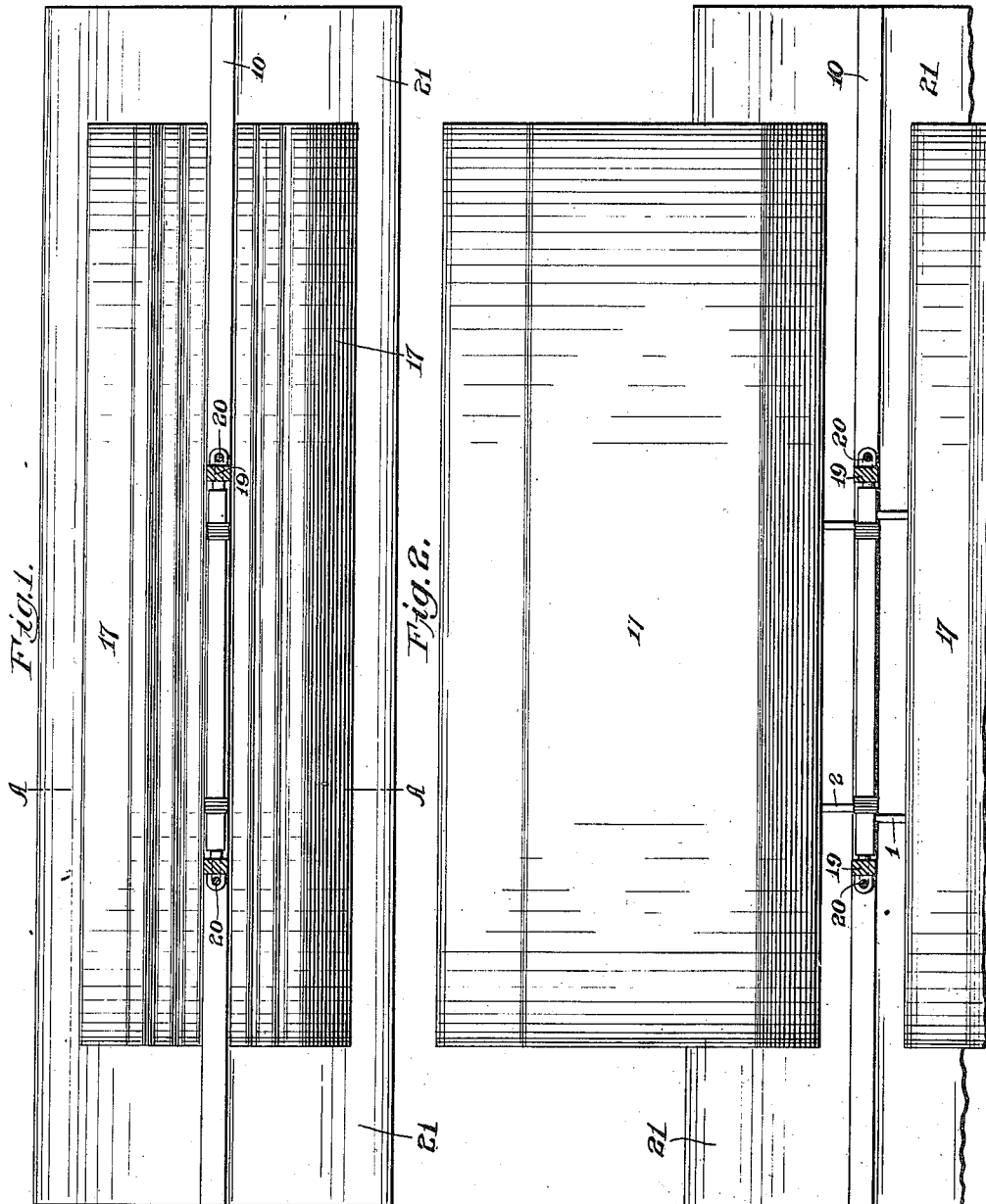


W. J. & F. A. BOND.
FOLDING PONTOON.
APPLICATION FILED AUG. 3, 1912.

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Patented Apr. 29, 1913.

2 SHEETS-SHEET 1.



WITNESSES

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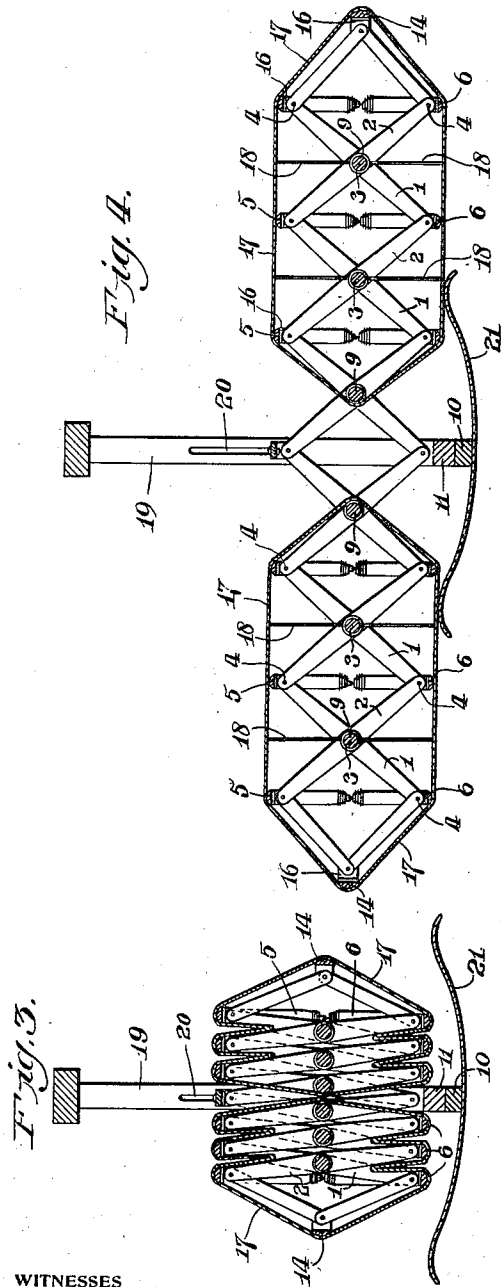


Fig. 3.

WITNESSES

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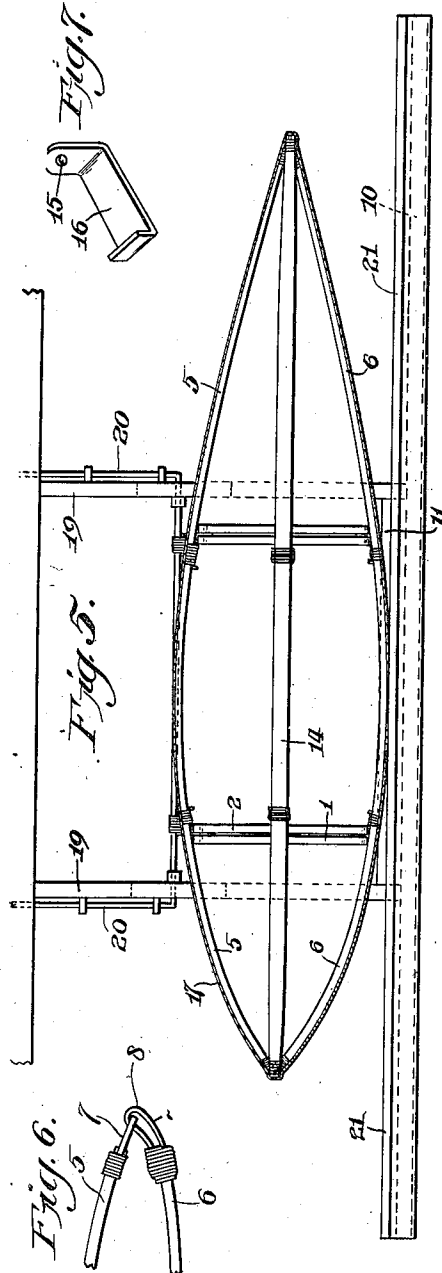
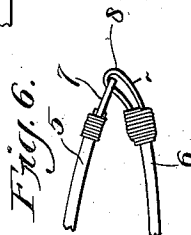


Fig. 5.



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FOLDING PONTOON.

1,060,531.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed August 3, 1912. Serial No. 713,063.

To all whom it may concern:

Be it known that we, WILLIAM J. BOND and FREDERICK A. BOND, citizens of the United States, and residents of Clifton Heights, Delaware county, Pennsylvania, have invented certain new and useful Improvements in Folding Pontoons, of which the following is a specification.

Our invention relates to improvements in pontoons and more particularly to improvements in pontoons for use in connection with aeroplanes, the object of our invention being to furnish a folding pontoon which can be extended by an operator in an aeroplane to form a float for supporting the same upon the water, and which may be folded so as to offer a minimum resistance to the air when the aeroplane is in flight.

In the accompanying drawings forming part of this specification, and in which similar letters of reference indicate similar parts throughout the several views:—Figure 1, is a plan view of our pontoon closed; Fig. 2, a plan view of one side of the pontoon when opened; Fig. 3, a transverse section of Fig. 1 on line A—A; Fig. 4, a similar section showing the pontoon opened; Fig. 5, a side elevation of the pontoon; Fig. 6, a view of the ends of a pair of ribs showing the method of connecting them; Fig. 7, a perspective view of metal connection for pivotally securing ribs to ends of lazy-tongs.

The extensible and collapsible framework of our pontoon consists of a suitable number of arms 1—2 of equal, or substantially equal, length pivoted together in pairs at their middles by pivots 3 and at their ends by pivots 4, the above forming a lazy-tongs structure. The lazy-tongs, of which there may be two or more, are placed parallel to one another and at right angles, or transversely, to the longitudinal axis of the aeroplane.

5—6 are ribs at the tops and bottoms and at right angles to the lazy-tong levers. These ribs are pivotally secured to the arms 1—2 at the outer ends of the latter and the ends of each pair of ribs are bent toward and secured to one another at their ends. The connection between the ends of the ribs is preferably a flexible one, for instance, two pieces of wire 7 forming eyes 8 which interlock as shown best in Fig. 6, one wire being carried by one rib the other by the other. For purposes of rigidity the lazy-tongs are

connected to one another at their middles by bars 9.

10 is a keel midway of and at right angles to the lazy-tongs; 11 a bar between the lazy-tongs which is secured to the keel 10 and, near its end, pivotally attached to the ends of the middle link of the lazy-tongs. The end links of each set of lazy-tongs carry pivotally a rib 14 which rib, like the ribs 5—6, is preferably made of a narrow thin strip of tough flexible wood. The means for pivotally attaching the ribs to the ends of the arms of the lazy-tongs can be simply a piece of flat metal 16 lashed or otherwise secured to the ribs, bent at right angles so as to enter between the ends of the arms 1—2 and perforated at 15 for the passage of the pin or rivet 4 which secures together the ends of the arms—a perspective view of one of these fastenings is shown in Fig. 7.

The ribs are covered with a flexible waterproof covering 17 so made that when the lazy-tongs are extended it will present a practically smooth surface and when these lazy-tongs are collapsed will fold in between them in a bellows fashion as shown in Fig. 3.

To permit the manipulation of the lazy-tongs the covering 17 is preferably made in two parts leaving the inner ends of the central arms uncovered as shown best in Fig. 4; the coverings, at their inner ends, passing around the two inner bars 9 which secure the two sets of lazy-tongs together. Midway between the ribs 14 the coverings may be secured to an elastic cord or spring 18, which is also secured to bar 9, or to the opposite side of the covering, the purpose of which is to draw the covering in between the arms 1—2, as shown in Fig. 3, when the latter are folded. The pontoon is connected to the body of the aeroplane, which is not shown, by struts 19 which are secured to the keel 10, or some other suitable part of the structure and it may be opened or closed by lifting or depressing a rod 20 the lower end of which is connected to the ends of one of the sets of arms 1—2, or in any other suitable and convenient manner.

21 is a guard secured to keel 10 and extending out at right angles from each side thereof the purpose of which is to form a protection for the bottom of the pontoon should it be necessary to bring the machine to the ground.

Having thus described our invention we claim as new and desire to secure by Letters Patent:—

1. The combination with an aeroplane, of
5 downwardly projecting struts carried by the frame of the machine, two or more sets of lazy-tongs carried by said struts at right angles to the longitudinal axis of the aeroplane, a flexible covering inclosing said
10 lazy-tongs, and means operative from said aeroplane for extending or collapsing said lazy-tongs and covering.

2. The combination with an aeroplane, of
15 two or more downwardly projecting struts carried by its frame, two or more sets of lazy-tongs, one for each strut, extending transversely at right angles to the longitudinal axis of the machine, one pair of adjoining arms of each lazy-tongs pivoted to
20 a strut, a flexible covering inclosing said lazy-tongs, and rods connected to said lazy-tongs and operative from said aeroplane for extending or collapsing said lazy-tongs and flexible covering.

25 3. The combination with an aeroplane, of two or more downwardly projecting struts carried by its frame, a keel to which the lower ends of said struts are secured, a set of lazy-tong levers arranged at right angles
30 to the keel and pivoted one to each strut, a flexible covering inclosing said lazy-tongs,

rods connected to, and operative from the aeroplane, for extending or collapsing said lazy-tongs and flexible cover, and a guard
carried transversely by said keel and be- 35 neath the covering of the lazy-tongs.

4. In a pontoon, in combination, two or more sets of lazy-tong levers placed in parallel, ribs at right angles to and pivotally
secured to the ends of said arms forming 40 said levers, said ribs being arranged in pairs one at the top and the other at the bottom of said levers, a connection joining the ends of each pair of ribs, a flexible covering inclosing said ribs and levers, and means for
45 distending or collapsing said levers.

5. In a pontoon, in combination, two or more sets of lazy-tong levers placed parallel to one another, bars connecting the opposite
centers of said levers, ribs pivotally car- 50 ried in pairs by the tops and bottoms respectively of said levers, a connection joining the ends of each pair of ribs, a flexible covering inclosing said ribs and levers, and
means whereby said levers may be collapsed 55 or extended.

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Witnesses:

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