March 7, 1939. L. HOLCOMB 2,149,845

SKYROCKET

Filed Nov. 22, 1933 2 Sheets-Sheet 1

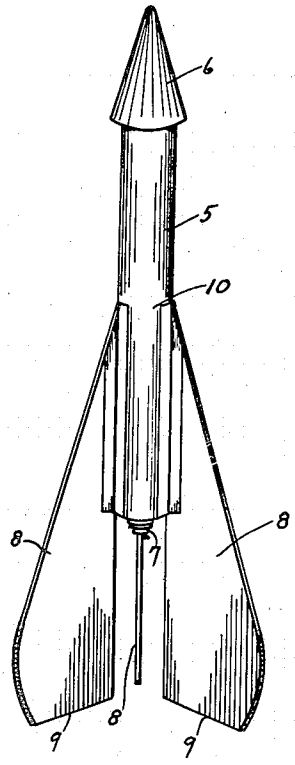


Fig. 1

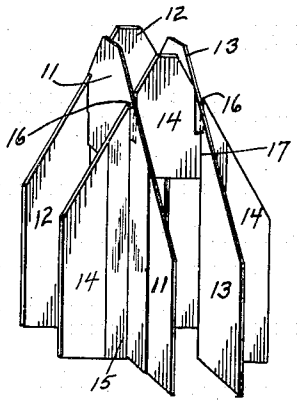


Fig. 3

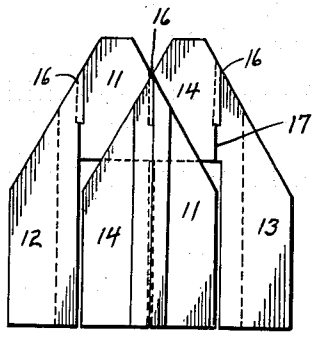


Fig. 4

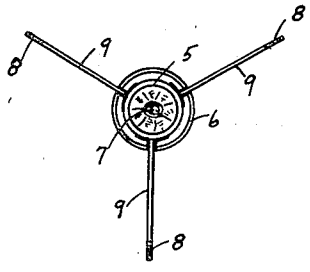


Fig. 2

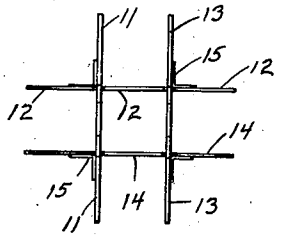


Fig. 5

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SKYROCKET

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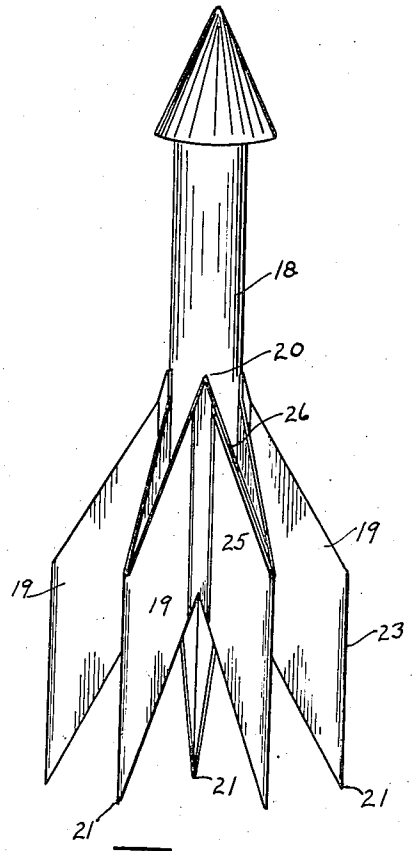


Fig. 6

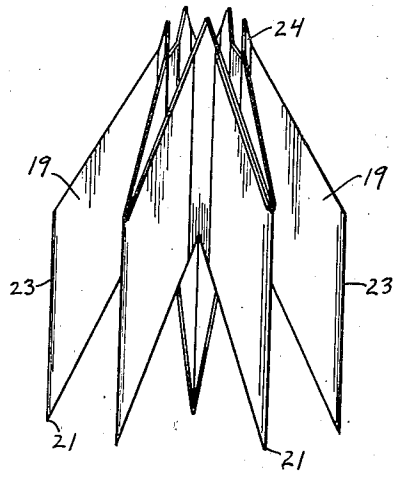


Fig. 7

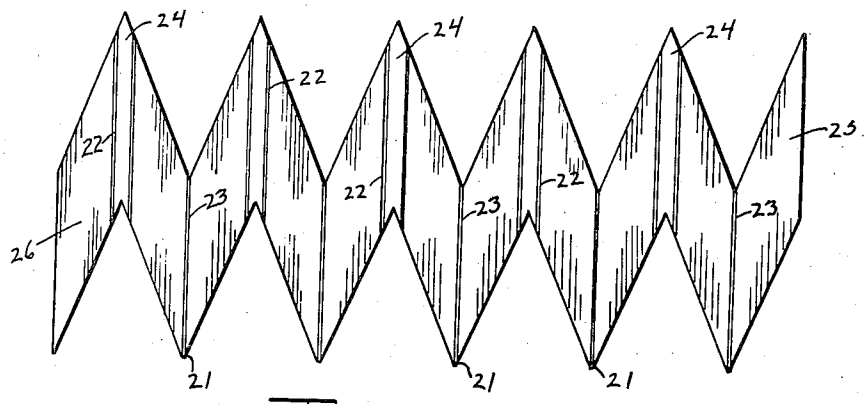


Fig. 8

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UNITED STATES PATENT OFFICE

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SKYROCKET

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Application November 22, 1933, Serial No. 699,113

9 Claims. (Cl. 102—23)

The present invention relates to skyrockets. The principal object of the invention is to construct an article of this nature which is capable of being fired directly from a vertical position on the ground without requiring any of the usual preparatory operations in setting or guiding the rocket as were heretofore necessary in this art. This advantage is obtained by the present construction in the elimination of the customary spindle or guide stick and the provision of guide wings on the rocket casing, the tips of which serve as a base upon which the article may be placed in a vertical position for firing.

A further object of the invention is to provide a skyrocket which, upon explosion, completely disintegrates, so that the possibility of personal injury or property damage, caused by the return of metal or wood parts of the customary skyrocket to the earth, is eliminated.

A still further object is to construct a skyrocket, utilizing tail wings, in which the wing structure, is separately foldable, so that the same may be easily and inexpensively shipped, when detached from the rocket casing. The separate wings are constructed to readily unfold, from a flat position, to be manually mounted upon the rocket casing, before the skyrocket is placed in a position for firing.

Another important object of the invention is to construct a rocket that is provided with tail wings for guiding the same when in flight and to associate the wings with the rocket casing in a manner such as will balance the article and permit it to leave the ground, when fired, without tipping over. In attaining the above objects, it will be readily appreciated, that the present skyrocket, is relatively, when compared with the customary type of rocket, easier to fire and much safer.

Other objects and advantages of the invention, which is shown in its preferred form in the accompanying drawings, will become apparent as the description, thereof, proceeds.

Referring to the drawings:

Fig. 1 is a perspective view of the improved skyrocket.

Fig. 2 is a bottom plan view of the rocket as shown in Fig. 1.

Fig. 3 is a perspective view of a modification of the invention showing a detached tail wing, the same being illustrated in an open position.

Fig. 4 is a plan view of the wing, as shown in Fig. 3, when in a flat folded position.

Fig. 5 is a bottom plan view of the wing, when in an open position.

Fig. 6 is a perspective view of a skyrocket, showing a further modified form of wing structure applied thereto.

Fig. 7 is a perspective view of the wing structure, as shown in Fig. 6, separated from the rocket casing, and

Fig. 8 is a plan view of an unfolded blank with which the type of wing illustrated in Figs. 6 and 7, is made.

In Figs. 1 and 2 the rocket casing is indicated at 5, the head at 6 and the fuse at 7. The propelling and pyrotechnic charges in the casing of the rocket are situated in their usual positions therein, in the rear and front portions, respectively. The tail wings which extend radially from the casing, in this instance, are rigidly secured thereto in any desired manner, the same being shown in the drawings at 8. A light material such as cardboard or pasteboard is preferably used to form the wings employed in the present inventive disclosure, these particular wings being three in number and arranged at equidistant spaces about the periphery of the casing 5. It will be understood that either the number, or the specific construction of the wings may be changed from that illustrated in any of the drawings without departing from the nature and spirit of the invention. The wings 8 serve to guide the rocket when in flight, and also provide a base, for placing the rocket in a substantially upright or vertical position, with regard to the ground or some other fairly level surface from which the same is to be fired. The wings 8 provide the sole base for the rocket and obviate the employment therewith of any accessory firing equipment. The flat lower tips of the tail wings, as shown at 9, serve to maintain the rocket in a firm position preparatory to firing. It will be appreciated from the present description that there is no stick or spindle whatever utilized to either assist or guide the skyrocket.

In order to balance the rocket, so that it will not turn over or deviate from a substantially vertical position at the initial period of firing, the same is constructed so that its center of gravity, including the weight of the wings, is about at the middle of the casing 5. The place of balance for the rocket illustrated, is shown at 10, the same being substantially at the point that the wings start to diverge from the rocket casing. It will be understood that the location of the center of gravity for the entire rocket may vary in accordance with the amount or weight of the different charges within the casing, as well

as the length of the same, but under no circumstances can this point be existent less than one-third the length of the casing 5 from the bottom, if the rocket is to be fired without the assistance of a stick or spindle. Regardless of the exact point of balance of the rocket above the lower one-third distance of the casing 5, the tail wings, in accordance with the invention, extend upward along the casing to a fixed position for an individual rocket at its gravitational center.

With reference to Figs. 3 to 5, inclusive, a modified form of wing construction is shown. The wings, in this instance, comprise the connected members 11, 12, 13 and 14, which are flexibly secured together by tapes, or otherwise, as indicated at 15. Members 12 and 14 are slotted vertically as shown at 16 to dovetail with the members 11 and 13 by means of the slits therein, the position of which is indicated at 17. This wing construction is foldable, for purposes of shipping, into a flat position, as clearly shown in Fig. 4. The casings of the rockets to be used in connection with the detached wings are marked so that the user will mount the separate tail wings thereon in the proper place to enable the same to be fired from a vertical position, as heretofore pointed out. The wings are held firm upon the rocket casing by friction between the respective surfaces thereof.

Referring to Figs. 6, 7 and 8, a further modification of the wing structure is illustrated. In this disclosure of the invention, Fig. 6, the rocket casing is designated at 18, and the wings, which are five in number, at 19. The center of gravity of the rocket, including the wings, is substantially at the middle of the rocket casing, and is, in accordance with the invention, at the point where the upper tips of the wings are secured to the rocket casing, as shown at 20. The lower tips of the wings as indicated at 21 form a base for the rocket upon which it is located in a substantially vertical position preparatory to firing. The wings in this form of the invention are made from a single blank of material, Fig. 8, cut in a zigzag shape, and scored, for folding purposes, along the lines indicated at 22 and 23. The sections of the blank indicated at 24 are preferably secured to the rocket casing by gluing the same thereon. The end flaps of the blank, as indicated at 25 and 26, overlap when the same is folded as clearly shown in Figs. 6 and 7, and are suitably connected by gluing or otherwise. The adjoining pieces of material forming the wings extend from the rocket casing in a V formation.

While I have shown and described the preferred embodiments of my invention, I do not desire to limit myself to the specific forms illustrated, but may alter the construction and arrangement of parts as occasion requires without enlarging the scope of my invention or departing from the spirit thereof, as contained in the appended claims.

What I claim is:

1. A skyrocket having tail wings formed of a single piece of material cut in a zigzag shape and mounted in position about the lower periphery of the rocket casing.

2. A skyrocket having tail wings formed from an integral piece of material cut in a zigzag shape.

3. A skyrocket having tail wings forming a base therefor upon which it is located in a substantially vertical position preparatory to firing, said tail wings being formed of a single piece of material cut in a zigzag shape and mounted in position about the lower periphery of the rocket casing.

4. A skyrocket having tail wings formed of a single piece of material cut in a zigzag shape and mounted in position about the lower periphery of the rocket casing, each individual wing of the rocket extending therefrom in a V formation.

5. A skyrocket having five tail wings, positioned about its lower periphery, formed of a single piece of pasteboard material cut in a zigzag shape, the individual wings of the skyrocket extending therefrom in a V formation to form a base upon which it is supported in a substantially vertical position preparatory to firing.

6. A stickless explosively charged destructible skyrocket having a plurality of readily destructible tail wings forming the sole base therefor upon which it is located in a substantially vertical position preparatory to firing without the assistance of accessory firing equipment, the explosive charge being adapted to substantially entirely destroy the rocket and the wings thereof during flight.

7. A stickless explosively charged destructible skyrocket having a plurality of readily destructible pasteboard tail wings forming the sole base therefor upon which it is located in a substantially vertical position preparatory to firing without the assistance of accessory firing equipment, the explosive charge being adapted to substantially destroy the entire rocket structure during flight.

8. A stickless skyrocket having a plurality of pasteboard tail wings forming the sole base therefor upon which it is located in a substantially vertical position preparatory to firing thereby obviating the employment of accessory firing equipment.

9. A stickless skyrocket having a plurality of pasteboard tail wings spaced about the lower periphery of the rocket casing, said wings forming the sole support for securing the rocket in a substantially vertical position preparatory to firing thereby obviating the employment of accessory firing equipment.

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