April 5, 1927. D. DONCHEFF 1,623,865

AIRSHIP

Filed Nov. 30, 1925

Fig. 1.

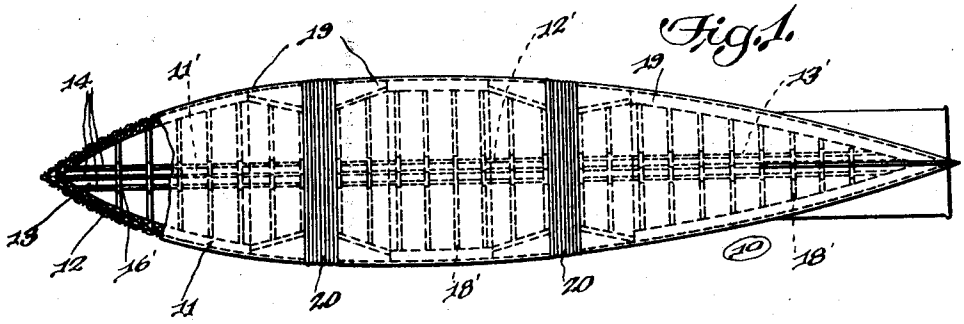
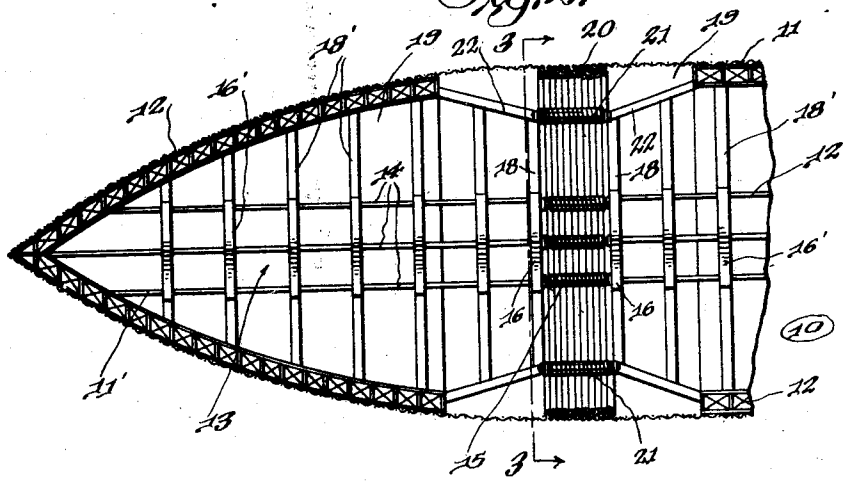


Fig. 2.



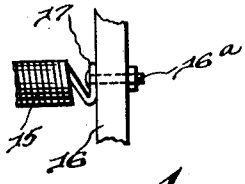


Fig. 4.

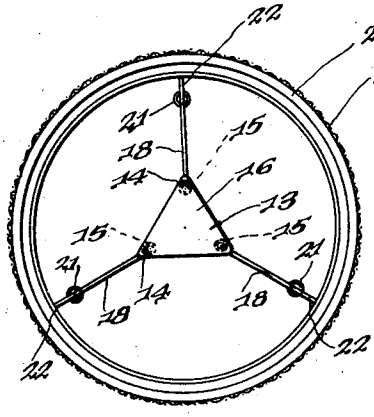


Fig. 3.

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1,623,865

Patented Apr. 5, 1927.

UNITED STATES PATENT OFFICE.

DEMETRE DONCHEFF, OF EAST ST. LOUIS, ILLINOIS.

AIRSHIP.

Application filed November 30, 1925. Serial No. 72,350.

My invention relates to certain novel improvements in air ships of the class known as dirigibles and has for its principal object the production of a device of this character wherein a novel frame work, known as the back bone or skeleton of the device, is incorporated as a part thereof making the body substantially flexible yet rigid enough so as to assume its normal shape while travelling in a longitudinal path, the flexibility of the frame work being sufficient to permit flexing of the body while under an outside pressure, such as a wind pressure or the like, without distortion or any undue strain on the cooperating parts thereof.

A further object of the invention is the production of a device of this character wherein provision is made for permitting flexing of the body under an outside pressure without rupturing, and wherein provision is made to repulse sudden wind pressure thereby relieving the body or its frame from sudden flexing due to an outside agent of any nature and wherein the body will stand strong destructive winds and air pressures.

A further object of the invention is the production of a device of this character which will be economical in manufacture and durable in use.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing showing the preferred form of construction and in which,

Fig. 1 is a top plan view of the invention in its preferred form of construction,

Fig. 2 is a fragmentary sectional view of the same,

Fig. 3 is a sectional view of the same taken substantially on line 3—3 of Fig. 2, and

Fig. 4 is a fragmentary detail view showing a spring connection embodied in the invention.

In the drawing similar parts throughout the several views are indicated by similar reference characters.

Referring to the drawing, a dirigible is indicated as a whole at 10 and includes an envelope 11 of such material as will best serve the purpose. The envelope is generally supported by a net work of frame members indicated at 12. These frame members are carried by what is known in the art as a back bone or skeleton 13 and attached thereto by any one of the several methods well known in the art, which methods include no part of the present invention.

The back bone 13 of the dirigible illustrated, includes beam members 14 each preferably made in not less than three sections, indicated at 11′, 12′ and 13′, however, the number of sections depends largely upon the size of the dirigible. Each of the beam sections are connected together in a longitudinal relation by means of springs 15 through the medium of substantially triangularly shaped connecting plates 16. The springs are preferably connected to the plates in the manner illustrated in Fig. 4 which includes bolts 16ª passed through eyelets 17 formed in the ends of the springs, and these springs are each wound closely on a suitable arbor and made of such material as will permit expansion and flexing sufficient to oppose an outside pressure and yet not enough to permit any section of the beam to be moved any great distance away from its longitudinal position which would cause damage to the dirigible. These springs are also made of such material that while they are capable of expanding and flexing, they will be of such strength as to retain the beam sections in longitudinal relation when not acted upon by an outside agent. The connecting plates above referred to are preferably supported centrally of the envelope by means of spaced connecting links 18 as best illustrated in Fig. 2.

The envelope is also made in sections, there being as many envelope sections as there are beam sections and these sections are indicated at 19. These envelope sections are preferably connected together by flexible sections 20 formed in bellows type to compensate for movement of the envelope proper urged by movement of the beam sections thus preventing rupturing or distortion of the envelope as a whole upon movement of the beam sections. These sections are located in opposite alignment with the springs 15 and as shown. The flexing of these sections 19 is opposed by spring members 21 supported adjacent the inner sides of the sections by supporting links 22.

The bellows type sections are preferably formed in such manner as to provide a continuous outside surface of the envelope.

The back bone beam members are further held in spaced relation with respect to each other by similar triangularly shaped connecting plates 16′ likewise supported in position by the connecting links 18′.

From the foregoing description it is evident that the bellows sections of the envelope permit flexing without rupturing or distorting the body of the dirigible and that the flexing of the envelope sections is opposed by the springs herein mentioned.

By the construction of a dirigible herein described, it is manifest that the same in flight is able to withstand sudden wind pressures and as such, maneuvering the dirigible in flight will be greatly facilitated and less dangerous.

While I have shown and described the preferred form of my invention, it is to be understood that various changes and alterations may be carried out in manufacture without departing from the spirit of the invention or the scope of the appended claims.

The invention having been set forth, what I claim as new and useful is:

1. In a dirigible air-ship, the frame work comprising sectional members, a centrally disposed beam structure including triangular spaced plates, longitudinal beam rods, said spaced plates supported by connecting links from the body frame work, said body frame work including sectional portions defining the peripheric contours of said air-ship, coil springs distributively positioned between adjacent ends of said frame work sections, and an enveloping fabric for covering the entire structure provided with bellows-shaped portions at the several adjacent ends of the frame work.

2. A dirigible air-ship including sectional frame work members, coil springs connecting said several sections and distributively positioned between adjacent ends thereof to afford resiliency and elasticity to external stress but to normally maintain the shape and relation of said frame work members, centrally disposed beam structures including triangular spaced plates having longitudinal beam rods therethrough, and coil springs connecting said longitudinal beams in alignment with those of abutting and adjacent beam structures, substantially as shown.

3. A dirigible air-ship including a sectional surface frame structure defining a continuous streamline body, a centrally disposed sectional beam structure comprising triangular spaced plates supported by connecting links from said surface frame structure, longitudinal beam rods passing through and connecting said triangular plates in alignment, coil springs longitudinally disposed between said frame sections and beam sections for connecting them in a normally fixed relation and offering resiliency and elasticity to external stress, and an enveloping element provided with bellows-shaped portions at the junctions of the disposed springs.

In testimony whereof I affix my signature.

DEMETRE DONCHEFF.