June 3, 1958 J. B. FRAZELLE 2,837,077

WHIRLING FLIGHT TOY

Filed Oct. 25. 1954

Fig. 1

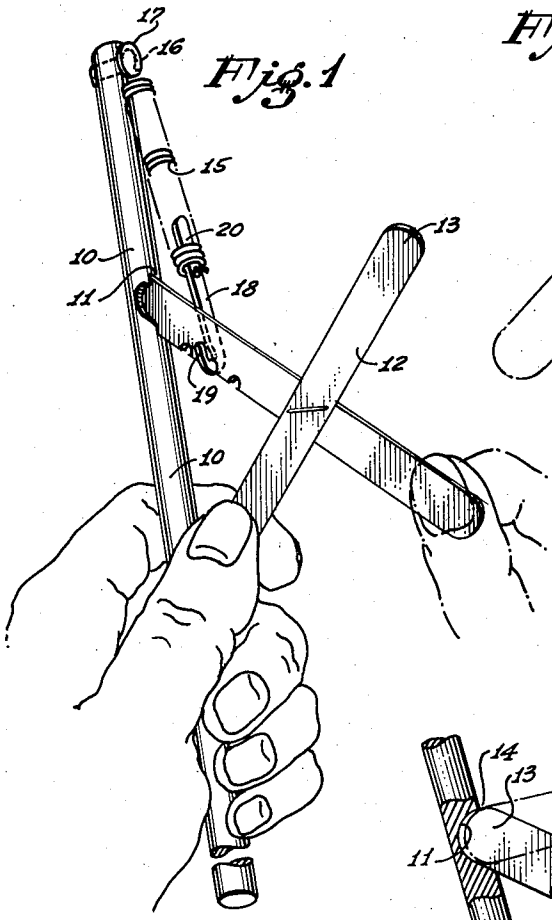


Fig. 2

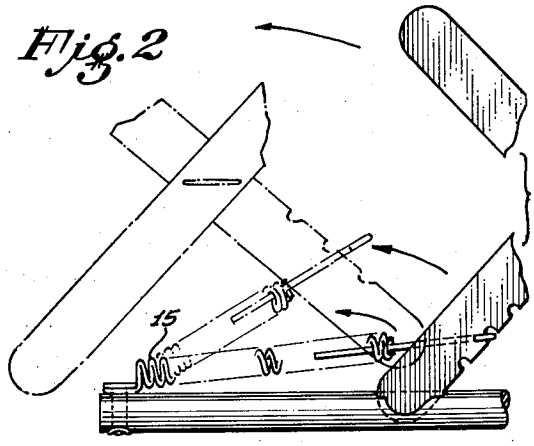


Fig. 3

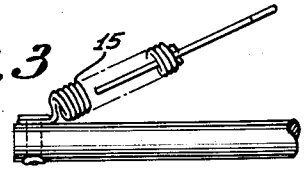


Fig. 4

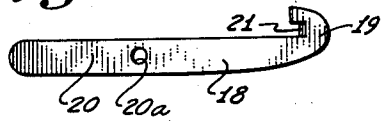
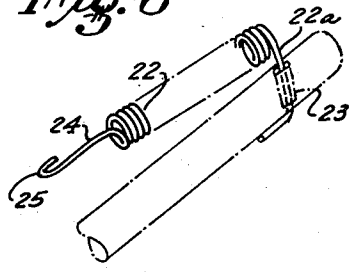


Fig. 1a

Fig. 6



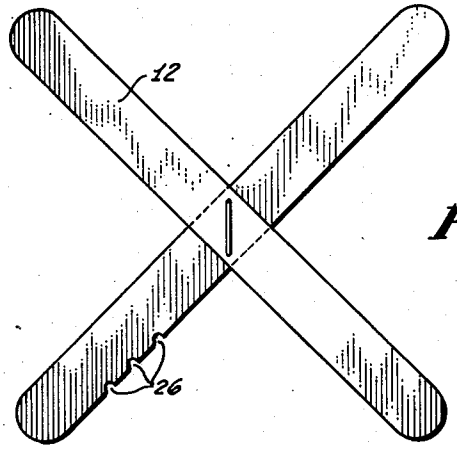


Fig. 5

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WHIRLING FLIGHT TOY

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6 Claims. (Cl. 124—16)

My invention relates to toys of the type in which a part is propelled into the air by resilient means connected to a part held in the hand.

Many toys of this general type have obtained considerable popularity among children for a time; however they generally suffered from some drawback such as using elastic bands, which wear out or break or throw the flight member to a distance, often landing at some unpredictable point which may be on a roof or in a tree, and sometimes required mechanical launching devices which sooner or later became inoperative. Other such toys employed miniature airplanes, which having to be light in construction were easily damaged or broken in rough landings or in hitting buildings or trees.

A toy which propels a flight member into the air has a strong appeal for children, particularly when the direction of flight can be controlled.

It is an object of my invention to provide a toy of the kind just described which provides a novel performance of the part propelled into the air although the manipulation of the toy is very simple and is capable of operation by children as young as six or seven years.

It is another object of my invention to provide a toy having a part held in the hand and a flight member which is thrown into the air by a resilient member secured to said part, the resilient member being stressed by the use of the flight member as a lever so that the resilient member may be placed under considerable stress with little effort of the player.

A still further object of my invention is to provide a novel and interesting toy which is inexpensive to make and is comprised of few parts so that it is free from the drawback of becoming useless because of the loss of parts.

In the drawings:

Figure 1 is a perspective view of the toy of my invention with the part propelled into the air in position to be released by the player, the fingers of the player's other hand shown in dotted lines having been used to bring the parts into operative position.

Figure 1*a* is a fragmentary view, partly in section, showing the form of a notch provided in the rod shown in Figure 1.

Figure 2 is a fragmentary view drawn on a larger scale showing the movement of the part propelled into the air when the player releases his hold on it, the dotted lines showing the commencement of the whirling flight of the part or flight member being projected into the air.

Figure 3 is a fragmentary view showing the member in unstressed position.

Figure 4 is a detail view drawn on an enlarged scale of one form of a hook member with which the resilient member may be furnished.

Figure 5 is a plan view on an enlarged scale of the flight member of the toy.

Figure 6 is a fragmentary perspective view showing another form of resilient member.

Referring now to Figure 1 of the drawings, numeral **10** indicates a rod which may be of wooden dowelling of about 5/16" diameter and 9 inches long. It will be understood that dimensions are given only in order to make clear the arrangement of one satisfactory embodiment of the invention and are not limitative of the invention, being stated by way of illustration only.

Slightly more than 2 inches from one end of the rod a notch **11** is provided having parallel side walls, the form of the notch being more clearly shown in Figure 1*a* from which it will be seen that the notch extends part way through the thickness of the rod **10** and is given the contour of the tip **13** of the arms of flight member **12** when the longitudinal axis of the arm is inclined at about a downward angle of between 40° to 45° to the longitudinal axis of the rod. Preferably a cutout **11***a* is provided in one or both said walls of the notch so the proper entry of the tip of an arm of the flight member therein may be seen. In the specific embodiment being described the flight member is formed from a pair of crossed wooden strips about 3/8" wide and 4.5 inches in length with semi-circular ends. It will be noted that when the flight member arm is sloped downwardly the end thereof is solidly held against movement in an inward direction from a position at right angles to the rod until the 45° position is attained. However as the arm **12** is rotated upwardly beyond the 90° position by the resilient member or spring, the upper outer edge **14** of the notch becomes a fulcrum against which bears the upper edge of the arm, the end of which was engaged in the notch. The strips forming the flight member may be secured together by a strong waterproof adhesive preferably reinforced by staples driven through the strips.

The resilient member is formed as a helical tension spring **15**, one end **16** of which is secured by a rivet **17** extending through the rod **10** near the end thereof. The free end of the resilient member **15** is furnished with a hook member **18** the form of which is designed to ensure that the flight member, when the latter is released, will leave the hook **19** without any binding occurring between the hook and said member; the opposite end or shank **20** is shaped to extend into the spring and aid it in returning to its unstressed form. It will be noted that the hook **19** is spaced considerably below the hole **20***a* in the shank by which the hook member is secured to the spring.

Since the flight member as shown is in the form of a strip, that is to say with opposite surfaces in parallel planes, the opening in the hook **19** is rectangular, but preferably the bottom of the opening is slightly rounded as shown at **21** in Figure 4 to present a smooth edge to the edge of the flight member.

A slightly different form of resilient member is shown in Figure 6 in which a helical spring **22** is formed with a straightened end **22***a* which may be pushed through a hole **23** near the upper end of the rod and the projecting end bent over to securely attach the upper end of the spring to the rod; a hooked end **24** is provided at the lower end of the spring, the hook **25** of which is spaced from the end of the spring and made to lie in a plane generally normal to the side faces of the flight member so as to avoid the point of the hook catching against the face of the strip.

As clearly shown in Figure 5, a number of spaced notches **26** are provided in at least one edge of a strip between an end and the intersection of the strips. If preferred similar notches may be provided in similar positions on the other arms of the flight member on one edge as shown or on both edges. The purpose of the notches is to enable the end of the resilient member to be securely engaged with an edge of an arm of the flight member when the spring is being stressed but to enable the flight member, when released, to part cleanly from the spring.

The greatest tension will be given the spring when engaged with the notch furthest from the end of the arm and the least tension when the spring is engaged with the notch nearest the end of the arm.

While, as shown in the drawings, the flight member 12 is formed from flat crossed wooden strips with parallel edges and rounded ends, it is to be noted that other configurations of the flight member may be utilized, but the form shown is inexpensive to produce, light in weight and strong and performs well in use.

The toy described is operated by holding the rod 10 in one hand, holding the flight member in the other hand and placing a selected edge notch of an arm in the hook of the spring, engaging the end of that end in the notch 11 in the rod by pulling downwardly on the other end of the arm while holding up the rod, and fully stretching the spring by moving the next end of an arm toward the rod until the latter is close enough to the hand holding the rod to be held between the thumb and first finger. The rod is then slanted upwardly in the direction in which the flight member is to be fired and the grip on said member released. The flight member will then be snapped upwardly by the spring with a very rapid whirling motion and will fly upwardly to a considerable distance. In still air the flight member will reach a maximum height and then return approximately along the path taken in ascending and land close to the player.

It is to be noted that the flight member is used to furnish the power to tension the spring which may be relatively stiff but is readily stretched because of the leverage existing between the fulcrum provided by engagement of the end of the arm in the notch in the rod and the connection of the spring to said arm between the fulcrum and the point at which effort is applied and conversely the spring exerts a very powerful effort on the flight member when the latter is released pulling the flight member simultaneously upward and giving it a rotary motion.

The spring may be relatively short ensuring that the flight member clears the end of the rod notwithstanding its whirling motion.

While I have described and illustrated an embodiment of my invention at present preferred by me, it is to be understood that various changes may be made therein by those skilled in the art without departing from the scope of the invention as intended to be defined by the scope of the appended claims.

What I claim is:

1. A toy comprising: a rod adapted to be held toward one end in one hand of the player, said rod being provided at a point toward but spaced from the free end thereof with an abutment; a resilient member secured by one end to the upper end of the rod; and a flight member having a plurality of arms arranged substantially in a common plane and extending from a common center, the end of one of said arms being engaged against said abutment and detachably engaged, between the center of said flight member and the end of the arm engaged with the abutment, with said resilient member, said arm being used as a lever to stress said resilient member by the player pulling the free end of the arm toward the held end and thereafter suddenly released to cause the flight

member to be propelled into the air with a whirling motion by said stressed resilient member in returning to an unstressed condition.

2. A toy comprising: a rod adapted to be held directed upwardly in one hand of the player, said rod being provided at a point toward but spaced from the free end of the rod with a notch extending part way through the rod; a resilient member secured by one end to the upper end of the rod; and a flight member having a plurality of planiform projecting arms, at least one of said arms being provided along the edge portion with spaced notches located between the mid-length of the arm and its end; and means on the free end of the resilient member adapted to engage one of said notches to enable the resilient member to be tensioned by engaging the notched end of the arm, with the notches facing away from the free end of the rod, in the notch in the rod and rotating the opposite end of the arm about the end received in the notch and toward the rod, release of said opposite end causing the flight member to be thrown violently into the air with a whirling motion by the resilient member.

3. A toy as set forth in claim 2 and in which said resilient member is formed as a coil spring secured at its upper end to said rod; and a hook member projecting from the lower end of said spring and connected thereto and spaced from the lower end thereof by a straight portion to prevent the spring from interfering with the flight member during the commencement of the flight thereof.

4. A toy as set forth in claim 2 and in which said flight member comprises a plurality of crossed flat strips secured together at their center, the ends of the strips being shaped to fit closely in the notch in the rod when a strip is being used to stress said resilient member, but to be moved out of said notch by the pull of said resilient member when the flight member is released, the engagement of the upper edge of the notch in the rod with the arm while being moved out of the notch imparting a rapid whirling motion to said flight member combined with a forward movement in the direction the rod is pointed.

5. A toy as set forth in claim 4 and in which the ends of the strips are semi-circular and the notch in the rod is formed with walls fitting around the end of a strip when the latter is inserted edgewise into said notch with the longitudinal axis of the strip at an acute angle to the longitudinal axis of the rod and sloping toward the held end of the rod.

6. A toy as set forth in claim 3 and in which said hook member comprises an elongated body portion secured to the lower end of the spring and extending downwardly from the lower end of the spring to the hook, and upwardly from the lower end of the spring into the interior of the spring.

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