Oct. 4, 1949. F. J. BENSON 2,483,614

TOY KITE

Filed Aug. 29, 1946

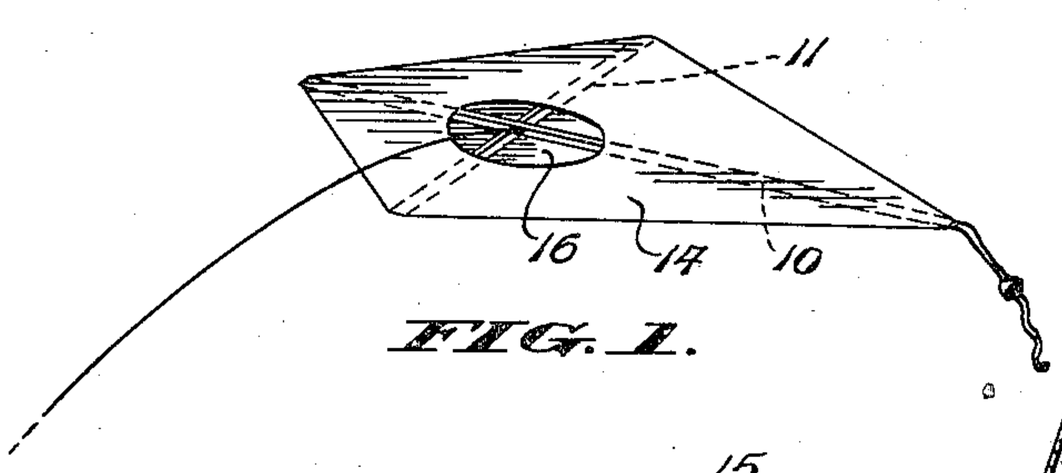


FIG. 1.

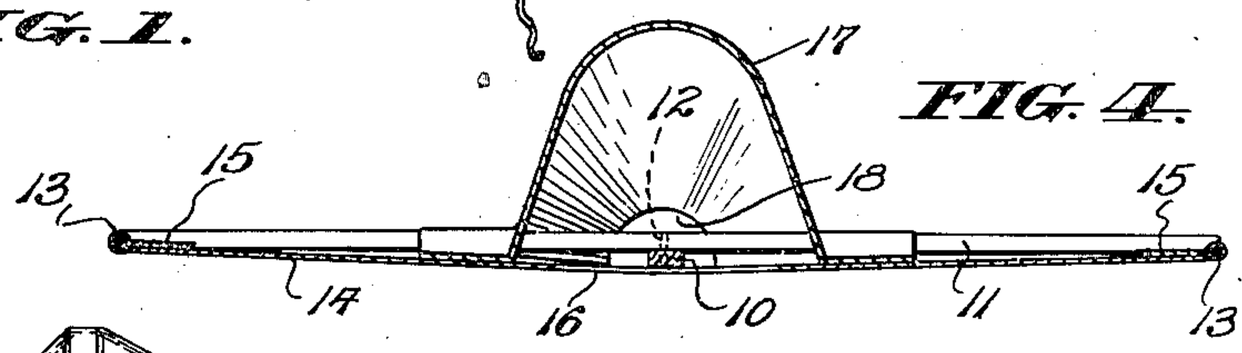


FIG. 4.

FIG. 2.

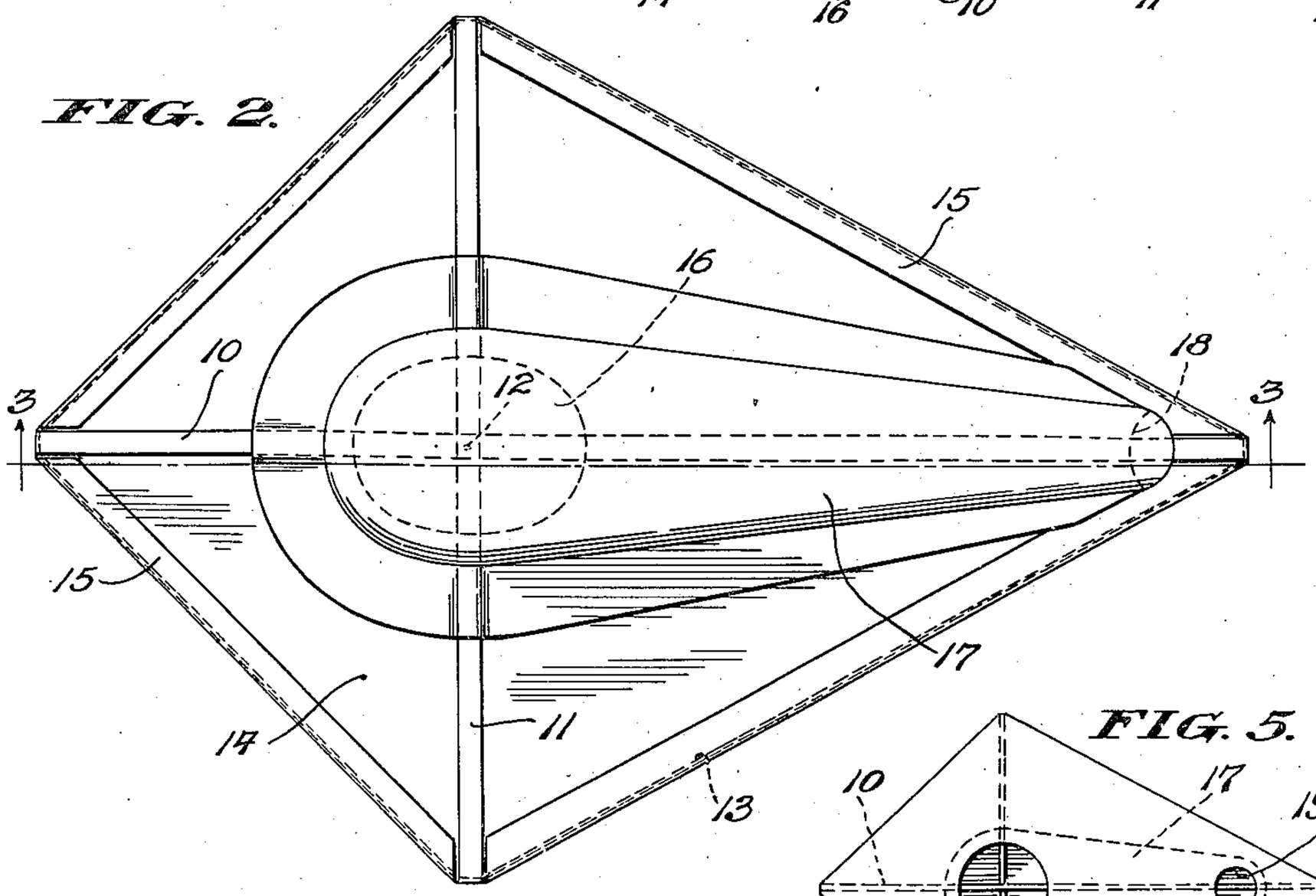


FIG. 5.

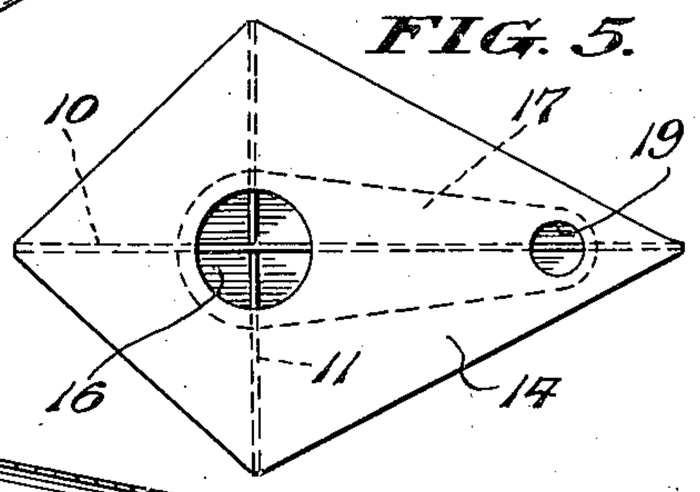
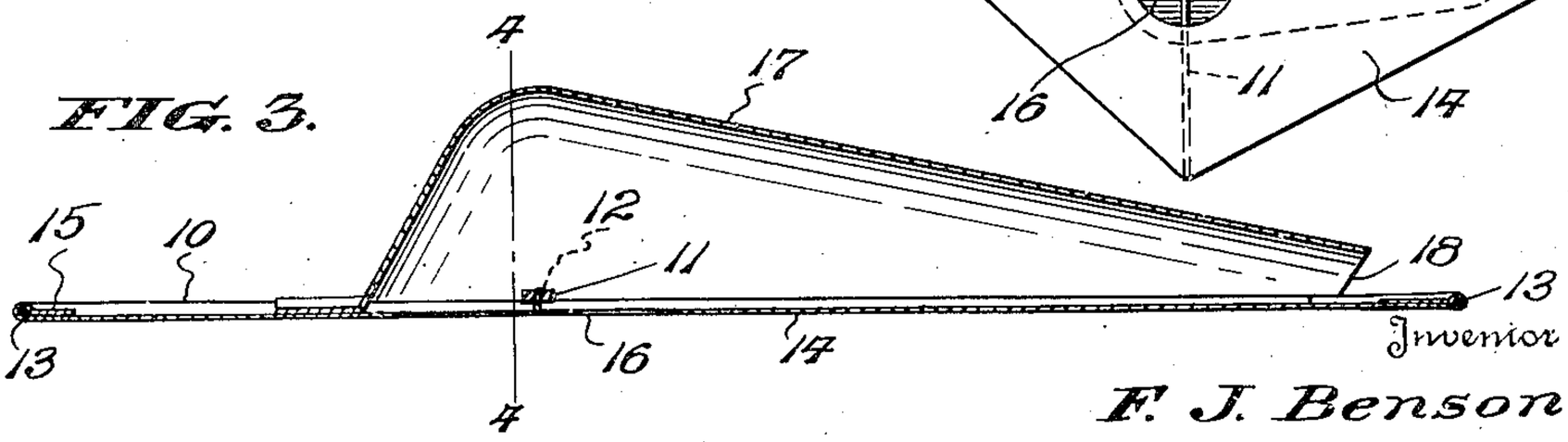


FIG. 3.



Inventor

F. J. Benson

By W. J. McDowell

Attorney

Patented Oct. 4, 1949

2,483,614

UNITED STATES PATENT OFFICE

2,483,614

TOY KITE

Frederick J. Benson, Columbus, Ohio

Application August 29, 1946, Serial No. 693,699

4 Claims. (Cl. 244—153)

1

The present invention deals with toy kite construction, and has for its general object the provision of a kite possessing improved and novel flight characteristics.

It is an additional object of the present invention to provide a toy kite which embodies the principle of jet propulsion through the use of a tunnel-like member having an enlarged intake opening and a restricted discharge orifice, which member is attached to a relatively flat airfoil surface to afford propulsion thereto as air passes through the member during flight.

It is a further object of this invention to provide a toy kite of this character which is structurally simple and economical in manufacture.

For a further and more complete understanding of the present invention, reference is made to the following description and appended drawing wherein:

Fig. 1 is a perspective view of a kite formed in accordance with the present invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a longitudinal vertical sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is a transverse vertical sectional view taken along the line 4—4 of Fig. 3;

Fig. 5 is a bottom plan view of a slightly modified form of kite embodying the features of the present invention.

Referring now to the drawing, the kite disclosed therein makes use of a longitudinal member 10, and a transverse member 11 joined substantially at its center with the first-mentioned member 10, by a staple 12, to form a cross-shaped supporting frame. Each of the frame members 10 and 11 are preferably formed from strips of a lightweight wood of the type generally used in kite construction.

The respective ends of the frame members are slotted in the usual manner to receive a perimetrically extending string 13, which, when maintained in a substantially taut condition, provides a form member for the body of the kite.

The kite body or covering 14 is formed from any suitable material such as paper or lightweight closely woven cloth, and is cut to conform to the shape outlined by the string 13. In cutting the body 14, a substantial oversize edge 15 is left, which edge is overlapped upon the string 13 and adhesively secured to the outer portions of the body. It will be noted, that the body 14 constitutes the underside of the kite, and the frame members rest thereon.

A relatively large opening 16 is formed in the body of the kite and is disposed in an encircling

2

position around the juncture of the two frame members 10 and 11. Over this opening, and upon the upper surface of the body 14, is secured a tapered dome-shaped member 17. The latter is also formed from paper or the like, and is adhesively united at its outer edges with the upper surface of the body and with the respective frame members 10 and 11 so as to form a substantially air-tight seal therewith. The rearward tapered end of the dome member 17 is provided with a restricted opening 18. Referring particularly to Fig. 4 of the drawings, it will be noted that the member 17 forms a substantially tapered tunnel with the body of the kite, to which tunnel communicates the large opening 16 and the restricted opening 18.

It will be seen that air entering the tunnel through the opening 16 at a given velocity will pass backwardly of the tapered tunnel where its volume is restricted and be discharged from the restricted opening 18 at a substantially greater velocity. Such discharge at increased velocities will tend to give the kite a forward thrust.

As shown in Fig. 1, a flying string is attached to the kite at the juncture of the frame members and extends below the bottom surface thereof. When wind is received upon the under side of the body, the kite will tend to fly by its ordinary airfoil characteristics, common to all kites of this general configuration. In addition to this, a mass of air will pass through the tunnel member 17 and out of the restricted opening 18 at the rear end of the kite at increased velocity, thus causing the kite to be boosted forward. It will be apparent that if the kite is in an inclined position, the same will climb at a relatively fast rate as long as air is striking the under side of the body at a given velocity. If the flying string is utilized to hold the kite against the wind, the kite will climb until it reaches a substantially horizontal plane above the ground. The flying action of the kite is characterized by its fast ascension to a substantially horizontal plane at which time a distinct wabbling action ensues due to the flat configuration of its under side which tends to spill the air as it passes by in a horizontal direction. Also the pull characteristics of the kite upon the flying string is greatly increased over the ordinary kite, which characteristics are deemed desirable by children, as it gives the impression of a large and fast flying kite.

Fig. 5 of the drawings discloses a slightly modified form of kite embodying the features of the present invention, wherein the rearward tapered end of the tunnel 17 is closed, and a restricted

opening 19 formed toward the rear end of the kite in the kite body 14.

It will be manifest that practically the same flying action will be present in this modified form as in the primary form previously described, that is, the thrust action produced by air passing through the tunnel and out of the restricted opening 19 at increased velocity. However, the climbing action of this kite differs somewhat from the primary form, in that the climbing flight is characterized by a zig-zag course from side to side until it reaches a substantially horizontal plane.

In view of the foregoing, it will be seen that the present invention contemplates a highly novel toy kite whose flight characteristics are distinct and unique as compared to the kites now in ordinary use. Through the medium of jet propulsion, the speed of the kite in its ascension is greatly increased.

While the drawing and specification disclose what is now deemed to be preferred forms of the present invention, it will be manifest that various modifications are possible within the scope of the following claims.

1. A toy kite comprising a frame, a covering for said frame, said covering being formed toward its forward portion with a relatively enlarged air-intake opening, and an elongated longitudinally and transversely tapered envelope carried longitudinally of said covering and forming therewith an elongated longitudinally tapered passageway, said passageway communicating at one end with the air-intake opening formed in said covering and being provided at its opposite end with a relatively restricted air-discharge opening.

2. A toy kite comprising a frame, a covering for said frame providing a substantially flat air foil body, said covering being formed toward the forward end thereof with an enlarged air-intake opening, and an enclosed envelope carried upon one side of said covering in longitudinally extending order thereon said envelope forming with said covering an elongated longitudinally and transversely tapered passageway communicating at one end with the air-intake opening formed in said covering, said passageway being provided at

its opposite end with a relatively restricted discharge opening for the passage of air introduced within said passageway by way of said intake opening.

3. A toy kite comprising a frame including a longitudinal member, a transverse member, and a string joining the respective ends of said members, a covering for said frame providing a substantially flat air foil body, said covering being formed with a relatively enlarged air intake opening at the juncture of the longitudinal and transverse members of said frame, and a dome-shaped envelope carried on one side of said covering and extending longitudinally thereof, said envelope forming with said covering an elongated longitudinally and transversely tapered passageway, said passageway communicating at the forward end thereof with the air intake opening of said covering and terminating at the rearward end thereof in a relatively restricted discharge opening.

4. A toy kite comprising a frame, a covering for said frame providing a substantially flat air foil body, a rounded longitudinally and transversely tapered envelope attached to said covering on one side thereof and extending substantially the length of said covering, said envelope forming with said covering a longitudinally extending and tapered air passage, said air passage being provided toward its forward end with a relatively large intake opening and at its opposite end with a relatively restricted discharge opening.

FREDERICK J. BENSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,529,076	Marchessault	Mar. 10, 1925
1,734,493	Knott	Nov. 5, 1929

FOREIGN PATENTS

Number	Country	Date
325,212	France	Jan. 7, 1903