

E. WILSON.
LAUNCHING DEVICE FOR AEROPLANES.
APPLICATION FILED SEPT. 24, 1910.

988,611.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 1.

Fig. 3.

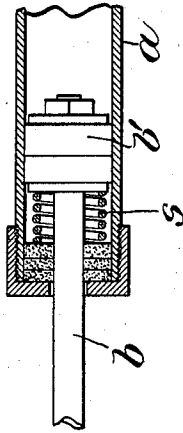
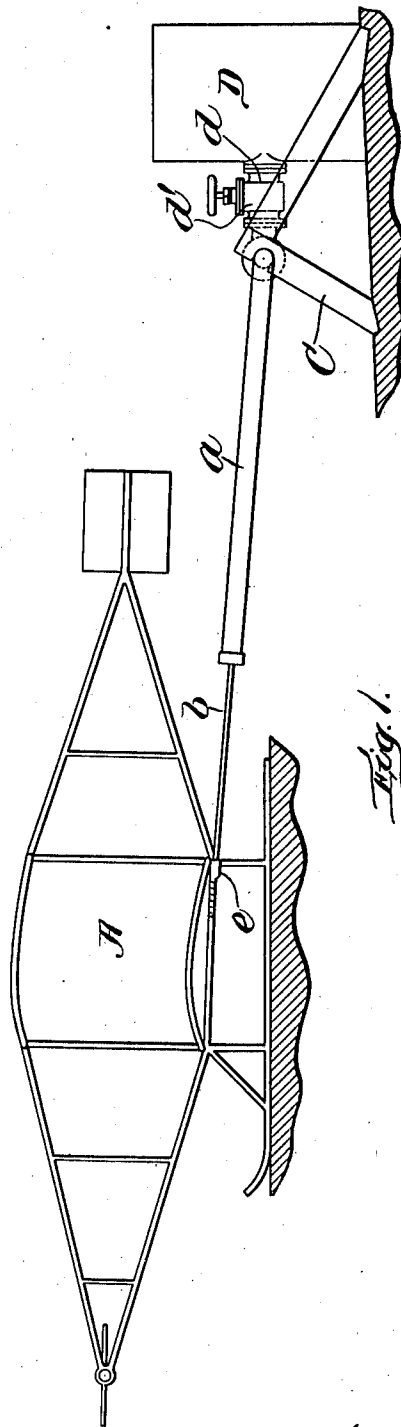


Fig. 1.



Witnesses:
Charles S. Woodberry
Joseph H. Ryan

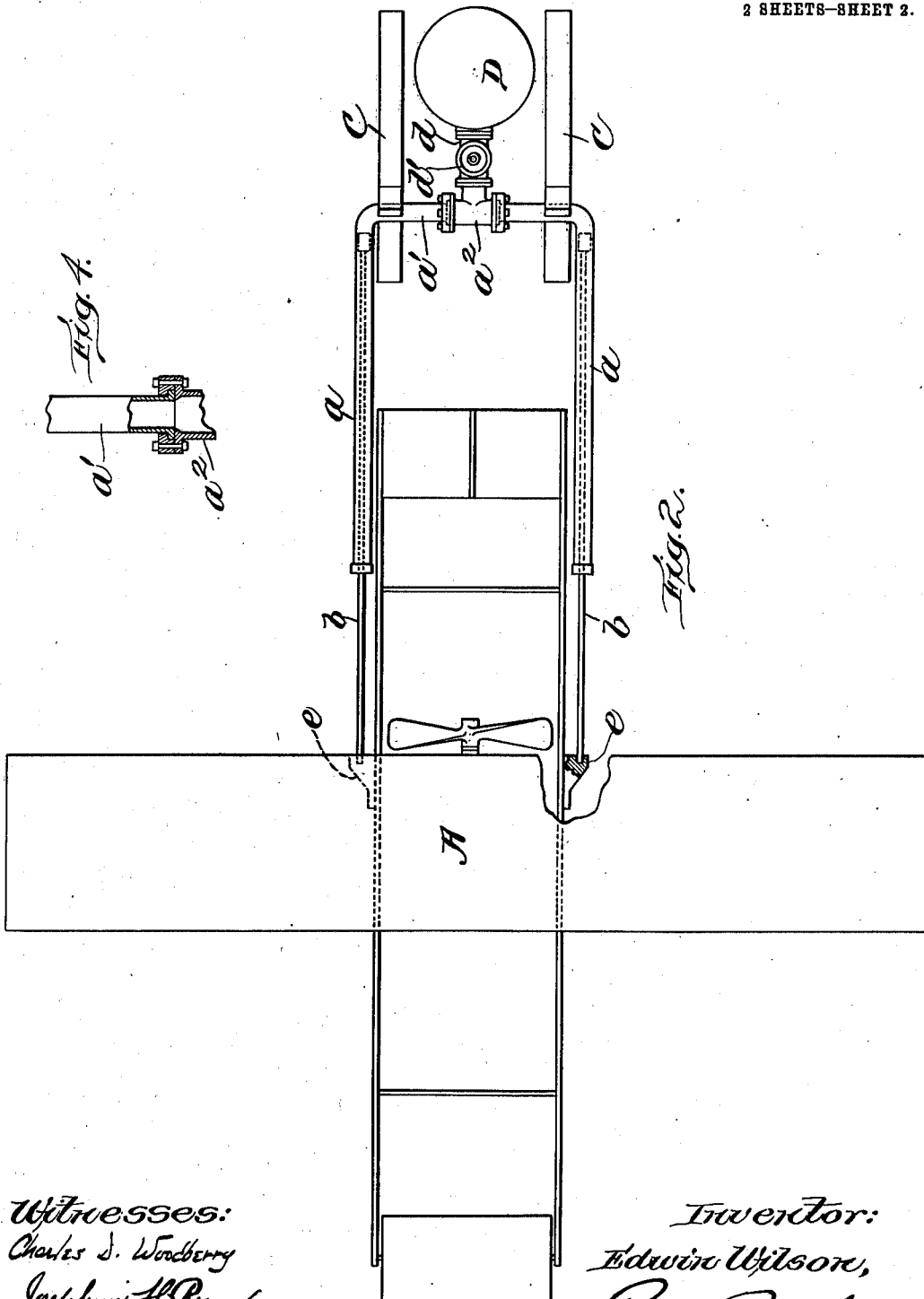
Inventor
Edwin Wilson,
by Robert R. Bushman
attys.

E. WILSON.
LAUNCHING DEVICE FOR AEROPLANES.
APPLICATION FILED SEPT. 24, 1910.

988,611.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 2.



Witnesses:
Charles S. Woodberry
Joseph H. Ryan

Inventor:
Edwin Wilson,
by Robert Roberts Bushman
attys.

UNITED STATES PATENT OFFICE.

EDWIN WILSON, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JACOB BOYLE,
OF LYNN, MASSACHUSETTS.

LAUNCHING DEVICE FOR AEROPLANES.

988,611.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed September 24, 1910. Serial No. 583,575.

To all whom it may concern:

Be it known that I, EDWIN WILSON, a subject of the King of Great Britain, and resident of Lynn, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Launching Devices for Aeroplanes, of which the following is a specification.

This invention relates to the launching or starting of aeroplanes, and its object is to provide a device for launching aeroplanes from a space of small area where it is impossible for the machine to run any considerable distance before leaving the ground.

The starting or launching of aeroplanes from rest by their own motive power as at present practiced, necessitates a runway of considerable length, whether the machines be started on wheels or on skids, before sufficient speed is attained to enable the machine to rise from the ground. For this reason it has been necessary hitherto to start the machine from open fields of considerable extent, and it has hitherto been impracticable to launch them from such small spaces as the deck of a ship, or other starting points of small or closely confined area.

With the present invention an aeroplane may be launched into the air almost at once from rest, and either without the necessity of any runway, or with a runway so short as to be practicable in spaces heretofore too short or confined to serve as the starting point of an aeroplane.

In the accompanying drawings, which illustrate one embodiment of my invention,—Figure 1 is a side elevation of a launching device embodying my invention in one form, and showing its relation to the aeroplane; Fig. 2 is a plan view of the launching device and aeroplane shown in Fig. 1; Fig. 3 is an enlarged detail in section showing the cushion used in the telescoping pusher hereinafter described; and Fig. 4 is an enlarged detail in section, illustrating the swivel joint between the pushers and the fluid supply pipe.

As the invention is applicable to use in connection with aeroplanes generally, irrespective of the particular type or structural details thereof, I have shown the aeroplane in diagrammatic or conventional form, without entering into details, using for illustration the type known as the biplane, indicated generally by the reference letter A.

The launching device consists of one or more pushers (I have shown herein a pair of pushers), each comprising telescoping members, preferably in the form of a cylinder member *a*, and a piston member *b*. The rear ends of the rear members, herein shown as the cylinder members *a*, are connected by a cross head *a'*, which is pivotally supported in a frame C, which may be erected on the ground, on a ship's deck, or wherever the device is to be used, and constitutes a stationary and rigid abutment to receive the thrust of the rear members when the device is operated as presently to be described.

D represents a reservoir adapted to contain a fluid under pressure, such as compressed air or other gas or fluid. The reservoir D communicates with the cross head *a'*, and thence with the cylinders *a*, by a pipe *d* in which is a control valve *d'*. The two branch or T-shaped end *a''* of the pipe *d* forms a swivel joint with pipe *a'* as shown in detail in Fig. 4, to permit the pipe *a'* to rotate when the telescoping members *a* and *b* are swung in a vertical plane. The forward ends of the forward members, herein shown as the piston members, engage the frame of the aeroplane, and to prevent their slipping out of position, the frame of the machine is preferably provided with socket pieces *c* to receive the ends of the forward members *b*.

When the machine is at rest in front of the launching device as shown in the drawings, and before the device has been operated, the telescoping members are shortened or contracted, with the piston members *b* thrust inward substantially to the bases of the cylinder members. If now the valve *d'* be opened, the reservoir D having previously been charged with compressed air or other fluid or gas under pressure, the fluid or gas under pressure is admitted to the cylinder members *a*, forcibly extending the same and driving the aeroplane forward. It will also be observed that the pushers are inclined slightly upward thereby tending to push the aeroplane upward as well as forward. The pressure in reservoir D should be high enough to impart to the aeroplane a push sufficiently forcible to cause it to leave the ground as soon as, or approximately as soon as, the stroke of the launching device is completed, after which the piston members *b* will pull out of the sockets *c*

and the machine will leave the pushers and be propelled by its own motive power. To prevent too abrupt a start the valve d' may be opened gradually, and the opening of the valve and consequently the force of the expanding fluid, may be increased to the end of the stroke of the piston members, thus giving the aeroplane its maximum push during the last part of the stroke. To relieve the shock upon the launching device, which would otherwise result when the forward members b reach the end of their stroke, a cushion spring s may be inserted in the ends of the cylinder members (see Fig. 3) yielding to check the pistons b' at the end of their stroke.

In the preferred construction I provide a pair of telescoping pushers as herein shown to engage the aeroplane at either side of its central axis, since by this arrangement a more evenly distributed and equally balanced push may be applied to the aeroplane than if a single pusher were used, rendering less likely the lateral turning or cramping of the aeroplane or the cramping of the telescoping members. The invention is not limited, however, to any particular number of pushers. When more than one pusher is used, as shown in the drawings, it is desirable that all be actuated by pressure through a single pipe so that by manipulating a single control valve in the common supply pipe, all the pushers will not only be operated simultaneously, but with equal force, all being actuated by identical pressure. The pivotal mounting of the pushers in their abutment permits the movement thereof in a vertical plane to accommodate them to any movement of the aeroplane in a vertical

plane during the stroke of the launching device.

I claim:

1. A launching device for aeroplanes, comprising a pair of pushers adapted to engage an aeroplane at either side of its central axis, each pusher comprising telescoping members, means forcibly and simultaneously to extend the telescoping members of both pushers with substantially the same force, and a stationary abutment to receive the thrust of the rear members of said pushers, the forward members of said pushers adapted to exert a substantially equal and balanced push upon the aeroplane at either side of its center.

2. A launching device for aeroplanes comprising a pair of pushers adapted to engage an aeroplane at either side of its central axis, each pusher comprising telescoping cylinder and piston members, a reservoir adapted to contain fluid under pressure, a single pipe connecting the reservoir with the cylinder member of each pair, a valve in said pipe to control the delivery of the fluid to said cylinder members, whereby both pushers will be actuated simultaneously by identical pressure, and a stationary abutment to receive the thrust of the rear members of said pushers, the forward members of said pushers adapted to push the aeroplane forward.

Signed by me at Boston, Massachusetts, this 16th day of September, 1910.

EDWIN WILSON.

Witnesses:

ROBERT CUSHMAN,
CHARLES D. WOODBERRY.