H. C. DICKSON.

TUBE, STAY, STRUT, AND LIKE ELEMENT.

APPLICATION FILED SEPT. 12, 1918.

1,306,952. Patented June 17, 1919.

Fig. 1.

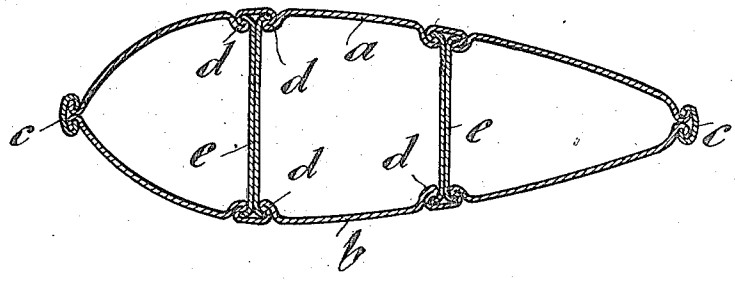
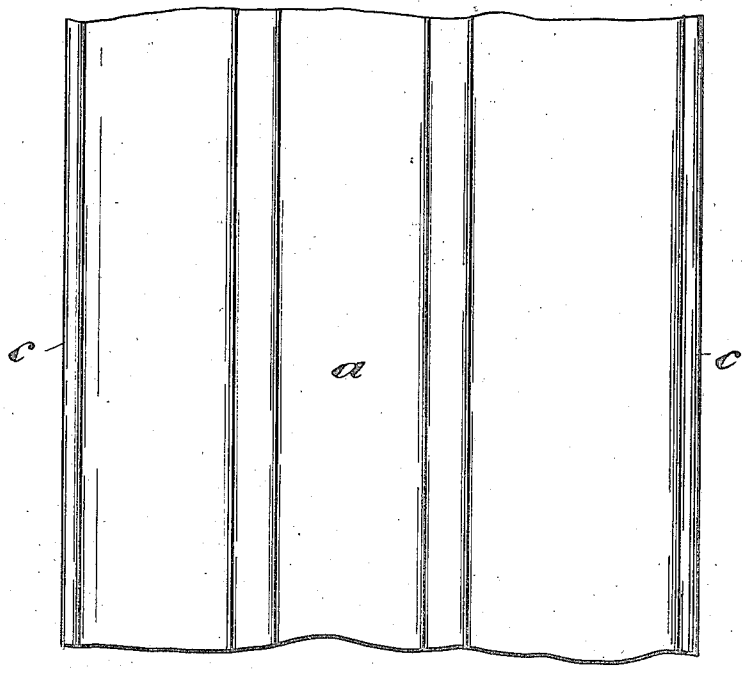


Fig. 2.



Inventor:
Henry Charles Dickson,
By: B. Singer, Atty.

UNITED STATES PATENT OFFICE.

HENRY CHARLES DICKSON, OF BIRMINGHAM, ENGLAND.

TUBE, STAY, STRUT, AND LIKE ELEMENT.

1,306,952. Specification of Letters Patent. Patented June 17, 1919.

Application filed September 12, 1918. Serial No. 253,818.

To all whom it may concern:

Be it known that I, HENRY CHARLES DICKSON, a subject of the Kingdom of Great Britain, residing at "Glengarth," Quinton, Birmingham, in the county of Stafford, England, manufacturer, have invented certain new and useful Improvements in or Relating to Tubes, Stays, Struts, and like Elements, said improvements being also applicable to the wings or planes, tail, body, and other parts of aerial craft, of which the following is a specification.

This invention comprises certain improvements in or relating to tubes, struts, stays, and like elements, said improvements being also applicable to the wings or planes, tail, body, and other parts of aerial craft.

According to the present invention, a tube or tubular member, which is advantageously of elongated transverse section, is provided with one or more internal webs spanning the interior of the tube. These webs are composed of sheet metal, and they are flanged at their edges adjacent to the wall of the tube. The sheet metal of which the wall of the tube is composed is formed with ribs which are folded around the flanges of the internal webs. The internal webs are thus locked with the wall of the tube by integral portions provided upon these respective members.

In order that this invention may be clearly understood and readily carried into practice, reference may be had to the appended explanatory drawing, on which:—

Figure 1 illustrates in cross-section, and Fig. 2 in plan, an embodiment of the present invention.

In a convenient embodiment of the present invention, a tube of elongated or stream-shaped cross-section is composed of two plates or strips *a*, *b* of sheet metal joined together at the extremities of the elongated or stream-shaped cross-section of the tube. For this purpose at each end of the elongated or stream-shaped cross-section of the tube the said plates or strips constituting the walls of the tube are bent outwardly through about 180° to a hook formation. The two adjacent but oppositely located hook formations appertaining to the respective side walls of the tube are coupled together by a C-shaped strip of metal *c*, that is to say, a strip of metal having two hook formations which inter-hook with the hook formations of the side element *a*, *b* of the tube. This formation of the joint may be repeated at the other extremity of the cross-section of the tube or at such other extremity there may be no joint, the tube being bent through a single strip or plate of sheet metal.

At each of two points in each side wall *a*, *b* of the tube the side wall is formed with two internal ribs *d* formed in the sheet metal of the tube wall, these ribs being formed with a relatively small space between them and being bent toward each other to internally embrace the T-edge of an internal web spanning the interior of the tube. This internal web is composed of two layers *e* of sheet metal, each layer being flanged at both edges so that it is of shallow channel-shape. When the two webs are placed together they assume a shallow H formation, and the internal ribs *d* in the tube walls serve to bind the duplex webs *e* together, and to the walls of the tube. The two internal webs *e* may be incorporated at intervals of about one-third of the major dimension of the cross-section of the tube.

The invention may be embodied as the plane or wing of an aerial machine, for which purpose the cross-section of the tube is very substantially elongated in relation to its width or depth. The tube constituting this embodiment of the invention may be shaped to the form of a plane, for which purpose it may be convex on one side and concave on the other.

The respective parts of the tube, strut, or equivalent element according to the present invention may be brazed, soldered, or equivalently secured together.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A frame element provided with one or more internal webs spanning the interior of the tube, said web or webs being composed of sheet metal and being flanged at its or their edges, and in which the sheet metal of which the wall of the tube is composed is

formed with ribs or the equivalent which overlap the flanges of the internal web or webs.

2. A frame element as claimed in the first claim, and in which the internal web or each internal web is formed of two layers of sheet metal, the flanges of which form at each edge of the duplex web a T-head formation, which T-head formation is embraced by two integral ribs of the tube wall.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HENRY CHARLES DICKSON.

Witnesses:

ARTHUR H. BROWN,

EDGAR N. WHEELER.