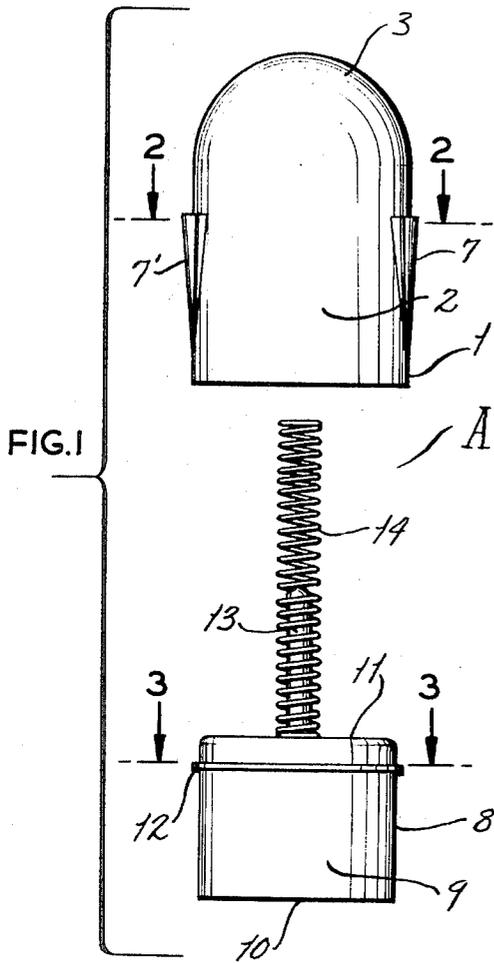
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**ABSTRACT:** A rocket-simulative toy comprising a projectile and a launching base member; there being spring means mounted on said base and engageable with said projectile for stressing by manual force applied on said projectile, the release of which permits said projectile to be propelled by un-stressing of said spring. The projectile and base incorporate mutually engageable, friction-producing means for limited impediment or time delay of spring release.





INVENTOR  
GERALD C. FELS  
BY *Ralph W. Kalish*  
ATTORNEY

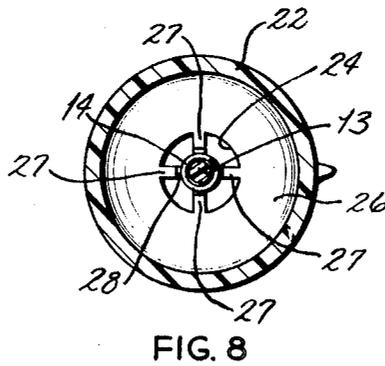
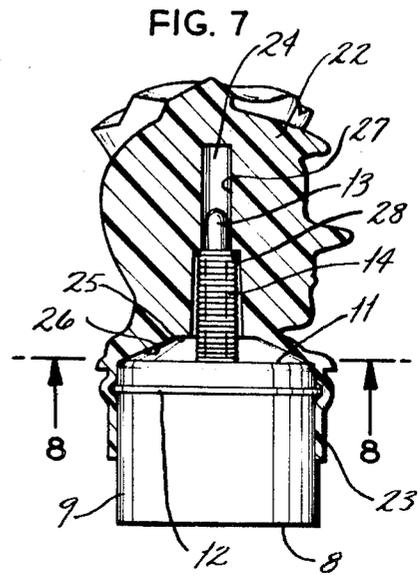
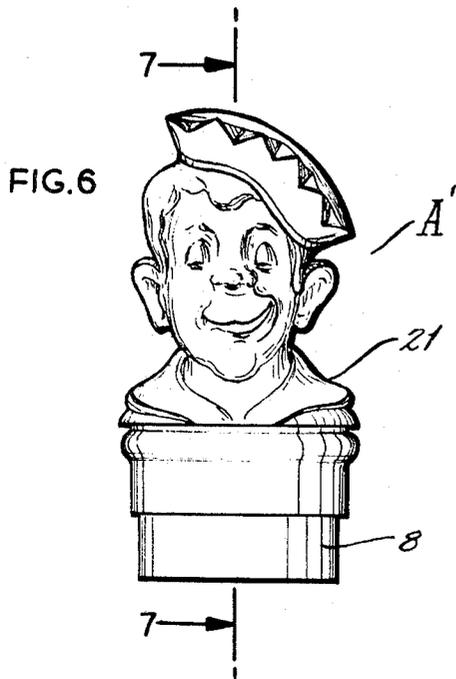


FIG. 8

INVENTOR  
GERALD C. FELS  
BY *Ralph W. Kalish*  
ATTORNEY

## ROCKET-SIMULATIVE TOY

## BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates in general to amusement devices and, more particularly, to a rocket-simulative toy.

It is an object of the present invention to provide a toy incorporating a missile or projectile component adapted for propulsion through releasing of stressed, resilient means.

It is another object of the present invention to provide a toy of the character stated which embodies a marked simplicity of components which may be most economically manufactured and which are completely durable in usage.

It is a still further object of the present invention to provide a toy of the character stated which is conducive to presentation in myriad designs so as to conduce to identification with objects or systems known to the user.

A still further object of the present invention is to provide a toy of the character stated which is uniquely adapted to permit of a delay of projectile release subsequent to full loading so that the user may be accorded an opportunity to observe the toy action at a desired vantage point.

It is a still further object of the present invention to provide a toy of the character stated which through its unique construction and reliable operation provides a source of continuing fascination to the user.

## BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an exploded view of a rocket-simulative toy constructed in accordance with and embodying the present invention illustrating the projectile in released condition.

FIG. 2 is a horizontal transverse sectional view taken on the line 2-2 of FIG. 1.

FIG. 3 is a horizontal transverse sectional view taken on the line 3-3 of FIG. 1.

FIG. 4 is a side elevational view of the toy illustrating the projectile in loaded condition.

FIG. 5 is a vertical transverse sectional view taken on the line 5-5 of FIG. 4; and with the projectile in partially released condition, being indicated in phantom lines.

FIG. 6 is a front view of a toy constructed in accordance with and embodying the present invention, illustrating the same in loaded condition.

FIG. 7 is a vertical transverse sectional view taken on the line 7-7 of FIG. 6.

FIG. 8 is a horizontal transverse sectional view taken on the line 8-8 of FIG. 7.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now by reference characters to the drawing which illustrates the preferred embodiment of the present invention, A generally indicates a rocket-simulative toy or amusement device which comprises a projectile or rocket element 1, being of general cylindrical, tubular character, having a sidewall 2 and an outer end wall which may be rounded, as at 3. The said projectile 1 is open at its lower end, as at 4, and internally is provided with a coaxial hollow piston 5 being closed at its outer end, as at 6, and with its inner open end terminating spacedly from the end margin of the open end 4 of said projectile 1. Projectile 1 is preferably unitarily formed of a suitable plastic material having limited resiliency for purposes presently appearing. On its exterior surface, projectile 1 may be provided with a plurality of circumferentially spaced-apart shallow extensions, as at 7,7', to provide manipulating surfaces.

Said toy A also includes a launching base 8 being also formed of suitable plastic material with limited resiliency and being of general cylindrical character having an upstanding sidewall 9 for disposition of the base margin 10 thereof upon a suitable support surface, such as a table or the like, and there being a top planar wall 11. Thus, for economy in production, launching base 8 may be hollow, with its lower end open (see FIG. 5). Projecting circumferentially of sidewall 9 proximate top wall 11 is a continuous, relatively shallow flange 12 for

purposes presently to be described. Projecting from the center of the outer face of top wall 11 is a guide stem 13 formed integrally, as by molding, with launching base 8 and having a cross section less than the inside cross section or diameter of piston 5 but being substantially of the same extent. Encircling disposed about guide stem 13 is an elongated compression spring 14, one end of which bears against end wall 11. Spring 14, when unstressed, extends a substantial distance beyond the free end of guide stem 13. The diameter of spring 14 is substantially equivalent, or slightly less than, the inside diameter of piston 5.

In operation, the user, by gripping projectile 1 on extensions 7,7', will cause the free end of spring 14 to be received within piston 5 and will thereupon direct projectile 1 toward launching base 8, causing stressing or compression of spring 14. As such action continues, the free end portion of projectile 1 will receive sidewall 9 of launching base 8 which is of slightly less cross section than the inside cross section or diameter of projectile 1. However, the diameter of flange 12 is slightly greater than the inside cross section or diameter of projectile 1 so that as the latter is forced thereby a slight deformation will be effected within the sidewall 2 of projectile 1, as may best be seen in FIG. 5. The movement of projectile 1 onto launching base 8 is terminated upon abutment of the free end of guide stem 13 against end wall 6 of piston 5, at which juncture spring 14 will be fully compressed (see FIG. 5) and projectile 1 will be in such relation to launching base 8 as to cause toy A to be in loaded state (see FIGS. 4 and 5). At this point, the user will withdraw manual contact from toy A, relieving spring 14 from any countervailing manually applied pressure against the normal bias thereof. The movement of spring 14 toward an unstressed condition will be resisted by the friction developed between flange 12 and the engaged portion of projectile 1. However, such friction is not adequate to balance or fully resist the releasing force of spring 14 so that projectile 1 will slowly move relative to launching base 8 until its free end margin will travel past flange 12 thereby liberating projectile 1 from the erstwhile impeding friction and subject same to the full releasing force of spring 14. By such releasing action projectile 1 will be propelled for relatively extensive travel in a missile or rocket simulating manner from said base 8 as suggested in FIG. 1.

It is to be especially noted that the distance between the free end of piston 5 and the free end margin 4 of projectile 1 is so determined as to control the relative travel of projectile 1 along sidewall 9 of launching base 8 so that after projectile 1 has cleared said base 8, sufficient releasing force will be available within spring 14 to effect the necessary propulsion. It is also to be especially observed that the aforesaid distance between the free end of piston 5 and the open end 4 of projectile 1 together with the relative location of flange 12 on launching base 8 are such that a sufficient time interval is provided before projectile 1 loses contact with base 8 so as to allow the user to remove to a convenient point of observation before projectile 1 is launched.

In view of the foregoing it is indeed obvious that toy A lends itself to presentation in myriad attractive manners so that projectile 1 could take on the nature of any device, object, or character as might be desired.

As exemplary thereof is the toy indicated A' in FIG. 6 which comprehends a projectile element 21 and a launching base which is the same as base 8 above described, and will hence bear the same reference numerals for sake of convenience.

Said base 8 thus incorporates a sidewall 9, with a continuous, relatively shallow flange 12 proximate its upper end; a top wall 11 from the center of the outer face of which projects a guide stem 13 about which is encirclingly disposed an elongated compression spring 14.

Projectile 21 is unitarily formed, as of molded plastic or the like, and incorporates an upper body portion 22 which is exteriorly designed as to present the face of a child or other character. Depending from said body 22 is a skirt 23 having an inside diameter substantially equivalent to the outside diame-

ter of sidewall 9 so that when projectile 21 is disposed upon base 8 a friction producing relationship will develop between the inner face of skirt 23 and flange 12 for the same purpose as with toy A hereinabove described. Body 22 is provided with an axial bore 24 which, at its lower end, opens in a lower end wall 25, said latter being continuous with the inner face of skirt 23. Lower end wall 25 radially outwardly of bore 24 slopes downwardly and outwardly, as at 26, with the diameter of the lower limit of said slope having a diameter substantially equal to that of top wall 11 of base 8. Formed for extension into bore 24 is a plurality of spaced-apart ribs 27 which substantially intermediate their length are cut back to define a downwardly presented shoulder 28; said shoulders 28 coacting to present a bearing surface for the upper end of spring 14. The upper portions of said ribs 27 are circumferentially spaced so as to allow movement therebetween of the upper end of stem 13.

With reference to FIG. 7, it will be seen that projectile 21 may be disposed in loaded condition upon base 8 in a manner corresponding to that in toy A above described. However, it will be seen that the abutment of the upper edge portion of top wall 11 of base 8 against the outer limit of the slope 26 of lower end wall 25, as indicated at 29, will determine the extent of compression of spring 14, as well as the overlapping extension of skirt 23 about sidewall 9 of base 8. Shoulders 28 thus provide a surface against which spring 14 may be compressed and with stem 13 being freely extensible within the portion of bore 24 thereabove. Thus, projectile 21 will eventually be forcibly ejected from base 8 as the release of spring 14 frees skirt 23 from deforming, friction-producing engagement with flange 12. Thus, toy A' demonstrates the versatility of the present invention and the ready adaptation thereof to preselected designs.

Having described my invention, what I claim and desire to obtain by Letters Patent is:

1. A rocket-simulative toy comprising a projectile having a sidewall and an outer end wall and being opened at its inner end, a base member having a sidewall and a top wall, the sidewall of said base member having a cross section substantially equivalent to the interior cross section of the sidewall of said projectile, a projecting portion provided on the sidewall of said base for effecting a friction-producing engagement with the inner face of the sidewall of said projectile, a guide stem projecting from said base top wall, a resilient member provided on said base encirclingly of said guide stem for projection into said projectile through its open inner end, and socket means provided interiorly of said projectile for receiving said resilient member and said guide stem.

2. A rocket-simulative toy as defined in claim 1 and further characterized by said socket means interiorly of said projectile for receiving said resilient member and said guide stem comprising a piston extending coaxially of said projectile, said piston having an axial bore being opened at its inner end, the inner diameter of said bore being substantially the same as the outer diameter of said resilient member.

3. A rocket-simulative toy as defined in claim 2 and further characterized by the length of said guide stem and said piston bore being substantially the same, the inner end of said piston terminating spacedly inwardly of the inner end of said projectile and adapted to engage the top wall of said base member

when the resilient member and the guide stem are received within said piston bore.

4. A rocket-simulative toy as defined in claim 1 and further characterized by said projectile being fabricated of plastic material having limited resiliency said projecting portion comprising, a flange provided peripherally of the sidewall of said base and having a cross section greater than the cross section of the interior of the sidewall of said projectile so as to produce a frictional engagement therewith when said projectile is disposed upon said base.

5. A rocket-simulative toy as defined in claim 4 and further characterized by the extent of said flange and the material of construction of said projectile being such that the friction produced thereby is insufficient to balance or resist the releasing pressure of said resilient member.

6. A rocket-simulative toy comprising a projectile having an annular sidewall and an outer end wall, said annular sidewall being opened at its lower end, a base member having an annular sidewall and a top wall, the sidewall of said base member having an outer diameter substantially equivalent to the inner diameter of the projectile sidewall, a peripheral flange provided on the exterior of the base member sidewall located spacedly downwardly of said top wall for effecting a friction-producing engagement with the interior of said projectile sidewall, a guide stem provided on said base member top wall coaxially therewith, a coiled compression spring presented encirclingly of said guide stem, said spring in unstressed condition having a length substantially greater than that of said guide stem, a piston formed integrally with said projectile depending from the interior of said projectile outer end wall, said piston having an axial socket extending throughout the length of said piston, the inner diameter of said socket being substantially the same as the outer diameter of said compression spring, the length of said guide stem and said piston socket being substantially the same, said compression spring being of such force that when released will overcome the friction between said flange and said projectile sidewall to allow said projectile to physically separate from said base.

7. A rocket-simulative toy as defined in claim 6 and further characterized by reinforcing means provided on the exterior of said projectile sidewall for enhancing the friction-producing fit between the interior of the projectile sidewall and said peripheral flange.

8. A rocket-simulative toy as defined in claim 7 and further characterized by said reinforcing means comprising a plurality of circumferentially spaced apart extensions, each extension having a top wall providing a manipulating surface for effecting interengagement between the projectile and the base member.

9. A rocket-simulative toy as defined in claim 1 and further characterized by said projecting portion being continuous about the sidewall of the base.

10. A rocket-simulative toy as defined in claim 9 and further characterized by said projectile being fabricated of resilient material so that the portion thereof engaging said base sidewall projecting portion will be deformed for assuring of a frictional engagement between said projectile and said projecting portion for effecting a limited restraint against the releasing action of the resilient member.