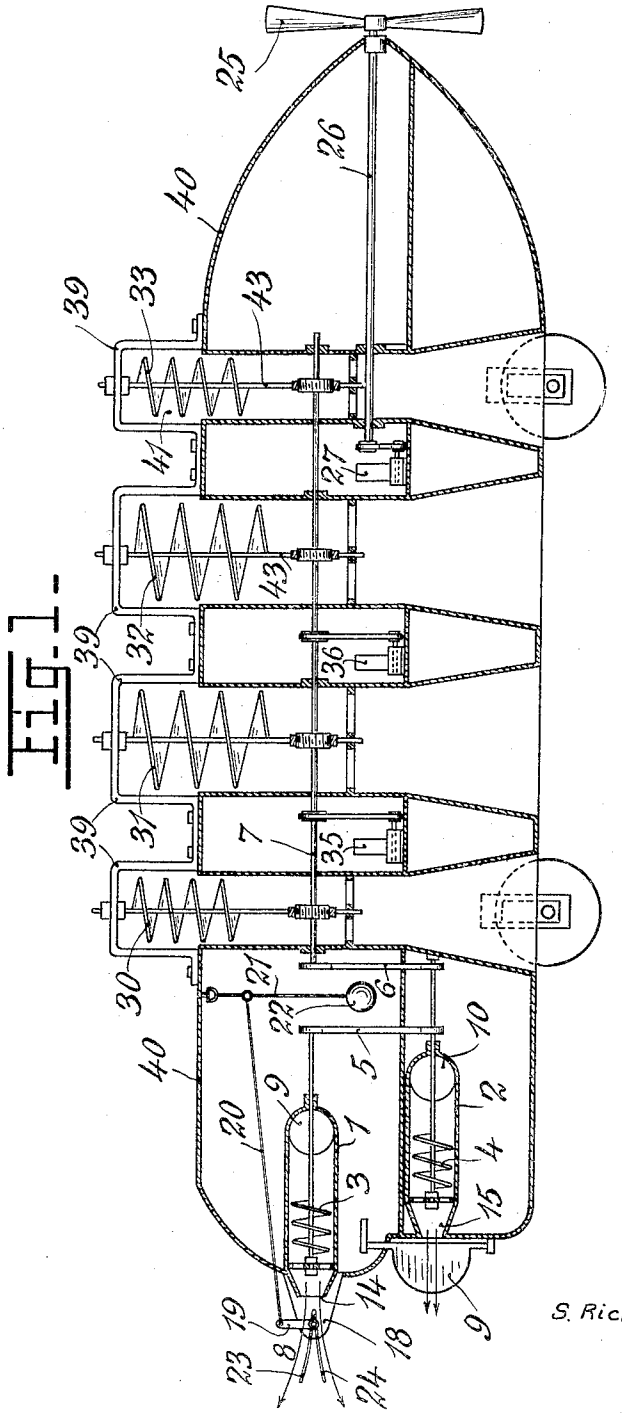
Sept. 10, 1929. S. RICHARDSEN 1,727,786

AIRSHIP

Filed Nov. 7, 1928 2 Sheets-Sheet 1

Fig. 1.



S. Richardsen
INVENTOR

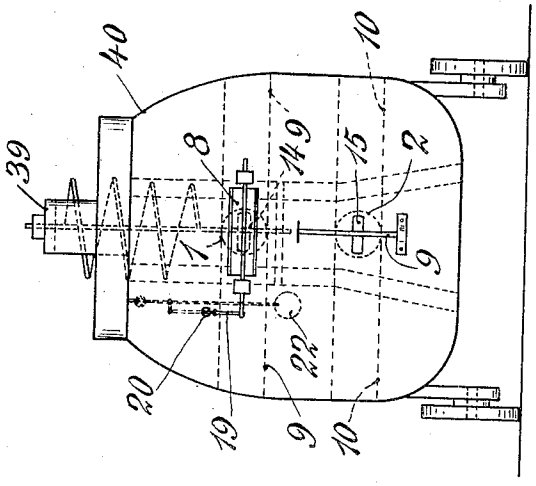
By: Marks & Clerk
Attys.

Sept. 10, 1929. S. RICHARDSEN 1,727,786

AIRSHIP

Filed Nov. 7, 1928 2 Sheets-Sheet 2

Fig. 2.



S. Richardson
INVENTOR

By: Marks & Clark
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Patented Sept. 10, 1929. 1,727,786

UNITED STATES PATENT OFFICE.

SEVERIN RICHARDSEN, OF STROMMEN, NORWAY.

AIRSHIP.

Application filed November 7, 1928, Serial No. 317,701, and in Norway September 10, 1927.

This invention relates to airships preferably of the kind mentioned in the inventor's U. S. A. Patent No. 1,638,961 wherein the raising of the ship is effected by means of motor driven vertical screws. The invention is characterized substantially in the arrangement of two parallel longitudinal tubes at the rear part of the airship, each of which is connected to separate transverse tubes leading out into the open air through the ship's side. In said longitudinal tubes motor driven screws are arranged to provide a draught of air, which is led outwards against rudders placed behind the tubes. The forward driving of the ship is effected by means of a screw of known type preferably arranged at the foremost end of the ship.

The invention also relates to different details mentioned in the following.

An example of carrying out the invention is illustrated in the accompanying drawings.

Figure 1 is an axial longitudinal section through the airship.

Figure 2 is a rear view.

At the rear part of the airship two longitudinal tubes 1 and 2 are arranged, one parallel to and above the other. Within these tubes screws 3 and 4 are arranged, which may be driven from the shaft 7 by means of sprockets 5 and 6. The said screws are intended to produce a draught of air to be blown against the vertical as well as the horizontal rudder 8 and 9 respectively. The inner ends of the tubes are connected to transverse channels or tubes 9 and 10 respectively leading out through the sides of the ship and serving as inlets for the air. The rear ends 14 and 15 of the tubes are funnel-shaped tapering outwards to the end in order to effect a compression of the current of air under its passage and thereby cause it to act more concentrated upon the rudder. During the maneuvering of the ship it should be possible to reverse the rotation of the screws 3 and 4. For instance when the ship is to stop, the said screws should be driven in opposite direction in such a manner that the screw 4 for the vertical rudder 9 draws air inwards and the screw 3 is blowing air outwards upon the horizontal rudder 8. In this manner the ship may be kept in balance also when it is to descend.

The maneuvering orders can be transmitted from the steering cabin by means of any known signalling system.

To provide an automatic steering in the vertical plane the horizontal rudder is arranged and controlled in such a manner that it is held in a constant position independently of the pitching of the ship. In accordance with the invention this is effected in the manner that the pivot 18 of the rudder is provided with a vertical arm 19, which by means of a member 20 is connected to a weighted, vertically hanging arm 21, the weight 22 of which is sufficiently heavy to hold the rudder in position.

The rudder may preferably be made from two rearwardly diverging plates 23 and 24 fixed at their foremost part to the pivot 18. The arm 21 is suspended in such a manner that it can swing in all directions.

The ship may be provided with a usual propeller 25 arranged at the front end of the ship. This propeller is keyed to a shaft 26 driven by the motor 27. The vertical screws 30, 31, 32 and 33 are driven by motors 35 and 36. The other vertical screws 31 and 32 should preferably be made of a greater diameter than the other screws in order to make the stabilization of the ship easier.

It will be understood that this invention is not limited to the special kind of airships referred to, but it is also applicable to other types, for instance to airships provided with a gas filling for the buoyancy of the ship.

I claim:

In airships propelled forwardly by screws, the combination with the hull of two parallel tubes opening at the rear ship end and hav-

ing tapering outlet ends, channels passing from the ships' side to each of said tubes, a horizontal rudder arranged outside the outlet end of the one tube, a vertical rudder arranged outside the outlet end of the other tube and motor-driven screws arranged inside the said tubes so as to force a draught of air out through each tube against the rudder arranged outside said tube.

In testimony whereof I have signed my name unto this specification.

SEVERIN RICHARDSEN.