J. T. C. WILLIAMS.

AERIAL APPARATUS.

APPLICATION FILED JAN. 11, 1921.

1,396,489.

Patented Nov. 8, 1921.

2 SHEETS—SHEET 1.

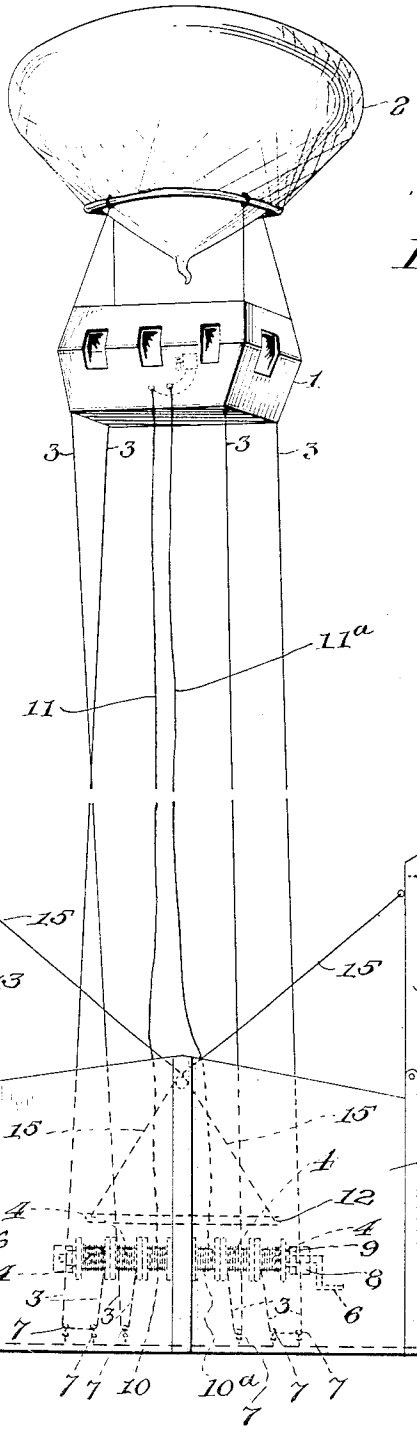


Fig. 1.

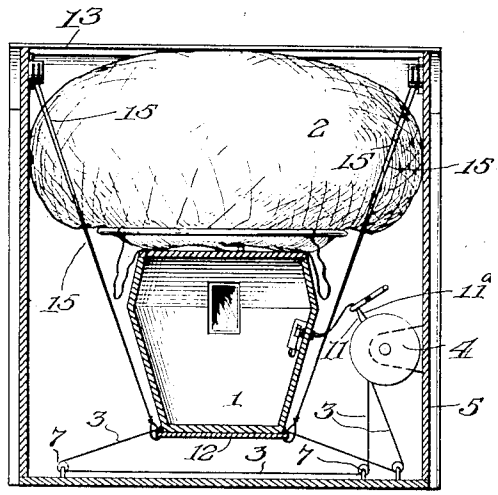


Fig. 2.

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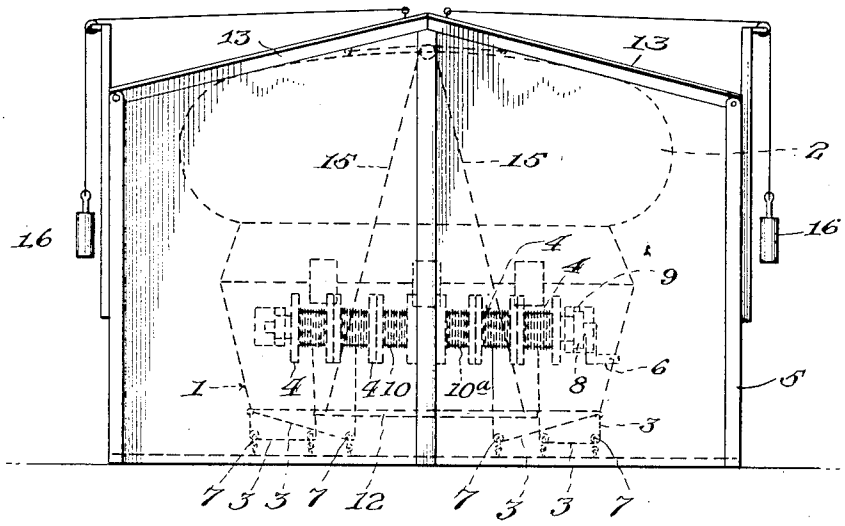
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2 SHEETS—SHEET 2.

Fig. 3.



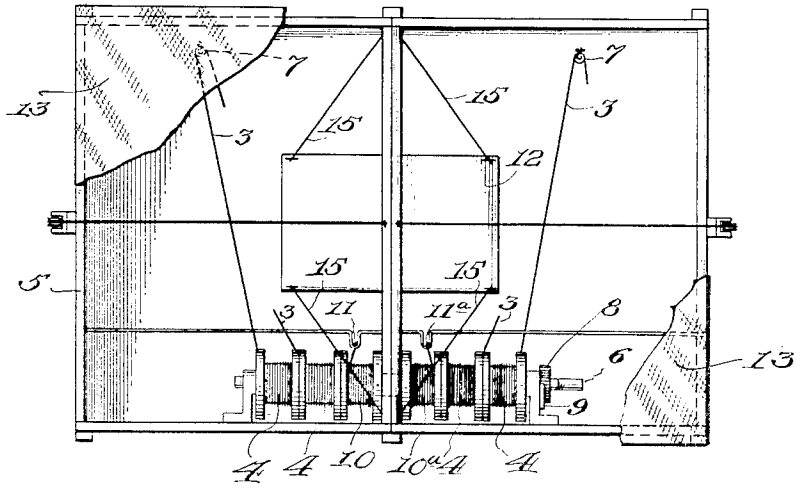


Fig. 4.

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UNITED STATES PATENT OFFICE.

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AERIAL APPARATUS.

1,396,489. Specification of Letters Patent. Patented Nov. 8, 1921.

Application filed January 11, 1921. Serial No. 436,549.

To all whom it may concern:

Be it known that I, JOSEPH T. C. WILLIAMS, a citizen of the United States, residing at Aflex, in the county of Pike and State of Kentucky, have invented new and useful Improvements in an Aerial Apparatus, of which the following is a specification.

The present invention relates to improvements in an aerial apparatus, including a balloon and a car suspended therefrom, and has for its object to provide such an apparatus with features which will adapt it to be utilized for new and useful purposes.

A further object of the invention is to provide means whereby such an apparatus may be effectively housed when not in use and including devices controlled by movement of the apparatus for automatically opening and closing the entrance to said housing.

As stated, the apparatus may be employed for various purposes, the particular embodiment of the invention hereinafter described being especially designed and adapted for use by invalids whose condition requires, or may be improved by, pure atmospheric conditions in the bed chamber.

It will be understood that in the accompanying drawings the several parts are shown more or less conventionally and diagrammatically and there can, of course, be considerable variation both as regards the shape or form of the individual members, as well as in the size and proportions thereof without departing from the scope of the invention as defined in the appended claims.

In the accompanying drawings:—

Figure 1 is a diagrammatic elevation, showing the apparatus in use;

Fig. 2 is a view showing the apparatus within its housing;

Fig. 3 is a side elevation showing the parts in the same relation as in Fig. 2;

Fig. 4 is a plan of the housing with the parts in the relation shown in Figs. 2 and 3 and the balloon and car removed.

In the drawings the same reference characters designate like parts in the several views.

In the particular embodiment of the invention illustrated, the car 1, which is suspended from an inflatable balloon 2, is shown as being of substantially rectangular form and completely inclosed. Entrance to the car is had through a suitable door, not shown, and in the side walls thereof are any desired number of windows.

A plurality of cables 3 are each attached at one end to the car 1 and have their other ends connected to corresponding winding drums or reels 4 suitably supported on the floor of a house or inclosure 5.

For convenience of operation, the several winding reels or drums are, as shown, all mounted on a common shaft, supported in bearings on uprights rising from the floor of the house 5 and provided with means for rotating it and the drums. A crank 6 secured to one end of the shaft is illustrated as the means for turning the shaft and cable winding reels, but it will be understood that, if deemed advisable or necessary, other means may be employed for this purpose.

The cables 3 are guided by suitably arranged pulleys 7 so that they will be properly presented to the winding reels or drums and by rotation of the shaft the balloon 2 and car 1 may be drawn down within the house or permitted to rise therefrom to any desired elevation. Any suitable means, conventionally illustrated as a ratchet 8 and pawl 9, are provided for holding the shaft and cable winding reels stationary when the balloon and car are at the desired elevation.

Additional reels 10, 10^a, are preferably mounted on said shaft on which are wound flexible conductors 11, 11^a, carrying wires connecting with electric lights and a telephone within the car 1 so that the occupants therein may communicate with persons on the ground and illuminate the interior of the car if desired.

The number of cables 3 connecting the car and the winding reels or drums is sufficient to hold the car practically free from lateral movement when in an elevated position, out of the housing 5. As shown, there are four such cables, one being attached to each corner of the bottom rectangular frame of the car, and it will be understood that the number of cables may be increased, if deemed advisable, to secure a maximum amount of lateral stability for the car when at a considerable elevation.

The interior of the car 1, which, as before described, is preferably completely inclosed, may be fitted up as a bed chamber, and by properly manipulating the winding reel, elevated to such a height that the occupants thereof may be insured a pure atmosphere. It will be appreciated that by the means described invalids requiring pure air can be

readily treated in the locality of their residence, as the atmosphere at a relatively slight elevation, in practically all localities, is free from the objectionable features frequently found at levels adjacent the earth's surface.

It will be evident that the use of the apparatus as a bed chamber is not at all limited to invalids. The importance of maintaining the air in a bed chamber pure is generally recognized, and by the apparatus described not only can this desired condition be obtained, but also owing to its elevation the occupant or occupants of the bed chamber will not be affected by noises that are prevalent near or adjacent the ground and can, therefore, be insured of resting in quiet surroundings in a pure atmosphere.

Obviously also the apparatus may be used for observation purposes in the day time, the interior of the car being fitted, if desired, with suitable seats and the windows thereof permitting view of the adjacent country in all directions for long distances.

When the apparatus is drawn down and within the housing 5, the car 1 is supported by a cradle-like support 12, which is suspended from the movable room sections 13 of the housing. As shown, the housing roof comprises two of such roof sections which are hinged or pivotally connected to the opposite side walls and the support 12 is suspended by cables 15 from said roof sections such suspension cables passing over suitable guide pulleys carried by the frame of the housing 5. When the hinged roof sections are swung open about their hinge connection with the side walls of the housing the cradle-like support 12 and the car resting thereon will be lifted slightly and as the balloon 2 is inflated and rises from the housing it will operate to further lift the car and withdraw it entirely from the housing and to any desired elevation, such movement being, of course, controlled by the cables 3 and winding reels or drums.

As shown, the weight of the apparatus on the cradle-like support 12 is counterbalanced by weights 16 passing over suitable guides on the frame of the housing and connected to the hinged roof sections 13. Therefore, a relatively slight pull on the cables suspending such weights, or other cables attached to the hinged roof sections, will swing the latter to their open position and elevate the car supporting cradle as above described.

As the car is drawn down into the housing by the action of the winding drums on the cables 3, it will exert a pull on the cables 15 connecting the support 12 with the swinging roof sections and operate to draw the latter into the closed positions shown in Figs. 2 and 3. That is, as the apparatus is drawn down within the housing 5, the movable doors or roof sections controlling the entrance to such housing will be automatically closed.

As hereinbefore stated, it is to be understood that the illustration of the invention, forming a part of the present application is more or less diagrammatic, and there can, of course, be considerable variation from the exact embodiment of the invention illustreated without departing from the scope thereof. For example, while the drawing illustrates, and the specification specifically refers, to the fact that a plurality of cables are preferably employed for connecting the balloon and car with the winding drums, this, as stated, is for the purpose of rendering the car relatively stable and limiting lateral or swaying movement thereof. Many of the advantages of the invention can be obtained, however, if only a single cable is employed for this purpose.

It will be obvious from the foregoing description, and the drawings, that the invention provides an aerial apparatus which may be used for many purposes. As before stated, it may be employed with great advantage in providing a bed chamber in which a supply of pure air may be constantly maintained. It may be used as an amusement apparatus as the balloon and car can be readily lowered and permitted to ascend to any desired elevation where also it may serve for affording a very extensive view of the surrounding country.

Having thus described the invention, what is claimed is:

1. In a means for the purpose described, the combination of a balloon, a car suspended from the balloon, a house adapted to receive the car and balloon and having a movable roof, a vertically movable support for the car within the house, connections between said support and the roof whereby the roof will be moved to closed position when the car is on said support and the latter is in its lowered position, and a cable extending from the car to the interior of the house and adapted to control vertical movement of the balloon and car.

2. In a means for the purpose described, the combination of a balloon, a car suspended from the balloon, a house adapted to receive the car and balloon and having a movable roof, a vertically movable support for the car within the house, connections between said support and the roof whereby the roof will be moved to closed position when the car is on said support and the latter is in its lowered position, a vertically immovable winding drum, and a cable connected to the car and drum and controlling vertical movement of the balloon and car.

3. In a means for the purpose described, the combination of a balloon, a car suspended from the balloon, a house adapted to receive the car and balloon and having a mov-

able roof, a vertically movable support for the car within the house, connections between said support and the roof whereby the roof will be moved to closed position when the car is on said support and the latter is in its lowered position, a vertically immovable winding drum, a cable connected to the car and drum and controlling vertical movement of the balloon and car, and a flexible cable depending from the car and including an electric conductor.

4. In a means for the purpose described, the combination of a balloon, a car suspended from the balloon, a house adapted to receive the car and balloon and having a movable roof comprising a plurality of hinged sections, a cable connected to the car, a winding drum within the house and to which the cable is connected, means within the house adapted to be depressed by movement of the car thereinto, and connections between said means and the hinged roof sections whereby the latter will be automatically moved to closed position as the car reaches its lowest position in the house.

In testimony whereof I have hereunto set my hand.

JOSEPH T. C. WILLIAMS.