

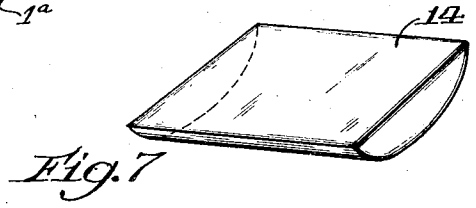
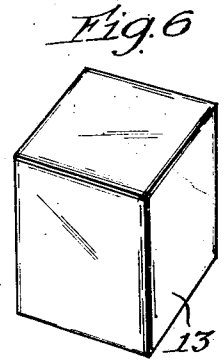
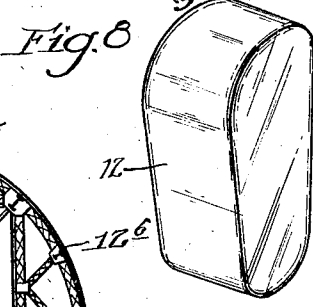
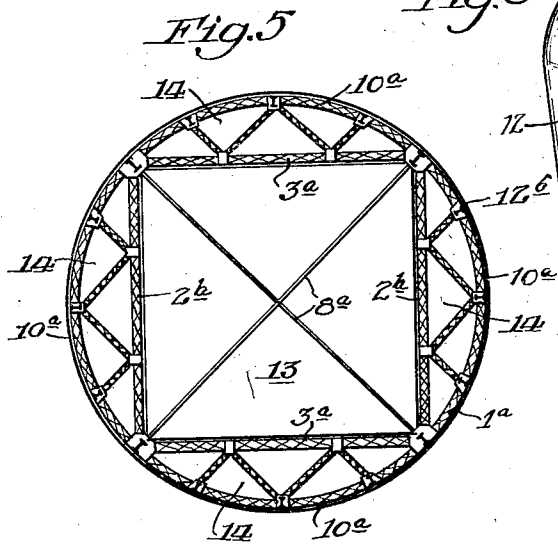
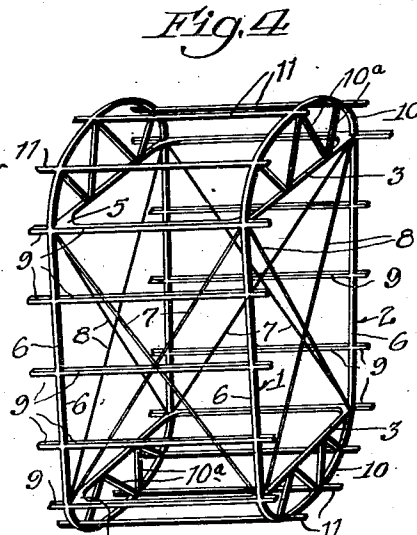
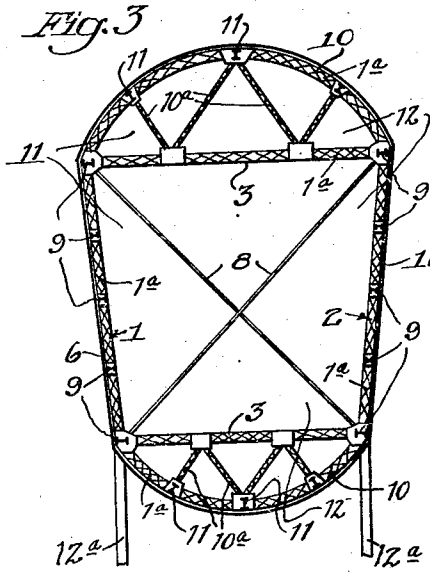
July 21, 1931.

J. B. STRAUSS
DIRIGIBLE FLYING MACHINE

1,815,338

Filed Dec. 29, 1923

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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DIRIGIBLE FLYING MACHINE

Application filed December 29, 1923. Serial No. 683,342.

This invention relates to flying machines and has for its object to provide a new and improved flying machine of the dirigible type. The invention has as a further object to provide a dirigible flying machine with a frame braced to resist the stresses coming thereon. The invention has as a further object to provide a dirigible flying machine having a frame so constructed as to have great longitudinal stability and lateral stability. The invention has as a further object to provide a dirigible flying machine having a main frame and secondary frames connected therewith. The invention has as a further object to provide a dirigible flying machine having flat sides. The invention has further objects which are more particularly pointed out in the accompanying description.

Referring now to the drawings:
 Fig. 1 is a plan view with parts omitted of the device.
 Fig. 2 is a side elevation of the dirigible with parts omitted and a portion of the cover removed.
 Fig. 3 is a section on line 3—3 of Fig. 2.
 Fig. 4 is a perspective view of a portion of the frame showing one of the sections enclosing one of the gas bags.
 Fig. 5 is a cross section of the dirigible showing a modified construction.
 Fig. 6 is a view showing one of the gas bag sections for the construction of Fig. 5.
 Fig. 7 is a view showing one of the peripheral gas bag sections for the construction of Fig. 5.
 Fig. 8 is a view showing one of the gas bag sections for the construction shown in Figs. 1 to 4.

Like numerals refer to like parts throughout the several figures.

In carrying out my invention I provide a frame for the dirigible made up so as to be strong, durable, and efficient. In constructing this frame I provide two flat separated side frame elements 1 and 2 braced together by the bracing elements 3 located in the planes of the tops and bottoms of the elements 1 and 2. These bracing elements 3 are provided in any suitable manner with enlarged ends 5 for connecting them to the side frame elements, which enlarged ends may be formed by plates or separate pieces. The side frame elements 1 and 2 have the vertical members 6 at intervals preferably in alignment with the bracing elements 3, and they also have the diagonal members 7 in the same plane as the members 6. There are also diagonal members 8 connecting the side frame elements together in the plane of the bracing elements 3 and the members 6. There are longitudinal bracing members 9 at the sides of the frame. A series of secondary frames 10 are provided at the top and bottom which are connected to the main side frame elements and the cross bracing 3 (see Figs. 3 and 4). In the construction shown in Figs. 1 to 4 inclusive, the secondary frames 10 are only applied at the top and bottom leaving the sides flat. Longitudinal bracing elements 11 extend along the top and bottom connecting the secondary frames 10. All of the longitudinal braces converge toward a point at each end. It will be noted that the frame is thus divided into sections thereby providing unobstructed spaces between adjacent members 6 into which are placed the gas bag sections 12. It will further be noted that in the construction of Figs. 1 to 4 inclusive that unobstructed spaces extend to the top and bottom of the device and that these gas bag sections 12 extend above and below the cross braces 3 filling the space between the secondary frames 10 as well as the space between the cross braces 3 and the side frame members 1 and 2. One of these gas bag sections is illustrated in Fig. 8. The side frame elements 1 and 2, it will be noted, are made up of elements formed into triangles and the entire device is arranged to have a truss action, and to secure great longitudinal and lateral stability. The secondary frames 10, in Figs. 1 to 4, round out the top and bottom of the device, and also have members 10^a formed into triangles to secure truss action. In other words there are a series of open spaces longitudinally along the dirigible which are open to receive the sections of the gas bags but which do not in-

terfere with the cross bracing of the structure, with the longitudinal or lateral stability thereof. The various members are shown more or less diagrammatically in Figs. 1, 2, and 4, but they are preferably made up of members with diagonal braces 1^a as clearly shown in Figs. 3 and 4, so as to secure lightness with the desired strength. Supports 12^a extend below the frame of the dirigible for attaching the gondolas 13^a or other devices which also act for the attachment of the guy ropes or cables for controlling the dirigible. These supports 12^a are preferably connected to the side frame elements 1 and 2 at the points where the members 6 are connected therewith, as clearly shown in Figs. 2 and 3. A cover 12^b of any suitable material is placed over the frame and the gas bags. In the construction shown in Fig. 3 the side frame elements 1 and 2 are inclined inwardly from the top toward the bottom so as to form the flat sides converging from the top toward the bottom. In Fig. 5 I have shown a modified construction where the main frame is formed in a square shape by flat side frame elements 2^b and the cross pieces 3^a, the secondary frames 10^a being applied to the sides as well as the top and bottom so as to form a round or circular construction. In this construction the gas bags are made in sections longitudinally as in the construction of Figs. 1 to 4, there being central gas bag sections 13 preferably square in section for occupying the central portion of the open section, and a series of peripheral gas bag sections 14 for occupying spaces between the secondary members 10^a. I have described in detail a particular construction embodying the invention but it is evident the parts may be varied in many particulars without departing from the spirit of the invention, as embodied in the claims hereto appended and I, therefore, do not limit myself to the particular construction shown.

It will be noted that this machine has a frame structure, the main longitudinal frames designed to act as trusses having moment and shear members. The moment members are the top and bottom cords and the shear members are the diagonals.

I claim:

1. A dirigible flying machine comprising a main frame quadrangular in cross section having two longitudinally extending continuous separated flat side frame elements extending longitudinally along the dirigible, braces in the plane of the top and bottom of said side frame elements connecting them together, secondary frames connected with said side frame elements, means within the frame for giving it buoyancy, and a cover extending over said main and secondary frames.

2. A dirigible flying machine comprising a frame having two flat sides converging toward the bottom, side frame elements separated by a space, cross bracing elements connecting said side frame elements at the top and bottom and having enlarged ends by which the connections to the side frame elements are made, sectional gas bags located at intervals along the frame and a cover covering said frame and gas bags.

3. A dirigible flying machine comprising a main frame having two side frame elements, one at each side thereof, cross bracings connecting said side frame elements together, said side frame elements having vertical members with braces between them, supports for a passenger carrying conveyance connected with the side frame elements where the vertical members are located.

4. A dirigible flying machine comprising a main frame having flat sides, frame elements one at each side of the machine, bracing elements connecting said side frame elements together in the plane of the top and bottom thereof, cross connections between said side frame elements in the plane of said bracing elements, secondary frames connected with said side frame elements at the top and bottom thereof and extending crosswise, gas bag sections in the spaces between the bracing elements and extending above and below said bracing elements into the spaces between the secondary frames.

Signed at Chicago, county of Cook, and State of Illinois, this 17th day of December, 1923.

JOSEPH B. STRAUSS.

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