K. H. WEIDHASE.

AIRSHIP.

APPLICATION FILED APR. 4, 1917.

1,261,663.

Patented Apr. 2, 1918.

2 SHEETS—SHEET 1.

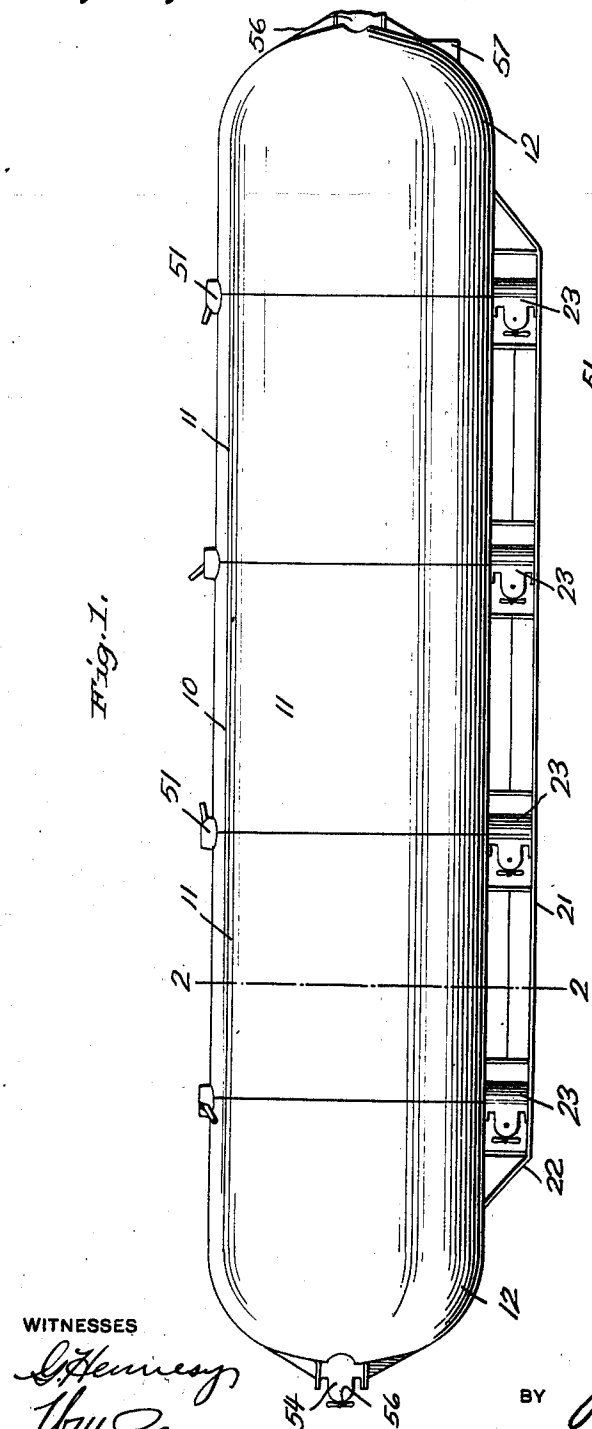

Fig. 1.

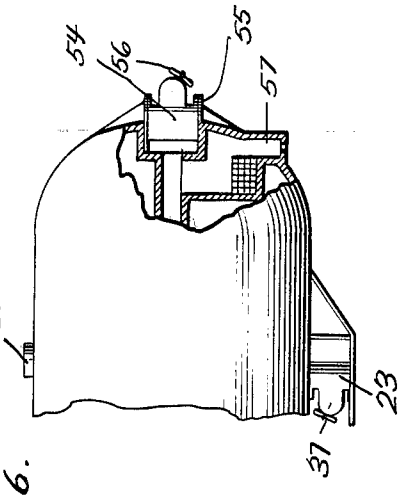

Fig. 6.

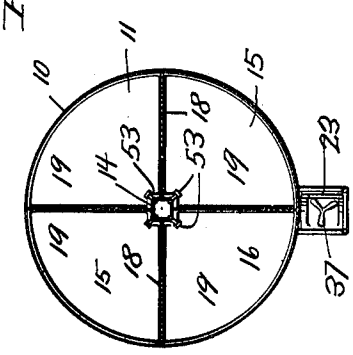

Fig. 2.

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Fig. 3.

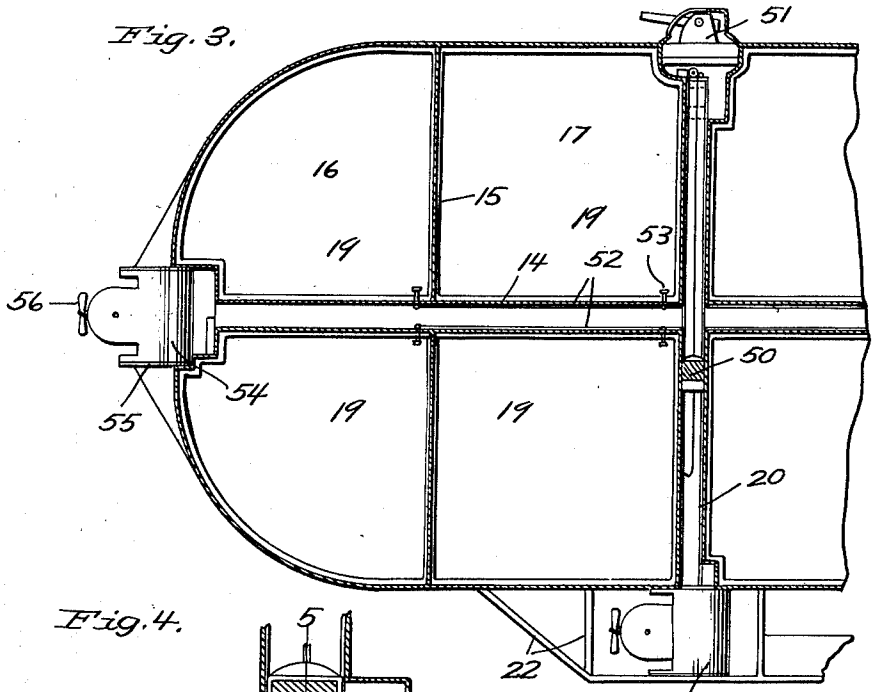


Fig. 4.

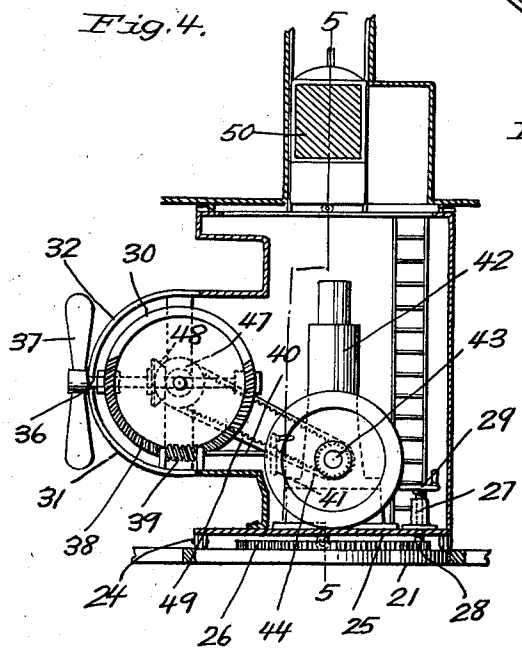
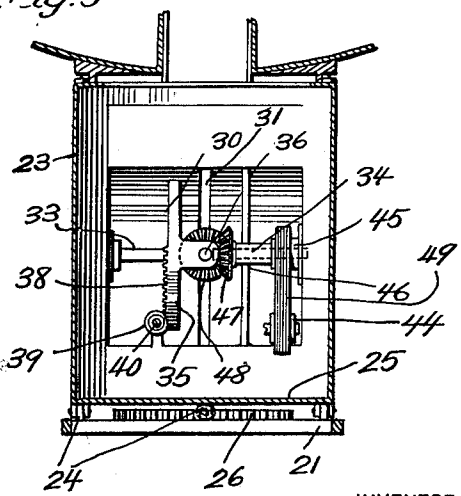


Fig. 5



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AIRSHIP.

1,261,663. Specification of Letters Patent. Patented Apr. 2, 1918.

Application filed April 4, 1917. Serial No. 159,745.

To all whom it may concern:

Be it known that I, KARL H. WEIDHASE, a citizen of the United States, residing at Chevy Chase, in the county of Montgomery and State of Maryland, have invented certain new and useful Improvements in Airships, of which the following is a specification.

This invention has relation to airships of the lighter than air type, with special reference to machines of this type designed for military purposes.

An object of the invention is to provide an airship embodying a gas container formed in sections which when assembled presents the appearance of the conventional type of so called cigar-shaped, or Zeppelin type, each section being divided into a plurality of independent circumferentially spaced gas containers, each section being furthermore divided by means of a wall of non-inflammable material.

Another object of the invention is to provide in an airship of the type above described, means for propelling the same, which means includes a plurality of propellers mounted in a unique manner whereby the propellers may be directed upward or downward, independently of each other to raise or lower the airship, or to the right or left to steer the airship.

A still further object of the invention is to provide an airship having a gas container of a sectional and cellular character enabling the provision of passage ways, elevator shafts, etc., throughout the length of the machine, and vertically to permit access to every portion of the gas container, and to every individual cell in its structure for refilling or repair.

A still further object of the invention is to provide a structure in an airship for enabling the mounting of firearms of the machine or other type for offensive and defensive purposes.

In addition to the foregoing my invention comprehends improvements in the details of construction and arrangement of parts to be hereinafter more fully described and particularly set for in the appended claims.

In the accompanying drawings in which similar and corresponding parts are designated by the same characters of reference throughout the several views in which they appear:

Figure 1, is a view in side elevation of an airship constructed in accordance with my invention.

Fig. 2, is a transverse section taken on the line 2—2 of the preceding figure.

Fig. 3, is a view in section on an enlarged scale of one end of the machine.

Fig. 4, is a detail view in section of one of the engine compartments, and

Fig. 5, is vertical section taken on the line 5—5 of the preceding figure.

Fig. 6, is a fragmentary view of one end of the airship.

With reference to the drawings, 10 indicates generally the balloon element of my machine, which is composed of a number of cylindrical intermediate sections 11, placed end to end, and end sections 12 of similar construction having rounded ends to impart the proper configuration to the balloon element as an entirety. Each section is formed with a central tubular wall 14 of a diameter sufficient to permit the passage therethrough of a man. With the sections in alined relation the tubular walls form a passage which is continuous throughout the length of the balloon. Each section is divided transversely by means of an interior wall 15 of asbestos thus defining compartments 16 and 17 within each section. Each compartment 16 and 17 is furthermore divided into a plurality of sub compartments by means of radial walls 18 thereby presenting a cellular structure consisting of sub-compartments 19 of which there are preferably eight in each balloon section. Between each balloon section there is further provided a vertical tubular member 20 of relatively large diameter intersecting at its intermediate point the passage which extends throughout the length of the balloon.

A sub-structure is provided which consists of a platform 21 extending practically from end to end of the balloon, and is supported therefrom through the medium of braces 22, guy wires or the like. The lower end of each vertical tubular member 20 enters a separate engine room, all of which are duplicates in construction, and hence a description of one will suffice for all.

It will be seen from reference to Figs. 4 and 5 that the engine room comprises a ver-

tically disposed cylindrical tubular member 23, constructed preferably of aluminum, having rollers 24 forming a support therefor, said rollers resting upon the platform 21 of the sub-structure. The tubular member 23 is guided for rotary movement through a complete circle and is formed with a flooring 25. A circular rack 26 is mounted upon the platform 21 beneath each engine room, concentric to the axis of rotation of said engine room, and a shaft 27 extends through the flooring 25 with a pinion on its lower end engaging the rack 26, and a hand wheel 29 at its upper end. It will be apparent that by rotating the hand wheel the tubular member 23 may be rotated relative to the supporting platform therefor.

Each tubular structure 23 is formed with a lateral compartment 30 formed by securing a frame structure 31 to one side of said tubular structure, said frame structure being of sheet metal with a slot 32 formed therein in a vertical direction. A pair of horizontal shafts 33 and 34 are placed end to end, with their adjacent ends in spaced relation, and their remote ends mounted rigidly on the frame structure 31. The adjacent ends of the shafts serve to support a disk 35 designed for rotation in a vertical plane, and in a plane parallel to the longitudinal axis of the airship, said disk supporting a propeller shaft 36 one end of which projects through the slots 32 in the framework 31 and is supplied at said projecting end with a propeller 37. The disk 35 is furthermore provided upon one side face with a circumferential series of teeth 38 engageable by a worm 39 carried upon a shaft 40. The shaft is provided with a hand wheel 41 whereby the worm may be rotated. It will be apparent from this that the propeller may be directed upwardly, downwardly or for rotation in a vertical plane, and the entire engine room may be rotated in the manner above described to direct the propeller forwardly, rearwardly or to either side of the airship. A prime mover, which may be of the internal combustion type is indicated at 42, and the shaft 43 thereof is provided with a sprocket wheel 44. A sprocket wheel 45 is mounted upon a sleeve 46 which surrounds the shaft 34, said sleeve carrying a bevel gear 47 which meshes with a bevel gear 48 mounted upon the propeller shaft. An endless chain 49 furthermore is trained around the sprockets 44 and 45, whereby power from the engine may ultimately be transmitted to the propeller shaft.

I furthermore provide within each one of the above mentioned tubular shafts 20, an elevator cage 50 designed to convey operators from the several engine rooms to the longitudninal passage within the balloon, or to the upper ends of the elevator shafts where there is located in each instance a firearm 51, suitably armored.

I further provide within the longitudinal passage of the balloon a plurality of pipes 52 which extend from end to end of the balloon. In the present instance, I have illustrated four pipes, since each balloon section is divided into four radial compartments, each of which must be individually supplied with gas. To this end each pipe carries a plurality of branches 53, one branch being provided for each radial subcompartment, and a valve and gas meter may furthermore be provided for each branch whereby to regulate the flow of gas, and to indicate the quantity supplied to each subcompartment. The pipes 52, when the balloon is to be inflated may be connected to any source of gas supply.

Each end section of the balloon may carry an engine room structure 54 similar in all respects to the structure illustrated in Figs. 4 and 5, and similarly designed for bodily rotation in a horizontal plane on a platform 55. Thus, a propeller is provided at each end of the balloon, at the longitudinal center thereof, said propellers being indicated at 56.

From the foregoing it will be apparent that the gas containers may be supplied with gas just sufficient to lighten the entire structure whereby an impulse, upward or downward will cause the machine to ascend or descend. It will be further apparent that the machine may be steered while in the air by directing for instance, the two forward propellers 37, and the end propeller 56 to the right of the machine, and the two rear propellers and end propeller to the left, whereupon rotation of all the propellers in this position thereof will twist the entire machine to the left around its vertical central axis. A reversal of the propellers will obviously direct the machine in an opposite direction. A magazine 57 may be provided at the rear end of the balloon structure from which bombs or other ammunition may be dropped. It will be apparent that to coördinate operation of the several engine room devices it will be but necessary to place the operators of each room in communication with a commander by means of a telephone system.

While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations thereover may be made, and I therefore desire to reserve the right and privilege of changing the form of the details of construction, or otherwise altering the arrangement of the correlated parts without departing from the spirit of the invention or the scope of the appended claims.

Having thus described my invention what

I claim as new and desire to secure by Letters Patent is:—

1. In an airship, a balloon comprising a plurality of cylindrical sections placed end to end and having a central tubular wall in each, defining when the sections are assembled a continuous passage through the balloon, a wall in each section defining a pair of compartments, a plurality of radial walls in each compartment defining independent subcompartments, and a plurality of supply pipes in the passage having branches communicating with the subcompartments to supply gas thereto.

2. In an airship, a balloon comprising separate cylindrical sections placed end to end and having central tubular walls forming a passage continuous throughout the length of the balloon, a vertical tubular passage between adjacent sections, an elevator movable in each passage, means at the upper end of each passage for supporting armament, a substructure supported by and beneath the balloon, a machine containing compartment beneath each vertical tubular passage supported upon the substructure, and means in each machine compartment, independently operable to drive the airship.

In testimony whereof I affix my signature in presence of two witnesses.

KARL H. WEIDHASE.

Witnesses:
WM. ZEAMAN,
M. E. JONES.