D. McINTYRE.

AIR NAVIGATING MACHINE.

APPLICATION FILED OCT. 18, 1915.

1,178,739.

Patented Apr. 11, 1916.

2 SHEETS—SHEET 1.

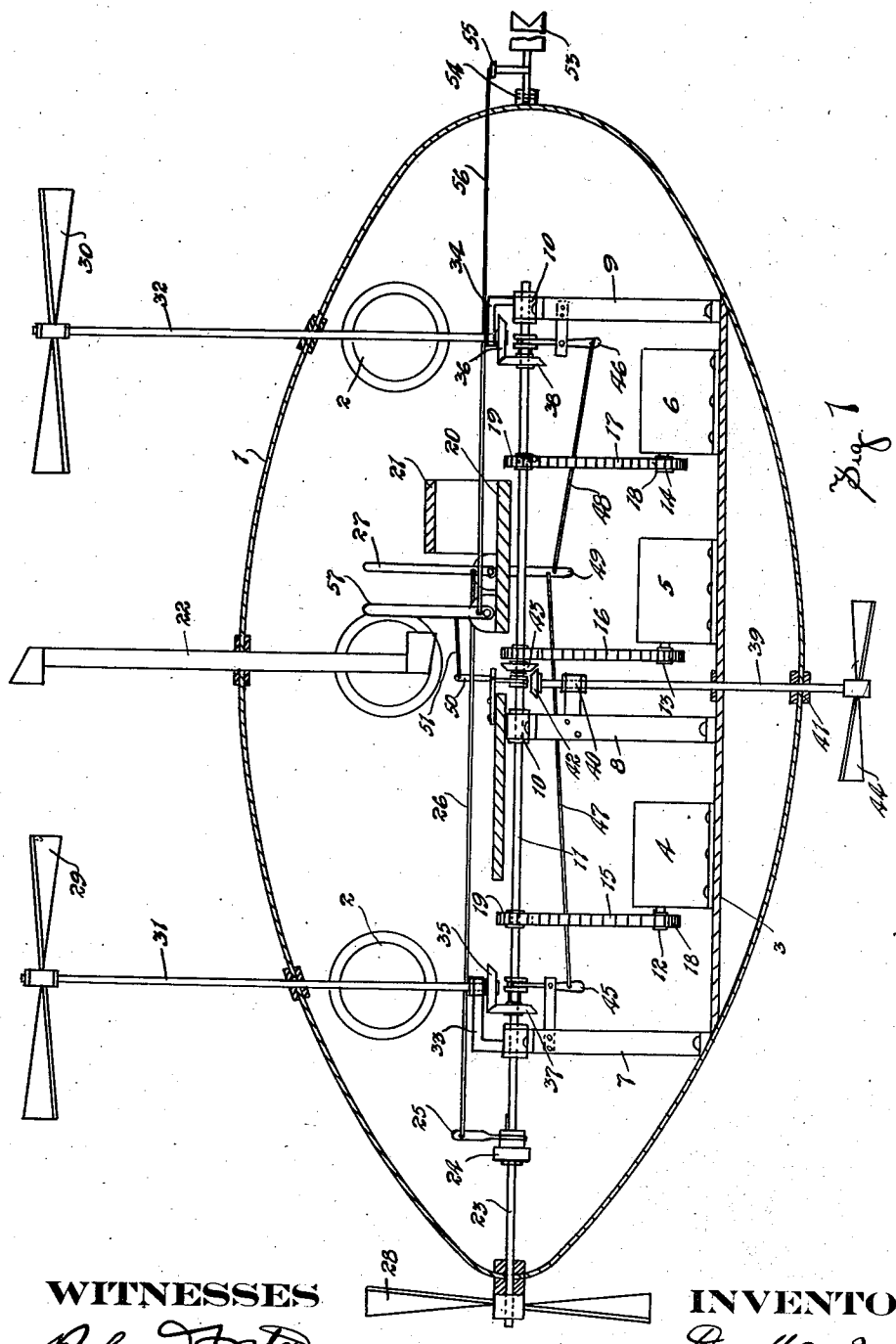


Fig. 1

WITNESSES

Roland Foster

S. Silvert

INVENTOR

D. McIntyre

By Fehlendorf & Ely Attorneys

D. McINTYRE.

AIR NAVIGATING MACHINE.

APPLICATION FILED OCT. 18, 1915.

1,178,739.

Patented Apr. 11, 1916.

2 SHEETS—SHEET 2.

Fig. 3

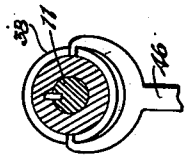
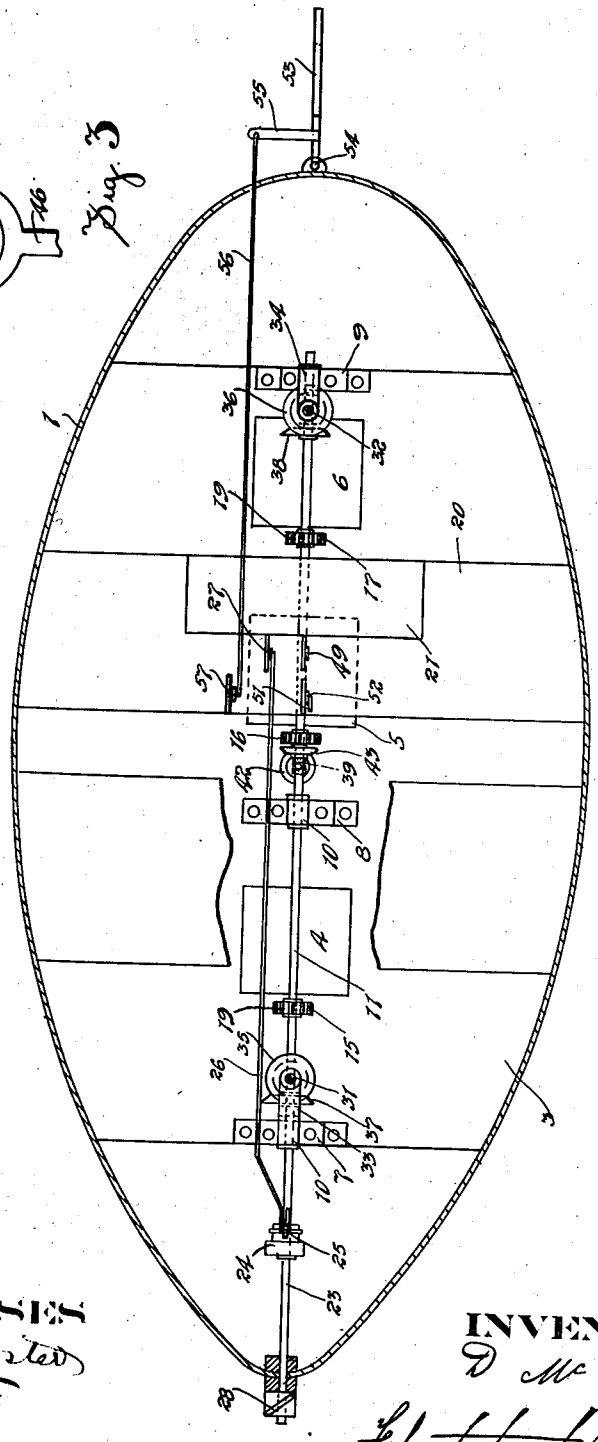


Fig. 2



WITNESSES

Roland Foster

S. Silvert

INVENTOR

D McIntyre

Schwartzkopf & Coy Attorneys

UNITED STATES PATENT OFFICE.

DAVID McINTYRE, OF BRANDON, MANITOBA, CANADA.

AIR-NAVIGATING MACHINE.

1,178,739. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed October 18, 1915. Serial No. 56,587.

To all whom it may concern:

Be it known that I, DAVID McINTYRE, of the city of Brandon, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Air-Navigating Machines, of which the following is the specification.

The invention relates to improvements in air navigating machines, and the principal object of the invention is to provide a machine which can be utilized as a flying machine, important features of the invention residing in the construction and arrangement which allows the machine to fly horizontally in the air; to be raised vertically in the air by means of elevating propellers; to be submerged in the water by a submerging propeller or to be propelled on the water surface, as occasion may require.

With the above objects in view the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described and later pointed out in the appended claim, reference being had to the accompanying drawings in which;

Figure 1 represents a vertical sectional view through the navigating machine, the parts being shown in side elevation. Fig. 2 represents a horizontal sectional view through the machine, parts being broken away to expose construction and other parts shown in horizontal section. Fig. 3 represents an enlarged detailed vertical sectional view through the sleeves on one of the bevel gear wheels, showing the manner in which they are feathered on the shaft and showing also the spanning actuating lever.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 represents an outer water tight casing or envelop, shaped for easy passage through air or water. The casing is supplied with suitable windows 2 and is fitted with a flooring or platform 3, on which I mount a plurality of engines 4, 5 and 6 of any approved type.

7, 8 and 9 are standards mounted on the platform and providing bearings 10 for the main driving shaft 11 of the machine, which is located more or less centrally within the envelop and passes longitudinally thereof. The shaft 11 is driven from the engine shafts 12, 13 and 14 by chains 15, 16 and 17 operating over suitable chain wheels 18 and 19 supplied on the engine and main driving shafts.

20 is an elevated platform and 21 is the operator's seat mounted on the latter platform.

22 represents a periscope passing out through the top of the envelop and located within convenient range of the seat.

23 is an auxiliary propeller shaft alined with the main shaft to which it is coupled by means of a coupling 24, said coupling being controlled by a lever 25 connected by means of a connecting rod 26 to a controlling lever 27 mounted on the platform 20 adjacent the seat 21. The shaft 23 protrudes through a suitable bearing in the nose of the casing and is supplied with a front propeller 28.

29 and 30 are elevating propellers mounted on vertically disposed propeller shafts 31 and 32 which pass through suitable bearings in the casing and have their lower ends carried by bearings provided in brackets 33 and 34 extending from the standards. The lower ends of the shafts 31 and 32 are fitted with bevel pinions 35 and 36 which are designed to mesh with beveled gears 37 and 38 feathered on the shaft 11.

39 is a further vertically disposed shaft carried by a bearing bracket 40 secured to the standard 8 and passing downwardly through a bearing 41 supplied in the envelop at the bottom. The upper end of the shaft is fitted with a bevel wheel 42 which is designed to mesh with a beveled gear wheel 43 feathered on the engine shaft. The lower end of the shaft 39 is supplied with a submerging propeller 44.

It is necessary to have the propellers 29 and 30 so that they can be started or stopped at the same time and to this end I arrange the gear wheels 37 and 38 so that they will go into and out of mesh with the pinions 35 and 36 together. The sleeves of the gear wheels are controlled by pivoted actuating levers 45 and 46 which have their upper ends spanning the sleeves and their lower ends connected by means of links 47 and 48 to a single controlling lever 49 located adjacent the seat 21 and arranged so that in the manipulation of the lever 49 the gear wheels will slide forwardly and backwardly on the shaft.

It is also necessary to arrange the drive for the propeller 44 so that it can be thrown out. This is accomplished by disengaging the gear wheel 43 from the bevel wheel 42 through the manipulation of a controlling lever 57 mounted on the platform 20 and connected to the sleeve of the gear wheel 43 by means of a connecting link 51 and an actuating lever 50, the latter lever spanning the sleeve of the gear wheel.

53 is a steering rudder located at the back of the casing to which it is pivotally secured as indicated at 54. The rudder is supplied with an outstanding arm 55 connected by means of a link 56 to a controlling lever 57 located on the platform.

Although I have described the parts in detail, still it will be understood that I do not wish to be restricted to the precise details shown as various mechanical equivalents could be readily substituted to accomplish the same purpose and without in the least departing from the spirit of the invention.

In navigating in the air the propellers 29 and 30 are thrown into operation to raise the machine vertically to any elevation. After the desired altitude has been reached these propellers can be thrown out of action and the machine can be operated in horizontal flight under the action of the propeller 28 and the control of the rudder 53.

What I claim as my invention is:—

A combination air and water navigating machine comprising, a water tight casing, a plurality of engines suitably mounted in the casing, a main driving shaft, drive connections between the engine shafts and the main shaft, a front propeller alined with the driving shaft, manually operated means for coupling the drive shaft to the propeller shaft, a plurality of vertically disposed propeller shafts passing upwardly through the casing, horizontally disposed propellers mounted on the latter shafts, a disengageable driving connection between the latter shafts and the main drive shaft, a vertically disposed propeller shaft passing downwardly through the casing, a propeller located on the lower end of the latter shaft, a disengageable driving connection between the latter shaft and the main driving shaft, a rear rudder secured to the casing and means operated from the interior of the casing for manipulating the rudder.

Signed at the city of Brandon, in Manitoba, this 16th day of September, A. D. 1915.

DAVID McINTYRE.

In the presence of—

LAVINA ELIZABETH WILLIAMS,
MARIE MARVEL WRIGHT.