

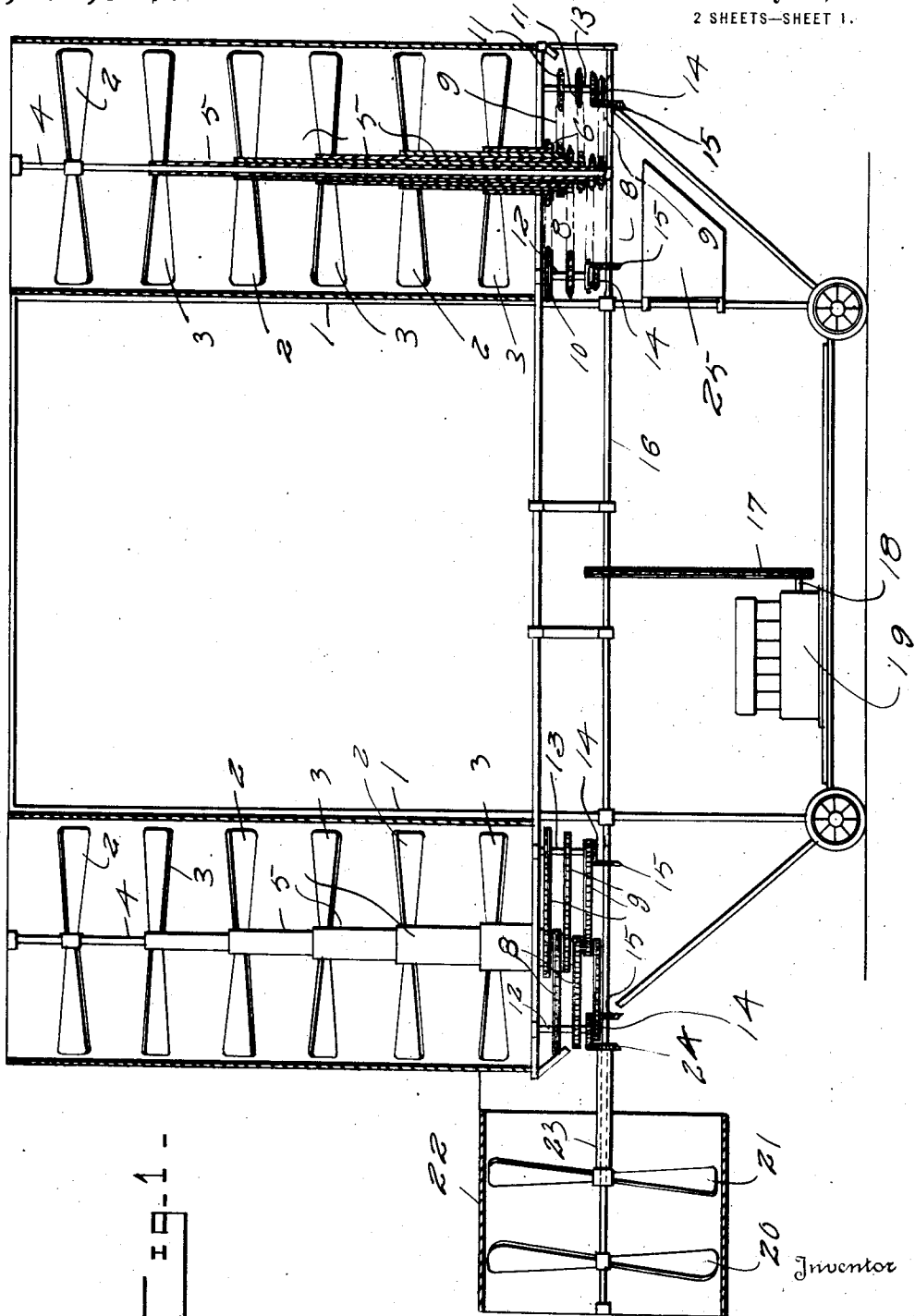
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AIRSHIP.

APPLICATION FILED JULY 13, 1917.

1,273,827.

Patented July 30, 1918.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 1.

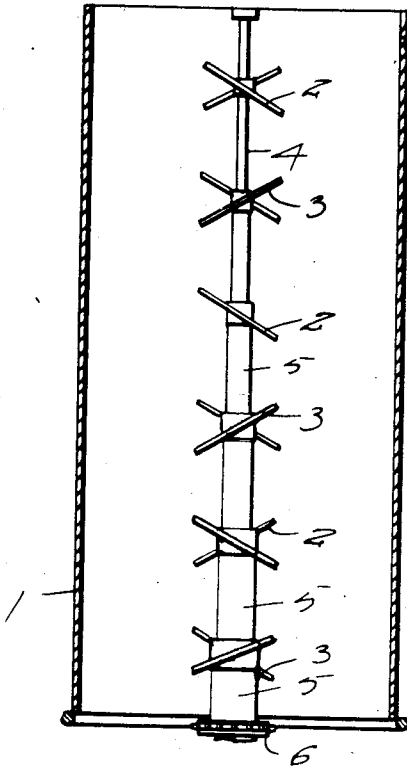


Fig. 2.

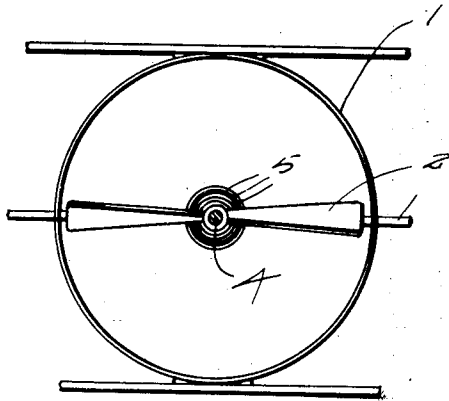
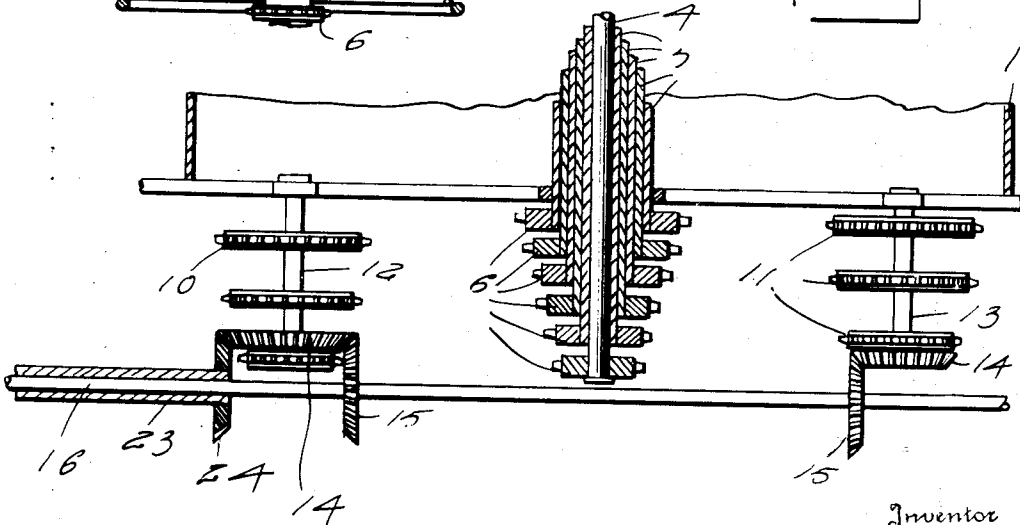


Fig. 4.



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UNITED STATES PATENT OFFICE.

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AIRSHIP.

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To all whom it may concern:

Be it known that I, Guy M. Cook, a citizen of the United States, residing at Golconda, in the county of Humboldt and State of Nevada, have invented certain new and useful Improvements in Airships; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to improvements in airships.

The object of the present invention is to improve the construction of airships, more especially the construction and arrangement of the lifting and driving propellers, and to provide a simple, practical and efficient construction of strong, durable and inexpensive construction comprising a plurality of reversely operating propellers adapted to act successively on a column of air, whereby the lifting and driving effect will be materially increased through the confining and increasing the density of the air at the propellers.

With these and other objects in view the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Figure 1 is a side elevation partly in section of an airship constructed in accordance with this invention.

Fig. 2 is a sectional view of one of the columns illustrating the reverse arrangement of the propellers.

Fig. 3 is a plan view of the same.

Fig. 4 is an enlarged sectional view, illustrating the construction of the gearing for transmitting motion from the line shaft.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In the accompanying drawings, in which is illustrated the preferred embodiment of the invention, the airship, which may be of any desired type and which may be provided with a main frame of any preferred con-

struction, is equipped with a plurality of vertical cylinders 1 constructed of suitable material and open at the top and bottom for the passage of air and each containing reversely rotating propellers 2 and 3, the propellers 2 rotating clockwise and the propeller 3 rotating counterclockwise, but the order or arrangement of the propellers may be reversed as will be readily understood. The cylinders 1, which are adapted to confine the air in a vertical column within the area or orbit of the propellers, insures a packing of the air around the propellers and an increasing in the density of the air so that the propellers will operate on air of sufficient density or resistance to insure a maximum lifting effect. The propellers may be either two-bladed or four-bladed or may be provided with any other desired number of blades and they are mounted on telescopically arranged shafts 4 and 5, the shaft 4 extending through the other shafts and projecting above and below the same; and the said shafts 5 being tubular and successively increasing in length, as shown, to provide the necessary interval between the propellers. The lower ends of the said shafts are arranged in successive projecting relation and have mounted on them sprocket gears which are connected by sprocket chains 8 and 9 with front and rear sprocket wheels 10 and 11 of short vertical shafts 12 and 13. The shafts are journaled in suitable bearings and the short vertical shafts are connected by bevel-gears 14 and 15 with a horizontal line or power shaft 16 and the latter is connected by a sprocket gearing 17 with the shaft 18 of an engine or motor 19 and the latter is located a sufficient distance below the resistance encountered by the propellers to secure perfect stability of the flying machine. By the arrangement of the gearing shown, the propellers are rotated in reverse directions each alternate propeller turning in the same direction and the adjacent propellers in reverse directions. The air leaving each propeller, above the lowermost, is encountered by a propeller rotating in the reverse direction from the propeller from which such air has left and a powerful propeller action is thus obtained. The sprocket wheels 10 and 11 of the short front and rear vertical shafts 12 and 13 decrease in size downwardly so that they will correspond with variations in diameter of the gears 6 carried by the lower projecting portions of

the vertical shafts 4 and 5 of the telescopic column to secure a uniform rotation of the propellers, but the size of the gears may be varied to secure the desired speed of the propellers. Each set of sprocket gearing consists of one of the gears 6 and one of the gears 10 or 11 and the each of the sprocket chains meshes with two gears of the same diameter so that the speed of the propellers will be uniform.

The airship is designed to be equipped with a plurality of driving propellers 20 and 21 operating in a horizontal cylinder 22 and mounted respectively on the line shaft 16 and on a short tubular shaft 23 rotating on the line shaft and connected by a bevel-gear 24 with the horizontal bevel-gear of the front shaft 12 of the front set of lifting propellers. Any suitable clutch mechanism may of course be employed for throwing the driving propellers and the lifting propellers into and out of operation. The airship is also equipped with a suitable rudder 25 which may be operated by any suitable means.

The lifting propellers will enable the machine to hover and will also permit the machine to rise from the surface of the ground without the necessity of an aviation field.

30 What is claimed is:

1. An airship including a cylinder open at the end for the passage of air through it, a plurality of telescopically arranged shafts rotating in the cylinder, reversely rotating propellers mounted on the said shafts and adapted to operate successively on the air, said shafts projecting successively in advance of one another at one end of the cylinder and provided with gears successively increasing in diameter, and short shafts spaced from the said shafts and provided with gears corresponding with the gears of the telescopically arranged shafts in size and connected therewith for reversely rotating the same.

2. An airship including a plurality of vertical cylinders, telescopically arranged shafts operating within the cylinders and having a gradually increasing length within the same and provided at the bottom thereof with projecting lower ends of gradually increasing length, reversely rotating propellers located within the cylinders and alternately arranged and mounted on the said shafts, short vertical shafts located in advance and in rear of the lower projecting ends of the telescopically arranged shafts, gearing connecting the short shafts with the telescopic shafts, and a horizontal line shaft connected with the short vertical shafts for reversely rotating the same.

3. An airship including a plurality of vertical cylinders, telescopically arranged shafts operating within the cylinders and having a gradually increasing length within the same and provided at the bottom thereof with projecting lower ends of gradually increasing length, reversely rotating propellers located within the cylinders and alternately arranged and mounted on the said shafts, short vertical shafts located in advance and in rear of the lower projecting ends of the telescopically arranged shafts, gearing connecting the short shafts with the telescopic shafts, a horizontal line shaft connected with the short vertical shafts for reversely rotating the same, a tubular horizontal shaft mounted on the line shaft and connected with one of the vertical shafts and actuated by the same, reversely rotating propellers mounted on the line shaft and on the horizontal tubular shaft, and a horizontal cylinder receiving the propellers of the horizontal shaft.

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

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Witnesses:

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