

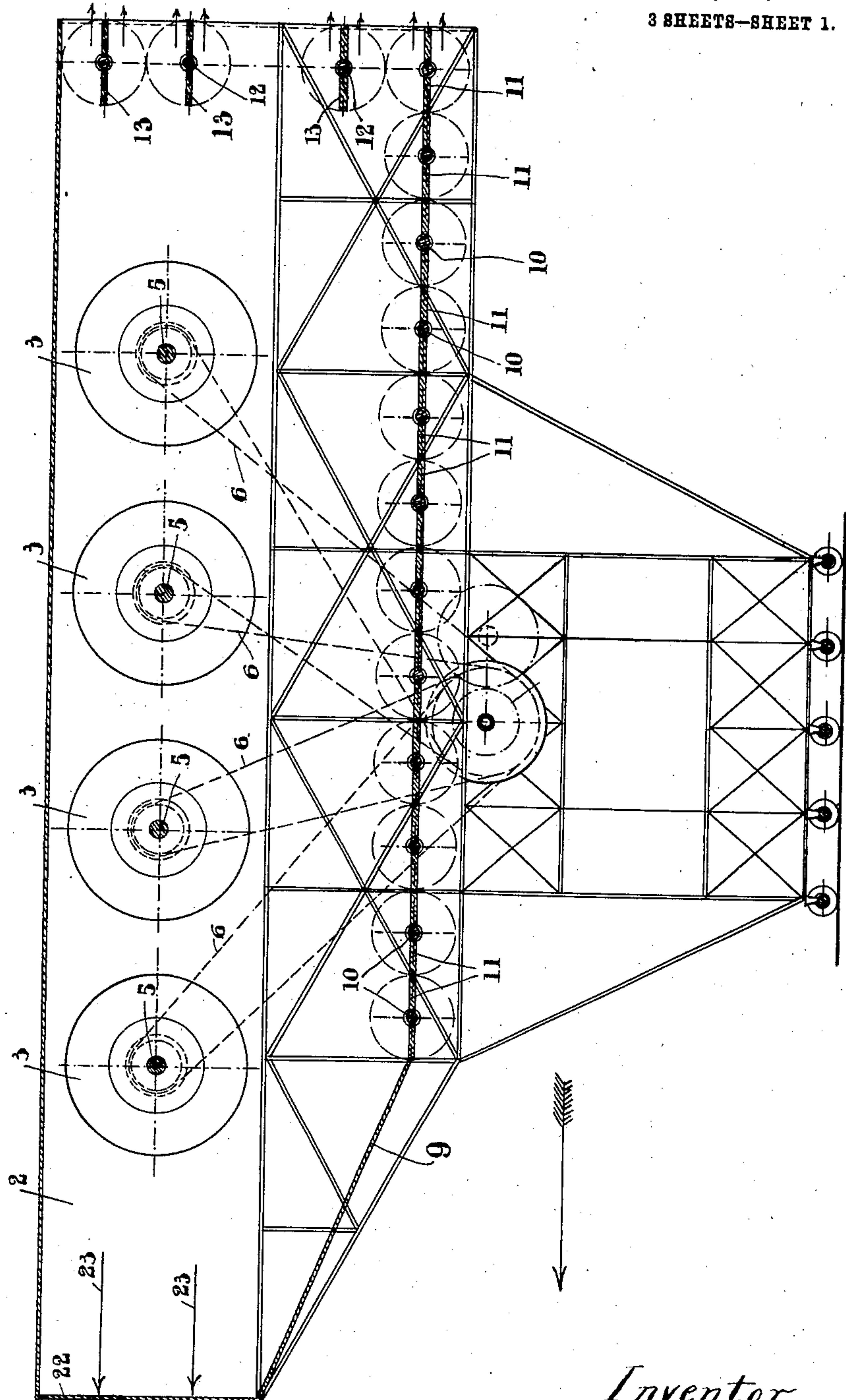
A. WUNDERLICH.
MOTOR FLYING MACHINE.
APPLICATION FILED AUG. 27, 1909.

960,136.

Patented May 31, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



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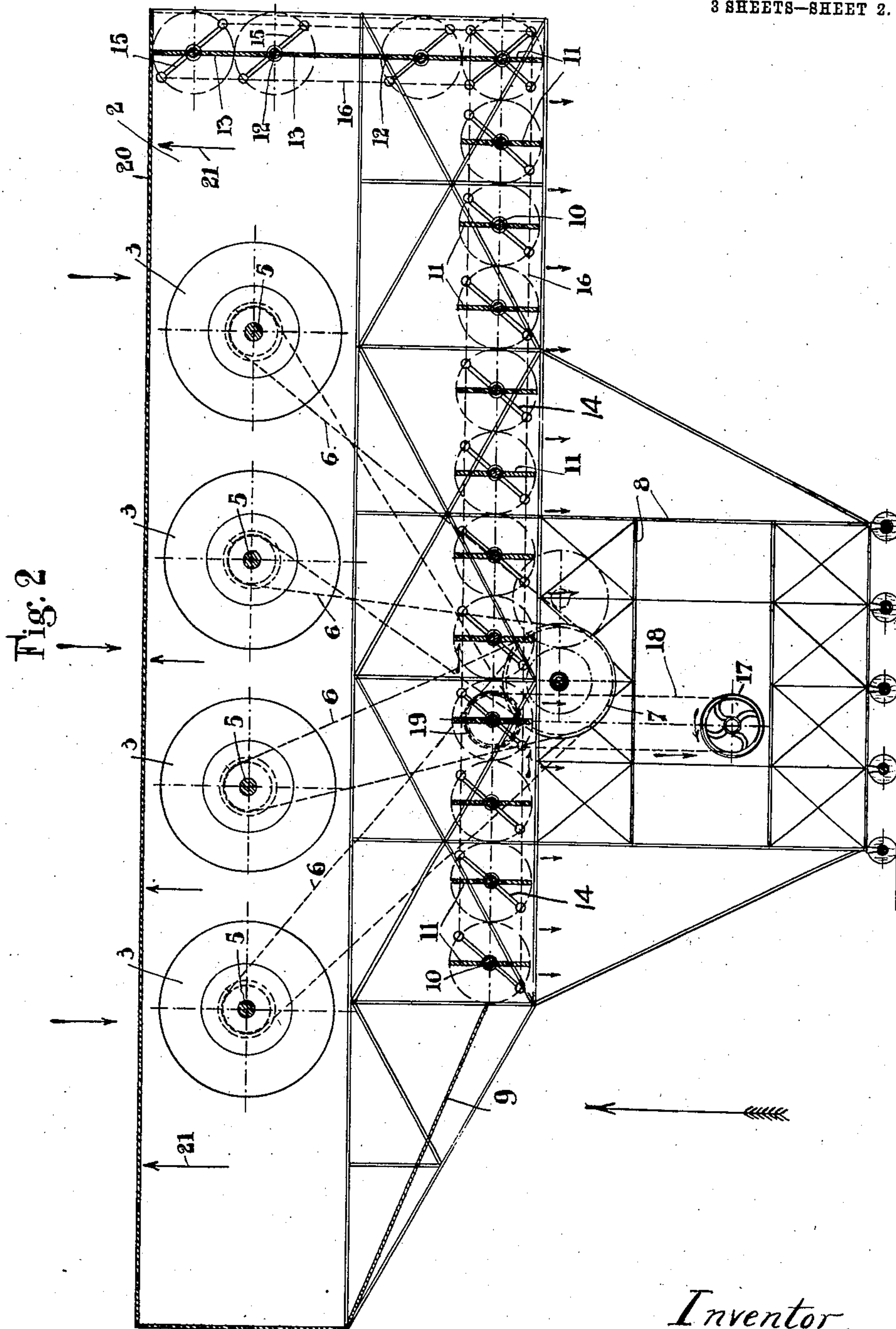
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3.

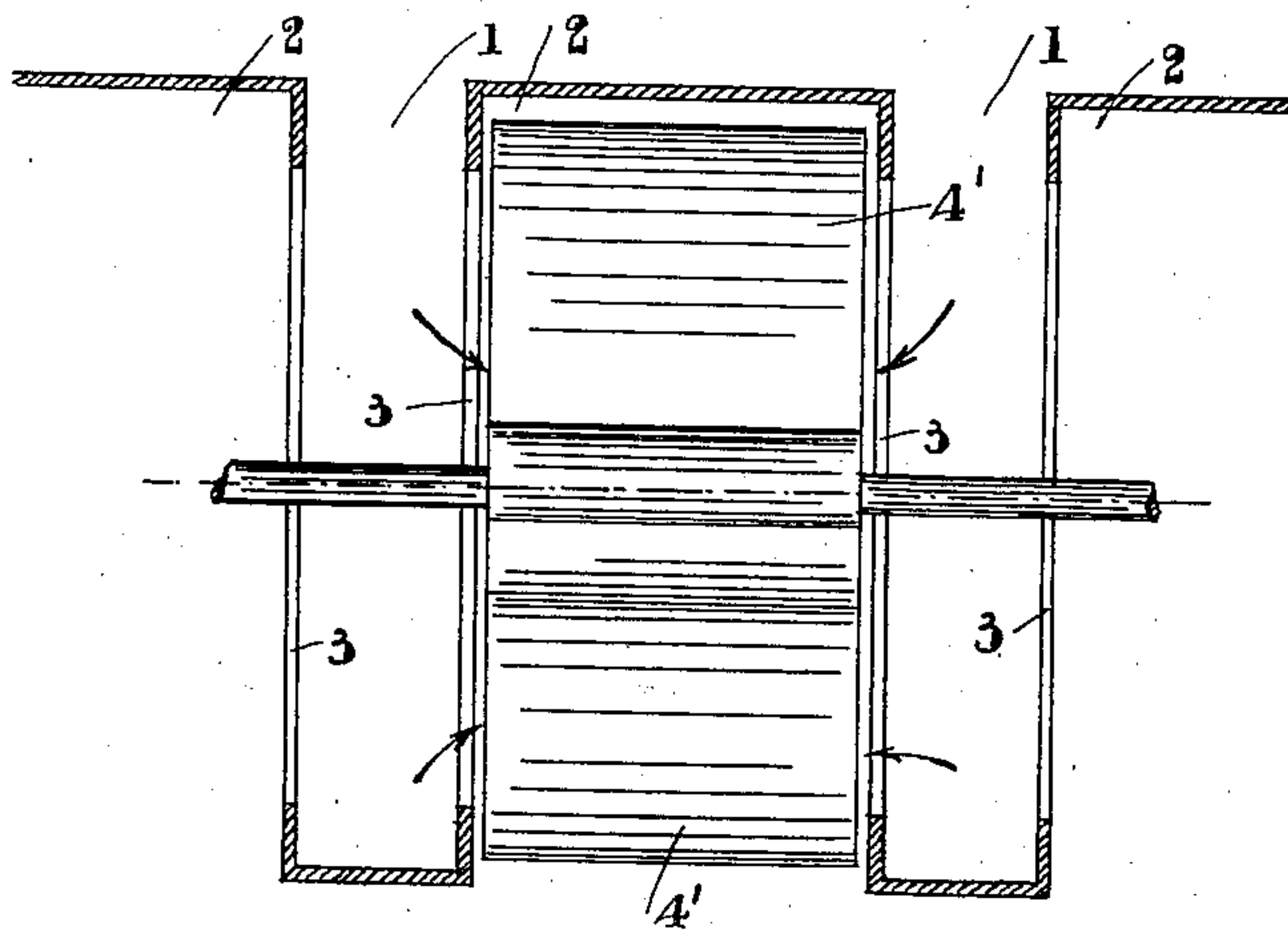
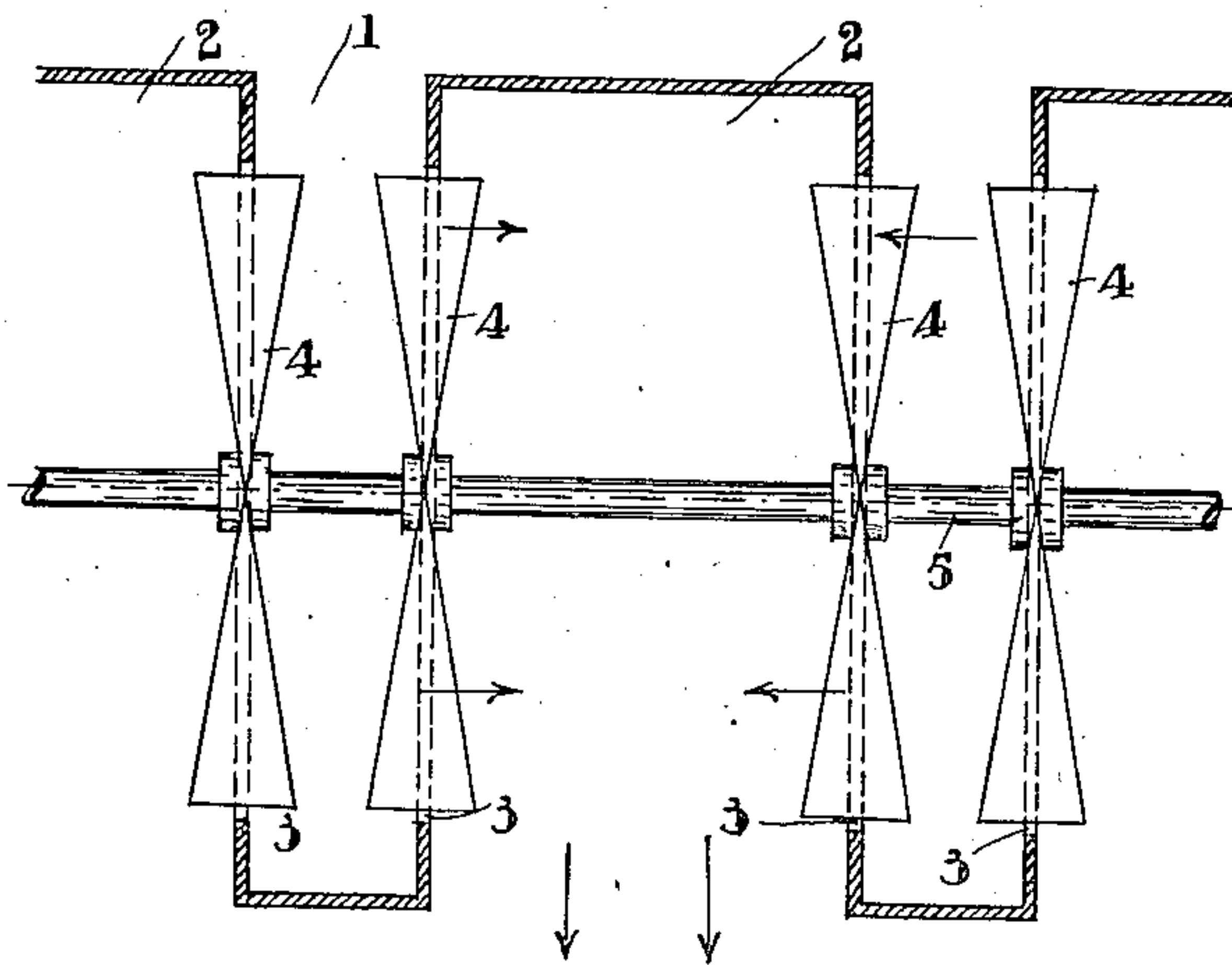


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALFRED WUNDERLICH, OF BRUSSELS, BELGIUM.

MOTOR FLYING-MACHINE.

960,136.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed August 27, 1909. Serial No. 514,867.

To all whom it may concern:

Be it known that I, ALFRED WUNDERLICH, engineer, a subject of the German Emperor, residing at Brussels, Belgium, have invented
5 new and useful Improvements in Motor Flying-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same.

My present invention relates to motor flying machines of the kind described in my
10 prior application Serial No. 412,859 filed Jan. 27th, 1908 and has for its object to provide certain new and improved devices for controlling the discharge of compressed air
15 from the compression chambers which are closed on top and open at the bottom and the rear end, for the purpose of imparting ascending and forward movements as desired to the machine without stopping or
20 checking in any way the movements of the rotating devices (wings, screws or the like), which draw air from the chambers which are open on top and closed at the bottom and compress it in the chambers which are closed
25 on top and open at the bottom.

I will now proceed to describe the invention with reference to the accompanying drawings, wherein:

Figure 1 shows a vertical longitudinal
30 section through a compression chamber, the bottom of which is completely closed by the air-discharge controlling devices, while the rear end is open. Fig. 2 is a similar view showing the bottom of the compression
35 chamber completely open and the rear thereof closed. Fig. 3 is a diagrammatical cross-section through suction and compression chambers with rotatory wings and Fig. 4
40 shows a similar section, with a screw in each side opening of the compression chamber.

My motor flying ship or machine is composed of a plurality of juxtaposed longitudinal chambers 1 and 2, as described in specification Serial No. 412,859, the chambers 1
45 being open on top and closed at the bottom, while chambers 2 are closed on top and open at the bottom and rear end. Said chambers communicate with each other by means of lateral apertures 3, in each of which is arranged to rotate a suitable air-screw 4 (as
50 a substitute for the rotating wings 4' shown in Fig. 3 and described in specification Serial No. 412,859), carried by the transverse shaft 5. The various shafts 5 are actuated
55 by means of belts, chains or the like 6, passing around a common pulley 7, driven in

any suitable way by a motor. The upper part of the air-ship, motor and motor appliances are preferably arranged on and supported by a suitable framework 8, preferably provided with a platform or plat-
60 forms for the pilot and passengers. However this part of the machine does not form a part of my present invention.

The compression chambers 2, shown in
65 longitudinal section in Figs. 1 and 2 are closed on top and the front and open at the bottom and the rear end as shown. The front portion of the bottom is preferably formed of an incline 9 serving to lessen the
70 resistance to flight.

Journaled at the bottom of the compression chambers 2 are transverse shafts 10, each of which carries a flap 11 adapted to be
75 adjusted and held in any desired position, either for closing the bottom (Fig. 1) or partly or completely opening the same (Fig. 2). At the rear of the compression chambers are journaled transverse shafts 12, each
80 of which carries a flap 13, adapted to be adjusted and held in any desired position either for partly or completely opening (Fig. 1) the rear end or closing the same (Fig. 2).

The transverse shafts 10 and 12 are pro-
85 vided with levers 14 and 15 respectively, and these levers are preferably connected to each other by suitable means 16, so that the bottom flaps 11 are closed when the rear
90 flaps 13 are opened and vice versa. Said flaps may be adjusted in the desired position by means of hand-wheel 17, connected by means of a chain or the like 18 to a pulley or chain-wheel 19 arranged on one of the trans-
95 verse shafts 10.

The devices described operate as follows:—By the rotation of the air-screws 4 (Fig. 4) air is drawn from the chambers 1 through the apertures 3 and compressed in the chambers 2, the bottom and rear flaps of
100 the latter being closed. Now if the bottom flaps 11 are opened by turning the hand-wheel 17, the compressed air escapes downwardly from the chambers 2, whereby a corresponding reaction is produced on the top
105 wall 20 of said chambers (see arrows 21 in Fig. 2), so that a vertical ascending movement is imparted to the air-ship. When the latter has arrived in the air at the desired height, the bottom flaps 11 will be slowly
110 rotated and partly closed, while the rear flaps 13 are at the same time opened cor-

respondingly, so that the compressed air is allowed to escape obliquely and downwardly through the bottom and rear end, a corresponding oblique reaction being there-
 5 by produced on the front and top walls of the chambers 2, so that the air-ship is raised in an oblique direction. When the bottom flaps 11 are completely closed and the rear flaps 13 completely opened, the compressed
 10 air escapes only rearwardly (Fig. 2) and produces a corresponding reaction on the front wall 22 (see arrows 23 Fig. 1) of the chambers 2 for the straight flight of the machine; the sustentation of the latter is
 15 then secured by the incline 9 and the surface formed of the closed bottom flaps 11, both gliding on the atmospheric air.

It is manifest that other suitable devices may be substituted for the flaps 11 and 13
 20 to control the discharge of compressed air from the chambers 2 of the air-ship, without departing from the scope of the invention.

Having fully described my invention,
 25 what I claim and desire to secure by Letters Patent is:—

1. In an air-ship of the kind described, the combination with a frame structure divided into parallel alternately disposed
 30 suction and pressure chambers, and means disposed in said pressure chambers for withdrawing air from said suction chambers and compressing the same in the pressure chambers, of suitable controlling devices at the
 35 open bottom and the rear end of the pressure chambers capable of controlling the discharge of air from the latter, and means

for adjusting said controlling devices as desired, substantially as set forth.

2. In an air-ship of the kind described, 40 the combination with a frame structure divided into parallel alternately disposed suction and pressure chambers, and means disposed in said pressure chambers for withdrawing air from said suction chambers and
 45 compressing the same in the pressure chambers, of adjustable flaps arranged at the open bottom of the pressure chambers, similar flaps arranged at the open rear end of the latter, suitable means for connecting all
 50 the flaps so that the bottom flaps are closed when the rear flaps are opened and vice versa, and means for adjusting the flaps as desired, substantially as set forth.

3. In an air-ship of the kind described, 55 the combination with a frame structure divided into parallel alternately disposed suction and pressure chambers, lateral apertures forming a connection between the latter, and a rotatory air-screw in each aperture
 60 of suitable controlling devices at the open bottom and the rear end of the pressure chambers, capable of controlling the discharge of air from the latter, and means for adjusting said controlling devices as de- 65 sired, substantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED WUNDERLICH.

Witnesses:

CHARLES HONOLD,
 GREGORY PHELAN.