

1,427,447.

Patented Aug. 29, 1922.

FIG. 1.

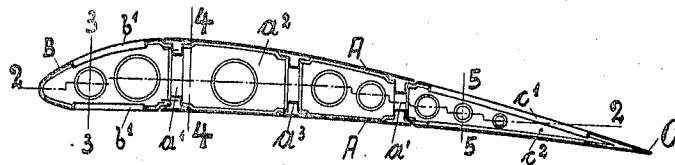


FIG. 2.

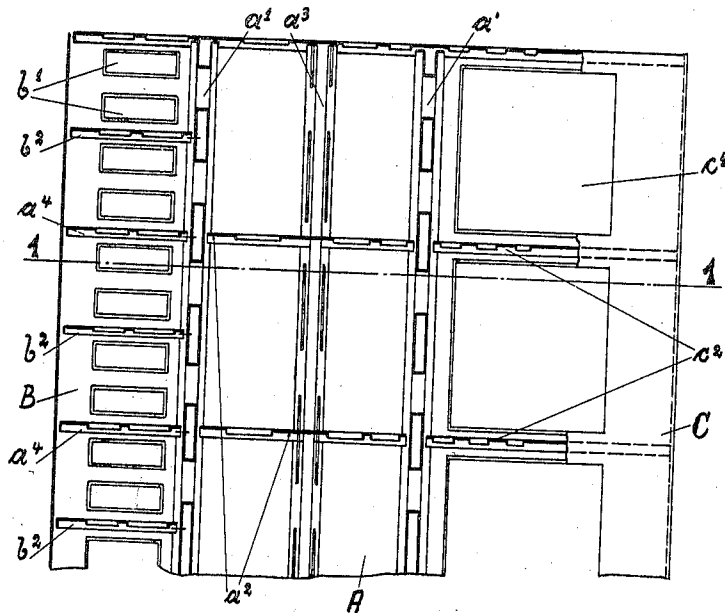


FIG. 3.

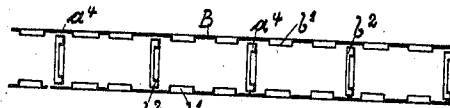


FIG. 4.

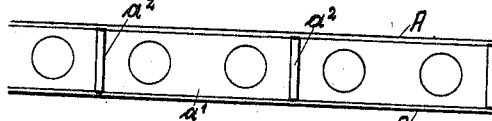
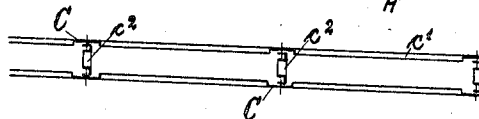


FIG. 5.



Inventor:

Claudio Dornier

UNITED STATES PATENT OFFICE.

CLAUDIUS DORNIER, OF FRIEDRICHSHAFEN, GERMANY, ASSIGNOR OF ONE-HALF
TO DORNIER, METALLBAUTEN, GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG,
OF FRIEDRICHSHAFEN, GERMANY.

SUPPORTING PLANE.

1,427,447.

Specification of Letters Patent. Patented Aug. 29, 1922.

Application filed June 28, 1920. Serial No. 392,553.

To all whom it may concern:

Be it known that I, CLAUDIUS DORNIER, a citizen of the German Empire, residing at Friedrichshafen, Germany, have invented certain new and useful Improvements in Supporting Planes (for which I have filed an application in Germany June 17, 1918), of which the following is a specification.

My invention relates to flying machines and more especially to a specially simple type of supporting planes particularly suitable for manufacture on a large scale.

In accordance with the foregoing, the subject matter of my invention relates to a supporting plane for flying machines consisting of a central hollow body, constructed after the manner of a box girder, and bag-shaped front and rear members suitable for being manufactured separately and independently of each other, and, after their completion, of being fixed to the said box girder. By the peculiar subdivision into a supporting central member, and two outside members, subjected to less strain and essentially only serving to conduct and dismiss the air, the construction of the said supporting plane is rendered specially simple; for each of the said three parts may, as said, be made separately, and all three may then readily be assembled to form a complete supporting plane. Moreover, in the case of defects, the front member, or say, the rear member, may, when damaged, be easily exchanged. The method of staying or stiffening by aid of wires, or the like, may be done away with in the case of this improved construction, as the light joint members may be fixed along their whole length immediately to the central member, say for example, by riveting or screwing on. The manufacturing process will prove especially favorable, provided the central member, constituting a box girder, consists of an upper and a lower solid plate having an intermediate support composed of a plurality of longitudinal girders running across the full breadth of the supporting plane, along with a plurality of transverse ribs arranged intermediately, and provided also the pocket shaped front and rear members consist each of a frame of pressed sheet iron, of a cross-section offering the least possible resistance to the air, across the large recesses of which, reinforced by being flanged, there is drawn a thin cover composed of cloth, paper, or the like. For the better maintaining of the

shape of the joint members, spars may advantageously be inserted at regular intervals.

The central hollow body, forming a box girder may further be provided with spars on to the free ends of which the bag-shaped front or rear members, reinforced at regular intervals by means of independent spars, may be slipped on.

The preferred form of a supporting plane according to my present invention is illustrated in the accompanying drawings forming part of this specification. In the drawings—

Fig. 1 is a vertical section along line 1—1 in Fig. 2 of a supporting plane;

Fig. 2 is a horizontal section of the same along line 2—2 in Fig. 1.

Figs. 3 to 5 are vertical sections along lines 3—3, 4—4, 5—5, respectively, in Fig. 1 of, respectively, the front, central, and rear portions of a supporting plane.

The central member of the supporting plane consists of two outer, longitudinal sheet iron girders a^1 , a' each of which is constructed to form a hollow frame, and which, when assembled, constitute a self-supporting box girder by aid of sheet iron wall portions a^2 , which act as ribs, and outside plates A, which serve as chords. Both the longitudinal girders a^1 , a' , as also the ribs a^2 , are provided with circular indentures, partly beaded at the edges. The central portions of the ribs a^2 are provided on top and at bottom with an indenture each through which the rods a^3 of the lattice work girder, dividing the box girder practically into a forward and rearward chamber, are passed. Beyond the longitudinal girder a^1 , the ribs a^2 are continued in the shape of front ribs a^4 riveted to the girder a^1 .

The front member of the supporting plane consists of a pressed sheet iron frame B, open, baglike, in the direction of the central member, having on top and at bottom indentures b^1 , reinforced by beadings. At regular intervals there are inserted plates b^2 , essentially resembling the ribs a^4 , and serving to maintain the shape, respectively, to stay the independent front member. This latter, when assembling the supporting plane, is slipped on to the ribs a^4 , fixed to the central member, in such wise that the said ribs and the plates b^2 are caused to alternate in succession. The manner of securing the parts is effected by the rims of

the plates b^2 , which face the central member, being riveted or screwed to the front longitudinal girder a^1 , the upper and lower edges of the ribs a^1 being fastened in a like manner to the cover B of the frame.

The rear portion of the supporting plane consists of a sheet metal frame C, likewise open after the manner of a bag in the direction of the central member, while its upper and lower sides are provided with large indentures c^1 . Stiffening plates c^2 , resembling ribs, serve, on the one hand, to maintain the shape of the structure, and on the other, to secure the rear member to the longitudinal girder a' of the central member.

After the three single parts, primarily constructed per se, have been combined to form the complete supporting plane, the front and rear portions or their indentures, respectively, are covered with a plain cover of cloth, paper, or the like, for the purpose of guiding the air.

Apart from this cover, the entire supporting plane may be made of metal, without thereby becoming heavier in weight than the supporting planes hitherto in use which are made of wood and of a lattice work with continuously arranged ribs and cross beams.

I claim:—

30 1. In a supporting surface in combination,

a main supporting portion forming a box girder and separate front and rear portions adapted to be fixed thereto and serving mainly for guiding the air, said front and rear portions being formed each of a pressed sheet metal frame bent into shape and adapted to be connected with said main portion by its free edges.

2. In a supporting surface in combination, a main supporting portion forming a box girder and separate front and rear portions adapted to be fixed thereto and serving mainly for guiding the air, said front and rear portions being formed each of a pressed sheet metal frame bent into shape, flanged indentures provided in said frames and a skin of suitable thin material covering said indentures.

3. In a supporting surface in combination, a main supporting portion forming a box girder and separate front and rear portions adapted to be fixed thereto and serving mainly for guiding the air, said front and rear portions being formed each of a pressed sheet metal frame bent into shape and bent spars serving to stiffen said frames and to connect them with said main portion.

In testimony whereof I affix my signature.

CLAUDIUS DORNIER.