Oct. 8, 1963 B. K. BAIN ETAL 3,106,373

INFLATABLE AIRPLANE

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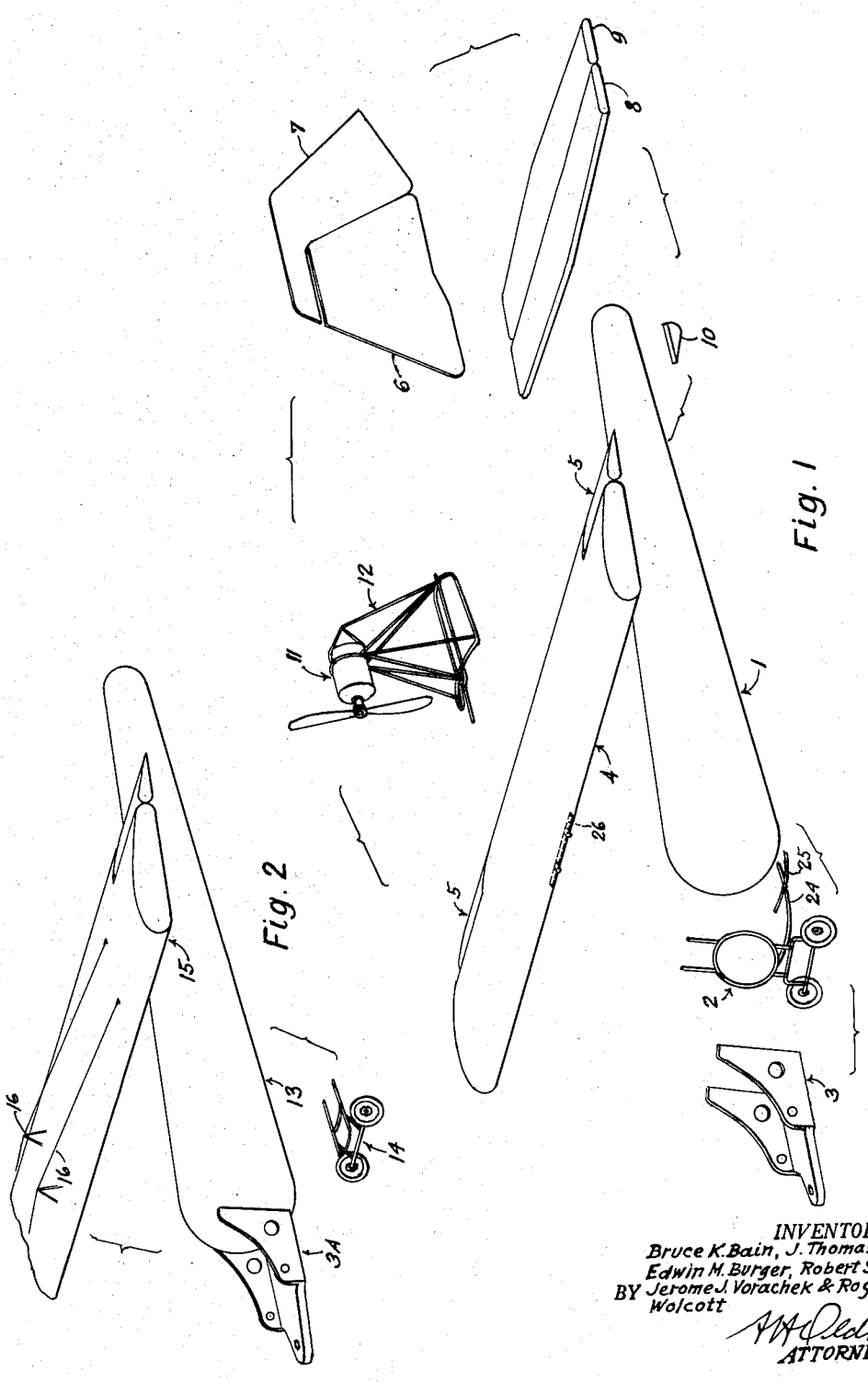

Fig. 1

Fig. 2

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INFLATABLE AIRPLANE

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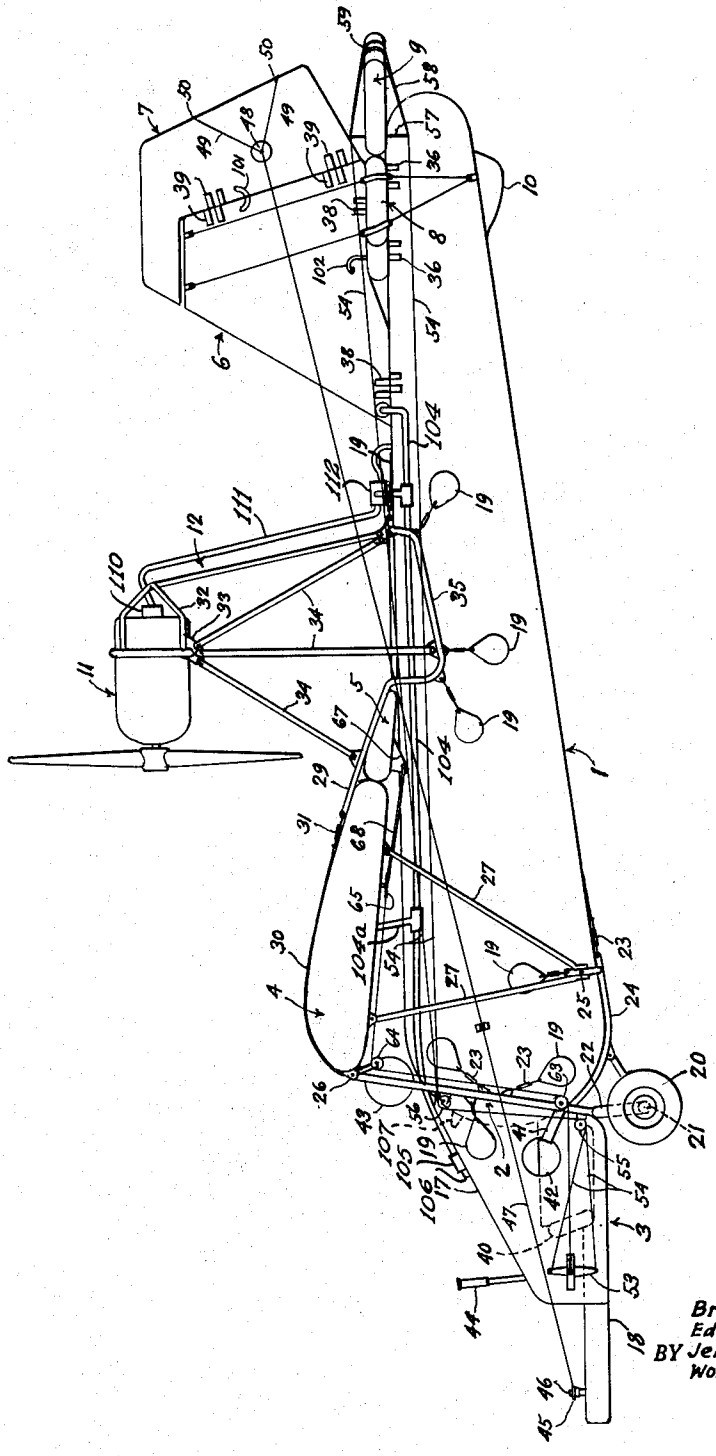

Fig. 3

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INFLATABLE AIRPLANE

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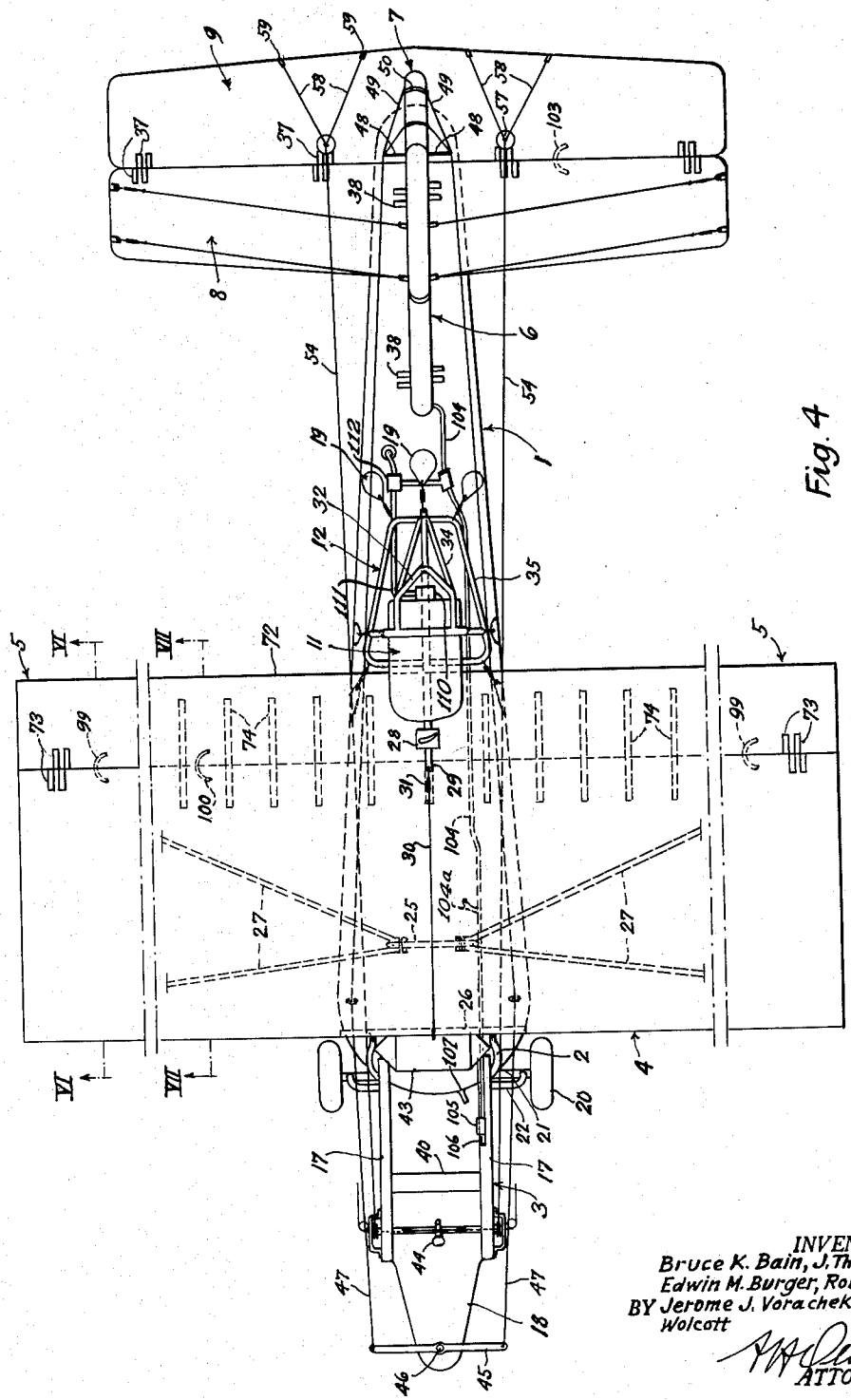

Fig. 4

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INFLATABLE AIRPLANE

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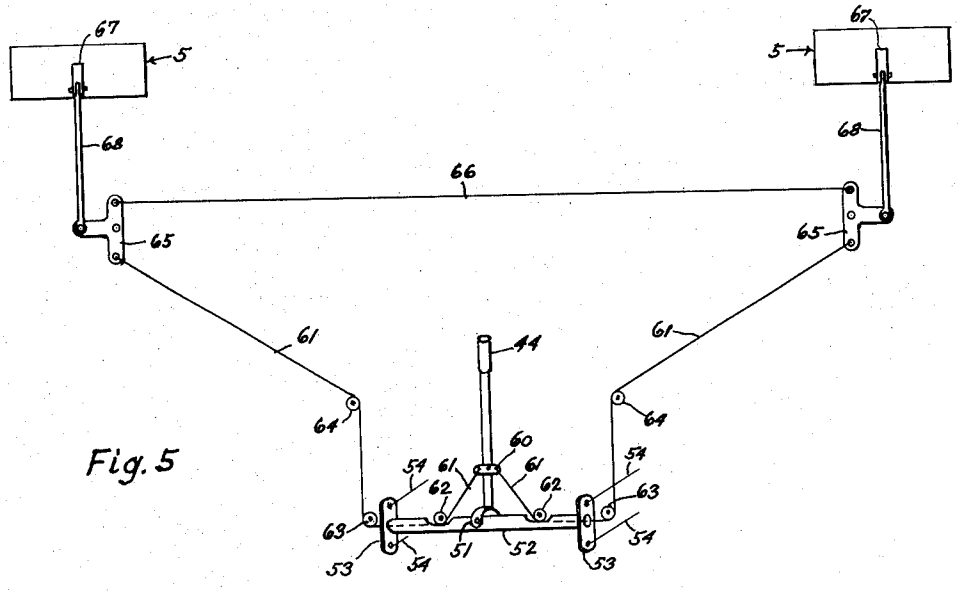

Fig. 5

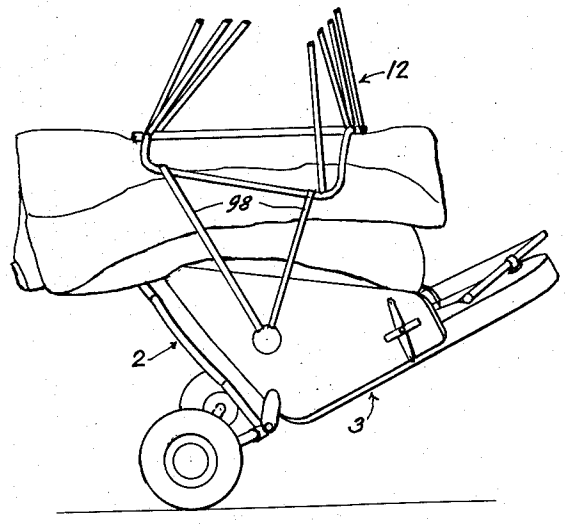

Fig. 9

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INFLATABLE AIRPLANE

Filed Feb. 10, 1956 6 Sheets-Sheet 5

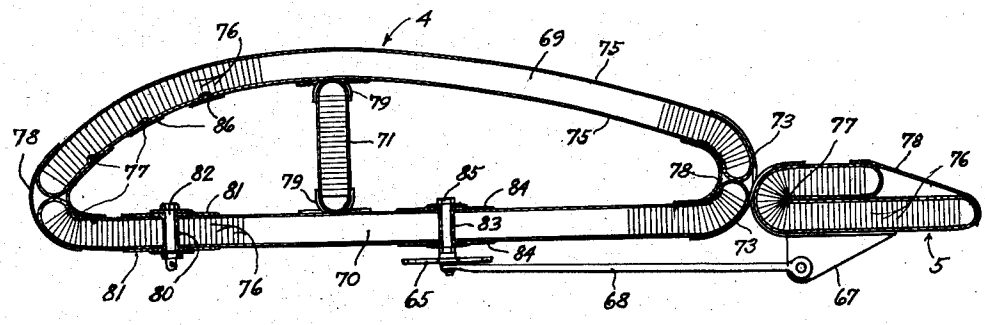

Fig. 6

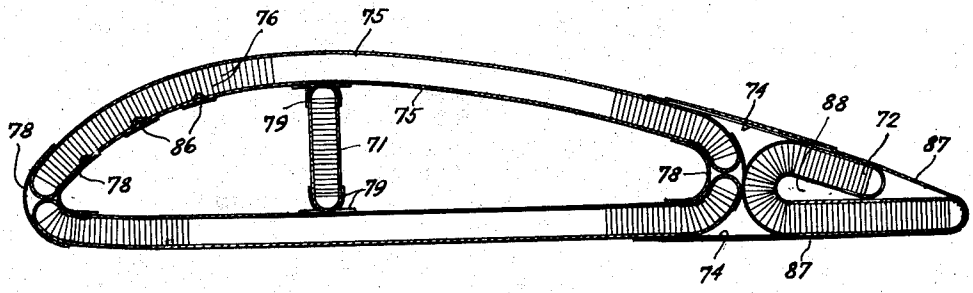

Fig. 7

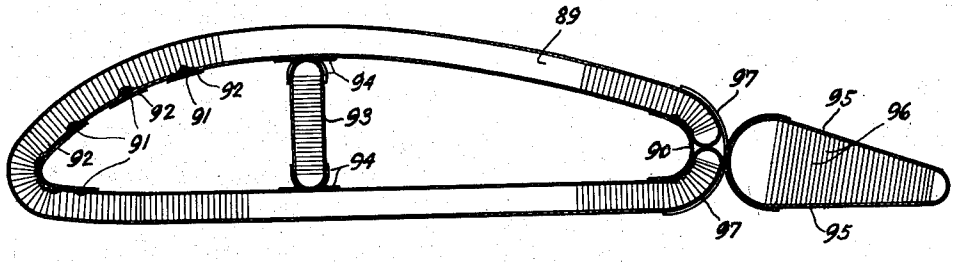

Fig. 8

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INFLATABLE AIRPLANE

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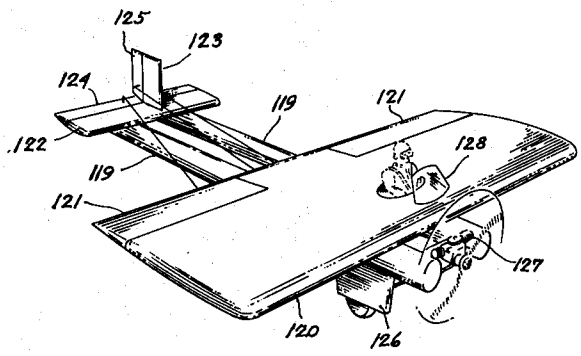

Fig. 12

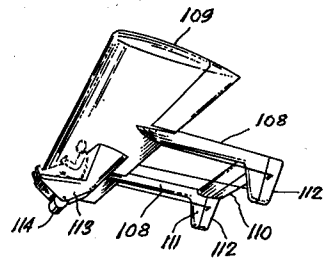

Fig. 10

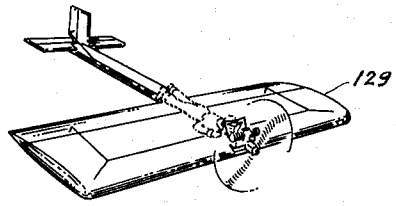

Fig. 13

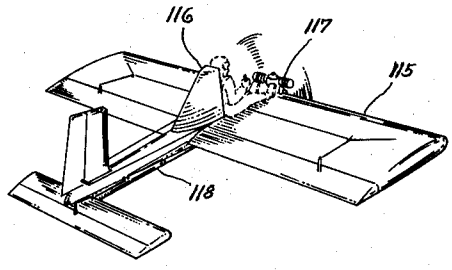

Fig. 11

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United States Patent Office 3,106,373 Patented Oct. 8, 1963

3,106,373

INFLATABLE AIRPLANE

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Filed Feb. 10, 1956, Ser. No. 564,693
8 Claims. (Cl. 244—117)

This invention relates to an airplane, and, more particularly, to an inflatable airplane capable of independently powered flight when in inflated state and of extremely compact storage and transportation when in a deflated and folded state.

In many present-day applications, both military and civilian, there is the need for a small compact airplane possessing good flying characteristics but relatively short-ranged. The transportation of such an airplane to the areas of intended use becomes a pressing problem in view of the heretofore inherent difficulties in "packaging" a conventional airplane.

The general object of this invention is to provide a flyable airplane capable of being packaged in a very small space without extensive dismantling.

Another object of this invention is to provide an airplane in which the major parts can be rapidly and efficiently inflated for use and deflated for transporting or storage.

Another object of this invention is the provision of an improved airfoil made substantially entirely of flexible rubberized fabric or the like and adapted to be inflated to operative rigidity.

A further object of this invention is to provide an inflatable airplane which when deflated and folded can be easily moved over terrain with a minimum of manpower effort.

A further object of this invention is the provision of an empennage made of flexible air-impervious material and including a vertical stabilizer, a rudder, a horizontal stabilizer and elevators adapted to be inflated as a unit into operative condition.

A still further object of this invention is to provide an inflatable airplane that is efficient in operation, uncomplicated to use, and economical and simple to maintain in repair.

Still another and more specific object of the invention is to provide a heavier-than-air aircraft having its fuselage, wings, and empennage made of flexible, rubberized fabric or the like and adapted to have releasably secured to its outer surface a saddle mounting an engine and a cradle carrying landing wheels.

Other objects and advantages of this invention will become apparent hereinafter as the description thereof proceeds; the novel features, arrangements, and combinations being clearly delineated in the specification, as well as in the claims thereunto appended.

In the drawings:

FIG. 1 is an "exploded" view of the major sections of the airplane of the invention.

FIG. 2 is an "exploded" view of the front section of an airplane showing another embodiment of the invention;

FIG. 3 is a side elevational view of the assembled airplane of FIG. 1;

FIG. 4 is a top plan view of the assembled airplane of FIG. 1;

FIG. 5 is a diagrammatic representation of the cockpit elevator and aileron control system;

FIG. 6 is a cross-sectional view of the wing taken along line VI—VI of FIG. 4;

FIG. 7 is a cross-section of the wing taken along line VII—VII of FIG. 4;

FIG. 8 is a cross-sectional view similar to that of FIG. 6 illustrating another method of wing construction;

FIG. 9 is a view showing the airplane of the invention in deflated and transportable form; and

FIGS. 10–13 are perspective views of other embodiments of the invention in various forms of airplanes.

To facilitate clarity and ease of understanding of the more detailed views and description which follow, FIGS. 1 and 2 illustrate the general overall relationship of the major parts of two embodiments of the invention.

FIG. 1 shows an "exploded" view of an airplane of the invention. A fuselage **1** is provided of a monocoque construction consisting of an internally unsupported envelope of airtight rubberized fabric shaped to the contour as shown when in an inflated condition. A framework **2**, constructed of rigid members, usually metal tubing, is arranged to conform to the forward end of the fuselage **1** and normally carries landing wheels. An inflatable pilot's seat **3**, constructed of rubberized fabric portions hereinafter described in detail, is provided and is adapted to be mounted on the framework **2**. An inflatable airplane wing **4** is arranged to mount on the upper forward surface of the fuselage **1** and has inflatable ailerons **5** incorporated therein. At the tail end of the fuselage **1**, an inflatable empennage is shown; said empennage including a vertical fixed stabilizer **6**, a rudder **7**, a horizontal fixed stabilizer **8**, and an elevator **9**. A tail skid **10** is arranged to be mounted on the lower surface of the tail end of the fuselage **1**. Propulsion is affected by an engine **11** mounted on a rigid saddle-like framework **12**, which in turn is adapted to be mounted on the upper surface of the fuselage **1** immediately aft of the wing **4**.

In FIG. 2 another embodiment of the invention is shown. An inflatable pilot's seat **3A** is mounted directly on the nose of an inflatable fuselage **13**. A landing gear cradle **14** is arranged to be mounted on the underside of the fuselage **13**. An inflatable wing **15** is additionally supported by or has its dihedral controlled by a cabane **16** which usually has, as well, cables (not shown) extending from the underside of the wing to the cradle **14** or underside of the fuselage.

FIGS. 3 and 4 are respectively a side elevational view and a top plan view of the airplane of FIG. 1 in assembled form. The pilot's seat **3** is formed of two vertical side portions **17** and a horizontal base portion **18** therebetween and extending forwardly of the side portions **17**. The side and base portions **17** and **18** respectively, are each individually formed of a construction such as is generally shown in United States Patent 2,698,020 of Walter J. Phane which issued December 28, 1954. Each of said portions is formed of two parallel spaced panels of rubberized airtight fabric having a multiplicity of tie-threads therebetween to maintain the spaced relationship when in the inflated condition. The side portions **17** and base portion **18** are joined together with rubberized fabric to form the pilot's seat, and each portion may be provided with an inflation valve, but preferably all portions are connected together with a manifold tube so that they can be inflated simultaneously. The pilot's seat **3** is suitably affixed at the rear end thereof to the rigid framework **2** as by means of ties extending from conventional "finger" patches **19** secured to the seat. At the lower end of the framework **2**, a landing gear is shown having landing wheels **20**, a connecting axle **21**, and an axle supporting bar **22**; the latter in turn being a part of the framework structure itself.

The framework **2** is also attached to the fuselage **1** (FIG. 3) by means of "finger" patches **19** on the fuselage, utilizing wire cables and slack-adjusting turnbuckles **23**. As can be seen from FIGS. 1 and 3, an arm **24**, of

the framework 2, extends rearwardly along the underside of the fuselage 1 and has in turn a cross-member 25 affixed thereto and shaped to fit the fuselage 1. At the two extremities of the cross-member 25 and also at the extremity of the arm 24, taut connection to the fuselage 1 is provided by means of more finger patches 19, the ties of which usually have associated turnbuckles.

Atop the fuselage 1 is an inflatable wing 4 having inflatable ailerons 5. The wing 4 has at the leading edge thereof a built-in rigid bar 26 (see also FIG. 1). The bar 26 is suitably affixed in a readily removable manner to the upper extremities of the framework 2 to thus support the center area of the leading edge of the wing 4. The wing 4, in the form of the invention shown, is further supported by rigid struts 27 which are suitably connected at the lower ends thereof to the cross-member 25, and at the upper ends to the wing 4 by means hereinafter described in detail in connection with FIG. 6.

Airplane motive power is provided by an engine 11 driving a propeller 28. The engine 11 may be of any of the conventional internal-combustion types fueled by conventional fuels and the choice and design thereof are well-known to one skilled in the art and need not be further described therefor. The upper portion of the rigid framework 12 supports the engine 11 while the lower portion thereof is saddle-shaped to conform to the upper fuselage surface. The framework 12 is secured to the fuselage 1 by means of patches 19 and associated turnbuckles suitably positioned on the fuselage around the base of the cradle. An arm 29 on the framework 12 extends forwardly over a portion of the wing 4 (see FIGS. 3 and 4) and is tightly anchored by means of a wire cable 30 and a turnbuckle 31 to the rigid bar 26, thereby pressing the trailing edge of the wing 4 against the fuselage 1 to further provide stability and support therefor.

As shown, the framework 12 includes an engine support section 32 having a bracket 33 mounted on the underside thereof. Vertical support members 34 are provided between the bracket 33 and a saddle-shaped bottom ring 35; the connections therebetween may be made of the readily detachable type to permit easy dismounting of the rigid framework from the ring 35 which may be left on the fuselage. Alternatively, and often preferably, the entire framework 12, engine 11, and saddle 35 can be removed from the fuselage by releasing the ties to patches 19 for purposes of storage or transportation.

The empennage of the airplane includes a horizontal fixed stabilizer 8 attached at the midpoint thereof to the upper surface of the tail end of the fuselage by means of cross-straps 36. Each of the straps 36 is arranged so that approximately half of the length thereof is adhesively secured to the stabilizer 8 and the other half to the fuselage with alternate straps arranged in opposite directions. The elevator 9, in the embodiment shown, extends the full width of the fixed stabilizer 8. A hinged joint between the fixed stabilizer 8 and the elevator 9 is effected by means of alternating straps 37 secured in the same manner as straps 36.

The vertical fixed stabilizer 6 is secured to the fuselage 1 and to the horizontal fixed stabilizer 8 by means of alternating straps 38. The rudder 7 is in turn affixed hingedly to the vertical fixed stabilizer 6 by similarly arranged straps 39. Each of the individual sections of the empennage, namely, the horizontal and vertical fixed stabilizers 8 and 6 respectively, the elevator 9, and the rudder 7, are formed of a construction similar to that of each portion of the pilot's seat previously described; namely, spaced panels of rubberized fabric connected with tie-threads and closed at their edges to form air-tight inflatable bodies.

The tail skid 10 may be formed of a variety of materials, such as metal or plastic, and is mounted on the underside of the tail end of the fuselage 1. Cables are usually provided which extend from the skid 10 to the

ends of the horizontal stabilizer 8 and to the top of vertical stabilizer 6 to assist in holding the parts in proper position and alignment.

The term rubberized fabric as used hereinbefore and hereafter will be uderstood to include any of the variety of rubber-like or other flexible plastics having air-impervious characteristics. The fabric structure may be of material such as cotton, rayon, nylon, glass, or other woven or weftless materials. Also included are webs such as tough films of air-impervious flexible plastic materials with or without internal reinforcing strands, cords, or fabrics.

In operation, the pilot is seated between the two side portions 17 in the space formed by the base portion 18 and a transverse member 40, likewise formed of an inflated fabric member similar to the base and side portions heretofore described; the net result being a type of "bucket" seat. A safety belt 41 is attached to the side members of the framework 2 and passes through openings 42 (FIG. 3) in each of the side portions 17. Suitably attached to both sides of the framework 2 is a fuel tank 43, which may be formed of flexible fabric material and thereby also serve as a headrest for the pilot.

To control the plane, conventional flight controls are shown. A control stick 44 is adapted to be workable while between the pilot's knees; the pilot's feet resting on a transverse rudder bar 45 pivotally hinged at midpoint by a pin 46. Control cables 47 are attached between the extremities of the rudder bar 46 and the rudder 7. At the rudder 7, the cables 47 connect to stand-offs 48. Between opposite stand-offs 48, cables 49 and edge straps 50 pass around the edge of the rudder 7 to provide greater strength and stability.

FIG. 5 shows a diagrammatic representation of the elevator and aileron controls. The control stick 44 is hingedly secured by means of a yoke 51 to a hollow cross-bar 52, which, in turn, is rotatably mounted in bearings secured in the seat side portions 17. As the stick 44 is moved fore and aft by the pilot, end plates 53 on the bar 52 are also rotated. Cables 54 are secured to the ends of the plates 53 and, as can best be seen in FIG. 3, pass over pulleys 55 and 56, in the order named, to the elevator 9, where the cables 54 are secured to stand-offs 57. Cables 54 and stand-offs 57 are provided both on the starboard and port side of the fuselage. Between each opposing set of stand-offs 57, cables 58 and edge straps 59 are shown (FIG. 4) to further distribute stresses and facilitate elevator control.

Referring again to FIG. 5, at a point intermediate the length of the control stick 44, a cross-bracket 60 is shown. Attached to each end of the bracket 60 are cables 61 which pass over the pulleys 62, through the cross-bar 52, over the pulleys 63 and 64, and are secured to one arm of bell-cranks 65. The bell-cranks 65 are mounted on the wing in a manner hereinafter described in detail in connection with FIG. 6. A cable 66 extends athwartship between the port and starboard bell-cranks 65 and is secured to the second arm of each. The third arm of each crank 65 is linked to a lug 67 on each aileron 5 by a rigid member 68. Thus, with the described arrangement, as the control stick 44 is moved from port to starboard, corresponding control of the aileron 5 is effected.

FIG. 6 shows a wing cross-section taken along line VI—VI of FIG. 4. The main body of the wing is formed of a top section 69, a bottom section 70, and an internally reinforcing section 71. The trailing edge of the wing is formed of a fixed section 72 (FIG. 4), and port and starboard ailerons 5. The aileron 5, as shown in FIG. 6, is formed of an inflatable portion which is doubled-back partially on itself on the side nearest the main wing body. Alternating adhesively-secured straps 73 are used to provide a hinged joint between the aileron 5 and the main wing body. The trailing edge fixed section 72 (FIG. 4) is rigidly secured to the main body by straps 74

on both the upper and lower wing surfaces. The resulting gap between the fixed section **72** and the main wing body is then covered with a smooth sheet (as described in more detail in connection with FIG. 7) to present aerodynamically smooth wing surfaces.

Each of the individual wing sections **69**, **70** and **71** is formed of an inflatable construction consisting of rubberized fabric side panels **75** in spaced and parallel relation having tie-threads **76** therebetween and closed at the edges thereof to make an airtight inflatable section, and of the type of side portions **17** and bottom portion **18** of the seat **3** previously described. To effect curved structures, the inwardly facing panel is drawn together with or without cutting to form "tucks" **77**. To join individual sections **69** and **70** together at their leading and trailing edges, and with concave sides towards each other in the manner shown, adhesively-secured rubberized fabric sheets **78** are utilized. The vertical reinforcing spar-section **71** is retained in position by means of straps **79**. Connections between the struts **27** and the wing section **70** are provided, as shown in FIG. 6, by means of a flanged housing **80**, holding patches **81**, and a through pin **82**. A similar construction is used for rotatably supporting the aileron bell-crank **65**, namely, a flanged housing **83**, holding patches **84**, and a pin **85**. Each of the "tucks" **77** is shown covered throughout the "tuck" length by an adhesively secured patch strip **86**, which, when the panels **75** are cut in tucking, prevents leakage of the inflating air and also serves to retain the desired contour.

FIG. 7 shows a cross-section of the wing taken along VII—VII of FIG. 4. As previously described in connection with FIG. 6, the main body of the wing is the same as that of FIG. 6. However, the trailing edge fixed section **72** is immovably affixed to the main wing body by straps **74** and a rubberized fabric sheet **87** passing around the entire trailing edge section. Although the trailing edge section **72** may be of a construction identical with that of the aileron **5** of FIG. 6, another embodiment of the invention is here shown in that the doubled back portion is formed so as to provide for a smoother transition between the main wing body and the trailing edge fixed portion by providing a space **88** incorporated in the fixed portion.

FIG. 8 illustrates another type of wing and trailing edge fixed portion, and/or aileron construction. The main wing body is formed of a single length of inflatable section **89** formed from the trailing edge, around the leading edge, and then back to the trailing edge again. The joint between the consequently contiguous edges is held in position by an internal adhesively-secured strip **90**. "Tucks" **91** and covering strips **92** are utilized in the same manner as hereinbefore described in detail. An internally reinforcing "spar-like" member **93** is provided and secured by straps **94**. The aileron shown is formed of construction similar to the individual wing panels described excepting that the spaced panels **95** are not parallel but vary in spacing therebetween. Consequently the tie-threads **96** are of decreasing length from fore to aft direction. Alternating straps **97** are utilized to effect a hinged joint between the aileron and the wing body. It will be obvious that the trailing edge fixed portion of the wing may utilize the identical construction of that of the aileron shown in FIG. 8 excepting that the joint between the fixed portion and the main wing body would be immovable and not hinged.

FIG. 9 illustrates the compact packaging of the airplane of the invention. Utilizing the inflated pilot's seat **3** as a stacking base, the deflated wing, fuselage, and empennage are placed thereon in folded form and the previously dismounted motor support framework **12** also placed thereon. If desired, ropes or straps **98** may be utilized to further retain the plane components in place. The net result is a compact unit in which the plane landing gear is utilized for easy transportation, for example, in wheel barrow fashion. It will be evident that the pilot's seat **3** may also be deflated and the framework **2** used as the complete supporting base for all the parts.

FIG. 10 shows an airplane illustrating another general arrangement of the major components hereinbefore described in detail. Twin monocoque fuselages **108** are shown with a transverse wing **109** having ailerons thereon. A single horizontal fixed stabilizer section **110** is affixed between the tail ends of the twin fuselages and the vertical fixed stabilizers **111** and associated rudders **112** extend groundward from the fuselage tails. Ground-engaging skid plates are provided at the lower ends of stabilizers **111**. The pilot's seat **113** is mounted at the midpoint of the wing and under the underside thereof. A single roller **114** serves as the landing gear. The wing and ailerons, empennage sections, fuselages and the pilot's seat are formed similarly to corresponding sections previously described. Propulsion is effected by an engine (not shown) which is mounted on the wing **109**.

FIG. 11 shows a modification of the airplane of FIGS. 3 and 4 in that the pilot is seated atop a wing **115** against a backrest section **116**. An engine **117** is mounted on the nose of a fuselage **118**. The backrest **116**, fuselage, wing, and empennage are all formed of inflatable sections similar to the various constructions hereinbefore described.

FIG. 12 shows an airplane having twin fuselages **119**, a wing **120** with associated ailerons **121**, and an empennage including horizontal and vertical fixed stabilizers **122** and **123** respectively, and an elevator **124**, and rudder **125**. A landing gear **126** is mounted on and below the forward ends of the fuselages **119**. An engine **127** is mounted at the extreme forward end of and between the fuselages **119**. An opening is provided in the wing **120** for a pilot with a seat therefor (not shown) bridging between the fuselages **115** and below the wing **120**. A windshield **128** is shown for pilot convenience. The wing sections, fuselages, empennage, portions of the landing gear **126**, and pilot's seat are formed similarly to corresponding inflatable sections previously described.

FIG. 13 shows a modification of the airplane of FIG. 11 in that provision is made for the pilot to lie at full length fore and aft on a wing **129**.

Initial inflation and easy maintenance of the airplane of the invention is provided for by means of a manifolding system as shown in FIGS. 3 and 4. Basically, two inflation pressures are preferably utilized. The fuselage, in view of the monocoque construction thereof, is inflated to a low pressure, for example 4 lbs., whereas the wing and empennage sections are inflated to a higher pressure, for example 15 lbs. The higher pressure in the wing and empennage is desirable to maintain these parts in proper operative positions, and the lower pressure in the fuselage has been found adequate with its large circular cross section whereby the fuselage need not be built so heavy, giving better payload. In most embodiments of the invention it is preferable to maintain continuously an equal pressure distribution in the wing and empennage sections by means of an interconnecting manifolding system. Thus, between the main wing body and the ailerons (FIG. 4) an interconnecting tube **99** is provided. Similarly between the main wing body and the trailing edge fixed section **72**, another interconnecting tube **100** is shown. In the empennage, tubes **101** and **102** (FIG. 3) connect the vertical fixed stabilizer **6** with the rudder **7** and horizontal fixed stabilizer **8** respectively. The stabilizer **8** is connected to the elevator **9** by means of a tube **103** (FIG. 4). A fore-and-aft tube **104** (FIG. 4) connects the vertical fixed stabilizer **6** with the main wing body and thence to a gauge **105** and filling valve **106** located on the pilot's seat panel **17** for ease in filling and for observation by the pilot during flight. A separate filling valve **107** is shown (FIG. 4) for the fuselage section. It will be obvious that indi-

vidual filling valves attached to each individual wing and empennage section could be used if desired in lieu of the described manifolding system, but this is not preferred for the reason that manifolding better balances the structure and action of all portions of the airplane and with the large reservoir action of all parts guarding against slow leakage of any part rendering the airplane inoperative.

It may be advisable in the operation of the airplane of the invention to incorporate with the engine an air pump **110** which is connected via conduit **111** to the manifolding system and/or the fuselage through suitable control valving means **112** to maintain all portions of the airplane properly inflated during flight conditions to compensate for any leakage which may occur.

While certain representative embodiments and details have been shown for the purpose of illustrating the invention, it will be apparent to those skilled in this art that various changes and modifications may be made therein without departing from the spirit or scope of the invention.

We claim:

1. In combination in a heavier-than-air airplane, an inflated rubberized fabric monocoque fuselage of relatively narrow and elongate stream-line shape having substantially circular cross section; an inflated rubberized fabric empennage including a rudder and an elevator; and an inflated rubberized fabric wing including ailerons; said empennage and wing when inflated having outer surfaces positioned by a plurality of threads contained internally of their structures; means attaching the empennage and wing to the fuselage; manifold means connecting all portions of the empennage and wing, said empennage and wing being inflated through the manifold means; a saddle; propulsion means mounted on the saddle; a fabric patch and strap means releasably securing the saddle to the top of the aircraft fuselage; a cradle; a landing gear secured to the cradle; and fabric patch and strap means releasably securing the cradle to the underside of the fuselage of the aircraft, said saddle and cradle being thus supported solely by the inflated fuselage for cushioned shock-absorbing movement.

2. In an airplane, the combination of a fuselage, an inflatable fabric wing mounted on the fuselage, inflatable fabric ailerons, flexible fabric hinges securing the ailerons to the wing and an empennage mounted on the fuselage, the empennage including a vertical stabilizer, a rudder, a horizontal stabilizer, and an elevator all made from flexible air-impervious rubberized fabric and movable from a collapsed condition to an inflated relatively rigid position, flexible fabric hinges securing the elevator to the horizontal stabilizer, flexible fabric hinges securing the rudder to the vertical stabilizer, means for simultaneously inflating the wing and the ailerons and means carried by the vertical stabilizer and the horizontal stabilizer for simultaneously inflating the vertical stabilizer, the rudder, the horizontal stabilizer and the elevator.

3. An inflatable, collapsible, and foldable airplane comprising an inflatable fuselage member, rigid members positioned on said fuselage to form a frame, an inflatable foldable wing member secured to said fuselage, said wing member being substantially of airfoil shape when inflated, a single motor mounted on said frame centrally and above the forward portion of said fuselage, a compressor for inflating said airplane adjacent said motor so that the foldable portions of the airplane may readily be wrapped up and about the motor and compressor for packaging purposes, said motor being drivingly connected to said compressor to inflate the fuselage and wing members.

4. In combination in an aircraft, an inflated fabric fuselage, an inflated fabric empennage, and an inflated fabric wing, a rigid cradle contoured to the underside of said fuselage, and a rigid saddle contoured to the upper side of said fuselage, landing gear attached to the cradle, propulsion means mounted on the saddle, and fabric means on the outside of the fuselage for releasably and separately securing the cradle and saddle to the outer surface of the fuselage, said saddle and cradle means being thus supported solely by the inflated fuselage for cushioned, shock-absorbing movement on the fuselage.

5. In combination in a heavier-than-air airplane, an inflated monocoque fuselage of relatively narrow and elongated stream-like shape, an inflated empennage including a rudder and an elevator, and an inflated wing including ailerons, said empennage and wing when inflated having outer surfaces positioned by a plurality of threads contained internally of their structures, means attaching the empennage and wing in operating relation to the fuselage, manifold means connecting all portions of the empennage and wing, said empennage and wing being inflated through the manifold means, a saddle, propulsion means mounted on the saddle, means releasably securing the saddle to the top of the aircraft fuselage, a cradle, a landing gear secured to the cradle, and means releasably securing the cradle to the underside of the fuselage of the aircraft, said saddle and cradle means thus supported solely by the inflated fuselage for cushioned shock-absorbing movement.

6. In combination in a heavier-than-air airplane, an inflated fabric monocoque fuselage of relatively narrow and elongated stream-like shape, an inflated fabric empennage, and an inflated fabric wing, movable flight control members on said empennage and wing of inflated fabric, means for separately moving the flight control members, means attaching the empennage and wing in operating relation to the fuselage, manifold means connecting all portions of the empennage, wing and control members, said empennage, wing and control members being inflated simultaneously through the manifold means, a saddle, propulsion means mounted on the saddle, means releasably securing the saddle to the top of the aircraft fuselage, a cradle, a landing gear secured to the cradle, means releasably securing the cradle to the underside of the fuselage of the aircraft, said saddle and cradle means thus supported solely by the inflated fuselage for cushioned, shock-absorbing movement.

7. An inflatable, collapsible, and foldable airplane comprising an inflatable fuselage member, rigid members positioned forwardly on said fuselage to form a frame, an inflatable foldable wing member secured to said fuselage, said wing member being substantially of airfoil shape when inflated, a single motor mounted on the said frame centrally and above the forward portion of said fuselage, and means for inflating said airplane located in relation to said motor so that the foldable portions of the airplane may readily be wrapped up and about the motor for packaging purposes.

8. An inflatable, collapsible, and foldable airplane comprising an inflatable fuselage member, rigid members positioned forwardly on said fuselage to form a frame, an inflatable foldable wing member secured to said fuselage, said wing member being substantially of airfoil shape when inflated, a single motor mounted on said frame centrally and above the forward portion of said fuselage, means for inflating said airplane adjacent said motor so that the foldable portions of the airplane may readily be wrapped up and about the motor and inflating means for packaging purposes.

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10

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