July 14, 1925. 1,546,099

D. D. MYERS

AEROPLANE KITE

Filed April 5, 1920 3 Sheets-Sheet 1

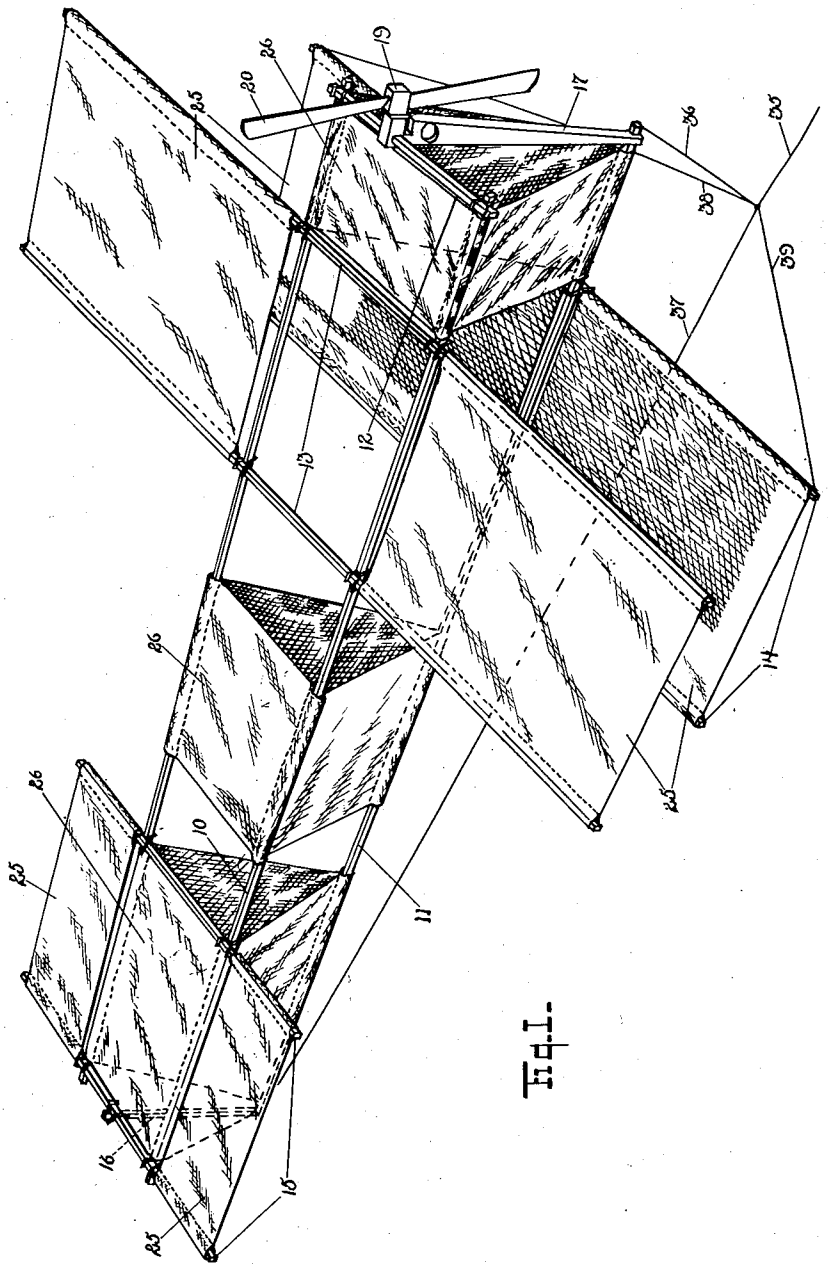


Fig. 1.

INVENTOR.
Don. D. Myers
BY Chester H. Braselton
ATTORNEY

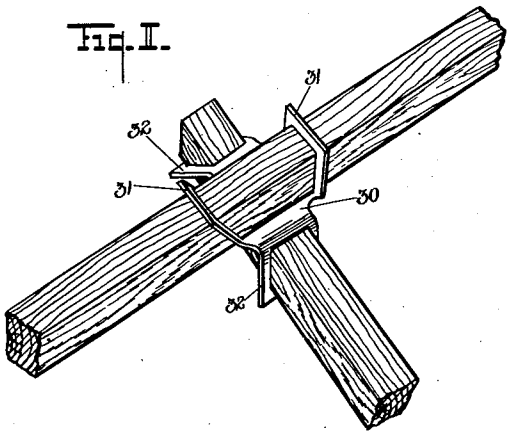
July 14, 1925. 1,546,099

D. D. MYERS

AEROPLANE KITE

Filed April 5, 1920 3 Sheets-Sheet 2

Fig. II.



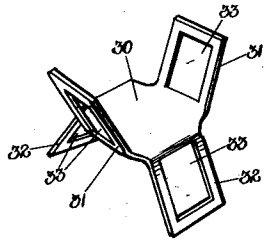


Fig. III.

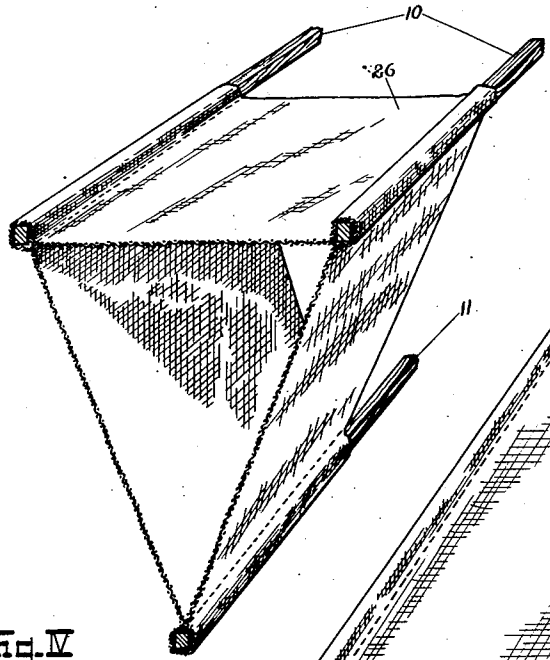


Fig. IV.

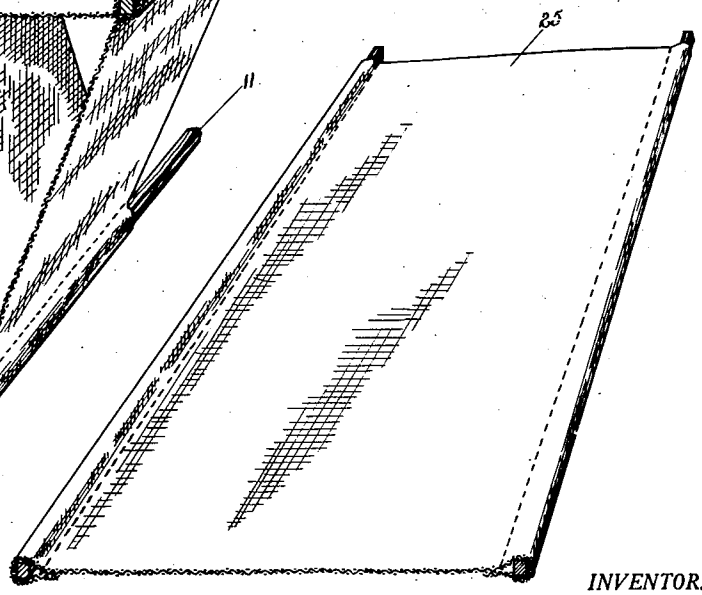


Fig. V.

INVENTOR.
Don D. Myers
BY Chester H. Braselton
ATTORNEY

July 14, 1925. 1,546,099

D. D. MYERS

AEROPLANE KITE

Filed April 5, 1920 3 Sheets-Sheet 3

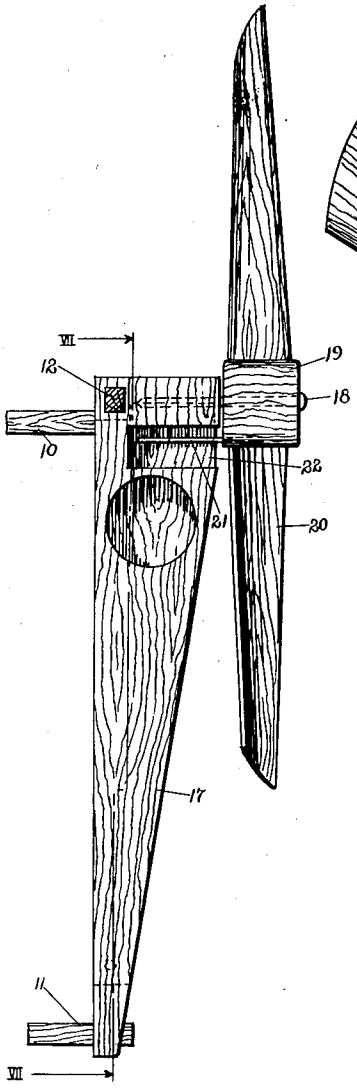


Fig. VI.

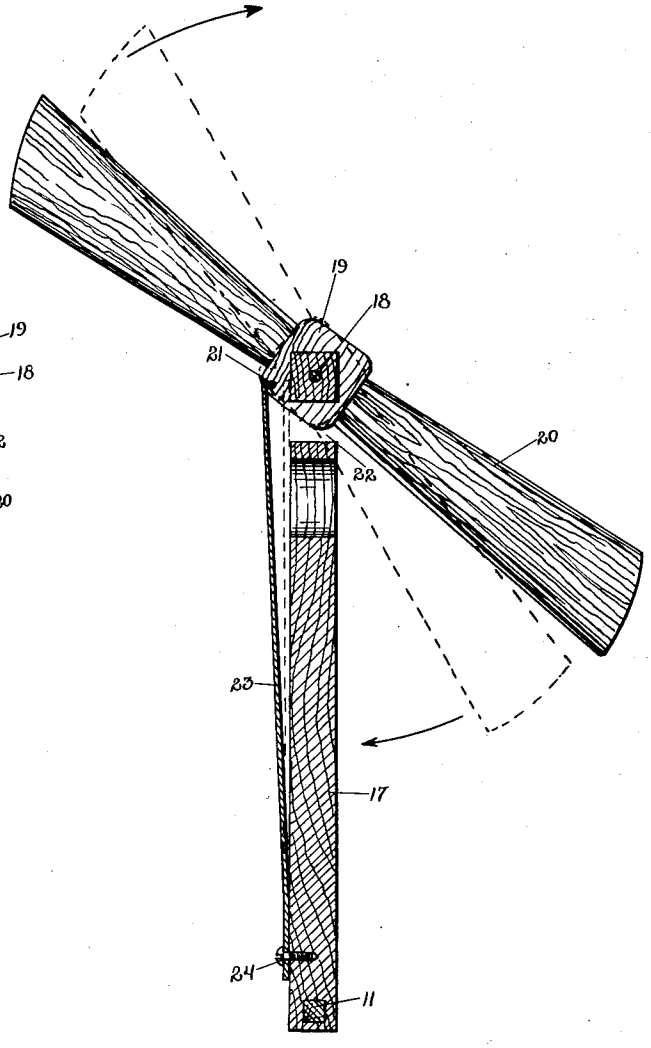


Fig. VII.

INVENTOR.
Don D. Myers
BY Chester H. Braselton
ATTORNEY

Patented July 14, 1925. 1,546,099

UNITED STATES PATENT OFFICE.

DON D. MYERS, OF TOLEDO, OHIO, ASSIGNOR TO INDUSTRIAL RESEARCH CORPORATION, OF TOLEDO, OHIO, A CORPORATION OF DELAWARE.

AEROPLANE KITE.

Application filed April 5, 1920. Serial No. 371,198.

To all whom it may concern:

Be it known that I, DON D. MYERS, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Aeroplane Kites, of which I declare the following to be a full, clear, and exact description.

This invention relates to improvements in kites, particularly kites made to simulate aeroplanes. It comprises means for removably joining together the sticks of the frame, means for removably mounting the fabric on the frame, and means for producing a noise intended to imitate the exhaust from a gas engine.

The principal object of the invention is the provision of a kite embodying the means just enumerated, which shall be simple in construction, economical to manufacture, and which shall be adapted to be packed and shipped in knock-down form and easily assembled.

Another important object is the provision of a wind elevated support for a wind operated noise making device which operates to maintain the noise making device in an approximately constant angular relationship to the direction of wind flow so that maximum efficiency from the apparatus is obtained.

Other objects, and objects relating to details of construction and economies of manufacture, will appear as I proceed with the description of that embodiment of the invention, which, for the purposes of the present application, I have illustrated in the accompanying drawings, in which—

Figure I is a perspective view of a kite embodying my invention.

Fig. II is a perspective view showing two cross sticks held together with the clip which constitutes part of my invention.

Fig. III is a perspective view of the clip alone.

Fig. IV is a perspective view of a portion of a kite having a three edged cell showing the method of removably attaching the fabric to the sticks.

Fig. V is a perspective view of a wing or other flat supporting surface of a kite showing a similar attaching means.

Fig. VI is a view, principally in side elevation, showing a propeller and a noise maker.

Fig. VII is a vertical sectional view taken substantially on the line VII—VII, Fig. VI.

Similar reference characters refer to like parts throughout the views.

The kite shown in the drawings is built to simulate a biplane. This, however, is merely for illustrative purposes as other types of aeroplanes might equally well be followed. In the present case the frame of the kite comprises two relatively long, parallel, longitudinal or body sticks 10, and a third body stick 11 of the same length parallel to the sticks 10, but below the plane thereof. At their forward ends sticks 10 are joined by a short transverse stick 12. Behind the latter a pair of parallel spaced transverse wing sticks 13 are mounted upon the body stick 10. Directly below the sticks 13 two wing sticks 14 are secured at their middle points to the body stick 11. Near the rear of the kite, spaced transverse tail sticks 15 are mounted upon the body sticks 10.

It will be apparent that the body sticks 10 are spaced from each other and held thus by the transverse sticks 12, 13 and 15. The body stick 11 is positioned at its rear end by a vertical brace 16 secured to stick 11 at the bottom and at the top to the middle of the rear tail stick 15. The front end of body stick 11 extends through a hole in the bottom of a brace or support 17, which at its upper end has a transverse opening, through which the front stick 12 extends.

At the top of the brace or support 17 I have shown a pivotal mounting 18 for the hub 19 of a propeller 20. A pin 21 is fixed in the hub 19 and extends rearwardly in a direction parallel to the pivot 18. In order to permit the propeller to rotate with this pin in position it is necessary to cut a notch 22 out of the front side of the support 17. A flat strip 23 of thin flexible material is fastened at its lower end by means of a screw or the like 24 to the support 17 at a point remote from the propeller. When not engaged by the pin 21 this strip 23 lies against the flat side of the support 17. I have found that some kinds of wood, being strong, light and highly flexible, satisfy the practical requirements of the invention as the material for the strip 23.

I desire to make the fabric walls of the kite readily removable and to this end I provide them with loops arranged in par-

allel lines. In the drawings I have shown these loops as continuous hems (see particularly Figs. IV and V) co-extensive in length with the fabric walls, but I do not desire to so limit the invention, nor is it necessary that the material of the loops be the same as that of the fabric walls themselves. Thus, where paper is used for the latter it may be desirable to employ cloth loops secured at intervals to the edges of the paper. The wings and tail are furnished with fabric walls 25 looped upon opposite side edges as shown in detail in Fig. V. The body of the kite, however, is provided with triangular walls, each formed of a strip of fabric 26 with its ends sewed together, and having sets of loops arranged in three parallel lines for the reception of the three body sticks, all as shown in detail in Fig. IV.

In every case the transverse sticks are secured to the longitudinal sticks by the use of the clip shown on a large scale in Figs. II and III. This clip is so made that it is impossible to remove the clip by longitudinal push or pull upon the stick alone, that is, provided the sticks are sized with a fair degree of accuracy, but if parts of the clip be pressed together by the thumb and fingers of one hand the stick may be drawn out readily with the other hand. The clip is stamped out of sheet metal, which should be possessed of considerable resilience. It has a flat body portion 30 adapted to rest between the two sticks to be joined. From opposite edges of this body portion 30 extend arms 31 which are bent at an obtuse angle to said body portion. Other arms 32 are bent in an opposite direction from said body portion and at the same obtuse angle. The angle between the line of centers of the arms 31 and the line of centers of the arms 32 equals the angle between the sticks to be joined, which in the present instance is ninety degrees. In each of the arms 31 and 32 is made an opening 33 just wide enough to permit easy sliding of the sticks therethrough, and slightly longer than the corresponding dimension of the stick. When the arms are in their angular positions shown in the drawings, the inner and outer edges of the openings 33 bind upon the sticks and prevent movement thereof, but when the operator pulls either pair of arms 31 or 32 towards each other so that the openings 33 extend substantially at right angles to the body portion 30, the grip of the clip upon the corresponding stick is relieved and the latter may be pulled out. When a stick is being positioned in the assembly of the kite the reverse operation is followed, and when the operator lets go of the arms 31 or 32 they spring back into the position illustrated in the drawings and hold the stick firmly.

35 represents the kite string. It may be attached to the meeting point of strings 36 and 37, which are secured to the front and rear ends respectively of the stick 11, and of strings 38 and 39 attached to the ends of the lower forward stick 14.

In assembling the kite it is best to take the three body sticks and thread onto them from either or both ends the three fabric strips 26 and all of the fastening clips, taking care that the strips and clips are in the proper order. Then the end braces 16 and 17 and transverse end sticks should be put in place. In positioning a clip upon a stick or vice versa, one may be moved readily with respect to the other after the arms 31 or 32, as the case may be, have been moved together as heretofore explained. At the joint between the forward brace 17 and the transverse stick 12 I have not employed a clip, because, in the embodiment shown, the size of the brace and the fact that the propeller would interfere with it prevents the use of such a fastener. In assembling this end of my kite the brace 17 is first pushed onto the body stick 11 and then the transverse stick 12 is pushed first through one end clip and then through the hole in the brace 17 and then through the other end clip.

The body of the kite being completed, the wings and tail are next added. In assembling this part of the kite the wing sticks 13 and 14 and the forward tail stick 15 are pushed through the proper clips. Then the fabric strips 25 are threaded onto the sticks. Any slack which there may be in the fabric strips after they are in position on the sticks can be taken up by moving the clips carrying the rear wing sticks backward, and the clips carrying the front tail stick forward. The strings are next adjusted and the kite is then ready to fly.

During flight the propeller rotates rapidly in the direction of the arrows, Fig. VII, and at each revolution the pin 21 on the hub of the propeller raises the upper end of the flexible strip 23 off its seat upon the flat sided support 17 and releases it suddenly. The resilience of the strip 23 causes it to reseat itself quickly. A flapping noise is the result. These noises, following each other in close succession, have a close similarity to the exhaust, when heard from the ground, of an internal combustion engine in an aeroplane flying at a considerable height.

Surety of operation of the noise making propeller or wheel by the wind results from the tendency of the aeroplane to align itself with the direction of wind flow and this tendency is increased by the triangular tube like formation of the aeroplane body.

I am aware that the particular embodiment of my invention above described, and illustrated in the accompanying drawings,

is susceptible of considerable variation without departing from the spirit thereof, and therefore I wish to claim my invention broadly as well as specifically as indicated by the appended claims.

I claim as my invention:

1. In combination, a kite, an elongated support upon the forward end of the kite, a propeller rotatably mounted upon one side of said support, a strip of thin, flexible material secured to said support at a point remote from said propeller pivot and on a side at right angles to said first named side, a pin mounted in said propeller near its pivot and extending parallel thereto, said support being cut away to permit the passage of said pin, whereby when the propeller rotates the pin engages the adjacent portion of the flexible surface to move it periodically out of contact with the support.

2. In a knock-down kite, a clip for joining crossed sticks, comprising a flat element adapted to lie between the sticks, a pair of opposed loops integral with and extending outwardly to one side of said flat element, through which loops one stick may be passed and a second pair of opposed loops arranged at an angle to said first pair and extending outwardly in the other direction from said flat element, through which the other stick may be passed.

3. In a knock-down kite, a pair of sticks crossed at a given angle, a clip for joining said sticks comprising a flat body portion adapted to lie between the sticks, a pair of arms extending diametrically from said body portion, and deflected to the same side thereof, said arms having openings therethrough adapted to receive one of said sticks, a second pair of diametrically extending arms arranged at said given angle with respect to said first named arms, and deflected to the opposite side of said body portion, said last named arms being provided with openings therethrough adapted to receive the other of said sticks.

4. In a knock-down kite, a pair of sticks crossed at a given angle, a clip for joining said sticks comprising a flat body portion adapted to lie between the sticks, a pair of arms extending diametrically from said body portion, and deflected to the same side thereof, said arms having openings therethrough adapted to receive one of said sticks, a second pair of diametrically extending arms arranged at said given angle with respect to said first named arms, and deflected to the opposite side of said body portion, said last named arms being provided with openings therethrough adapted to receive the other of said sticks, each of said arms being deflected at an obtuse angle from said body portion, and the diametrical dimension of each of said openings being greater than the corresponding dimension of the sticks.

5. In a knock-down kite, a pair of sticks crossed at a given angle, a resilient clip for joining said sticks adapted to be formed of a single piece of sheet metal, said clip comprising a flat body portion adapted to lie between the sticks, a pair of arms extending diametrically from said body portion and deflected to the same side thereof, said arms having openings therethrough adapted to receive one of said sticks, a second pair of diametrically extending arms arranged at said given angle with respect to said first named arms, and deflected to the opposite side of said body portion, said last named arms being provided with openings therethrough adapted to receive the other of said sticks, each of said arms being deflected at an obtuse angle from said body portion, and the diametrical dimension of each of said openings being greater than the corresponding dimension of the sticks.

6. In an aeroplane having cross rods, a binding clip therefor, comprising a support element, and a pair of resilient wings diverging from the support element, said wings being apertured to receive one of said rods and an additional and similar pair of wings positioned on the opposite side of said support to receive another of said rods.

In testimony whereof, I affix my signature.

DON D. MYERS.