

R. KEMP.
JOINT FOR STREAM LININGS.
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1,433,729.

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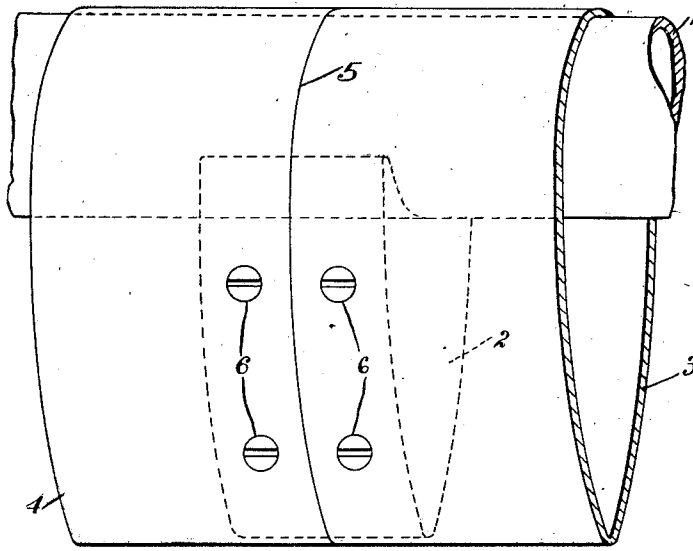


Fig. 1.

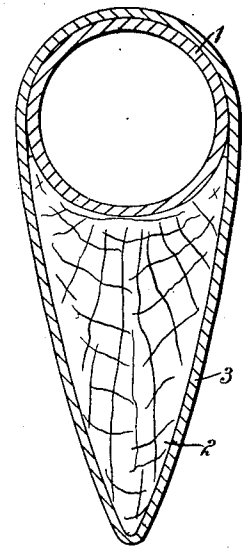


Fig. 2.

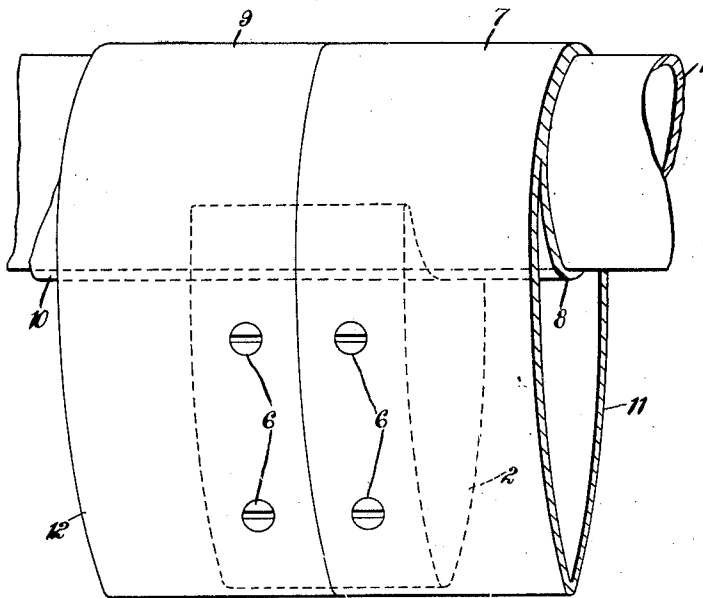


Fig. 3.

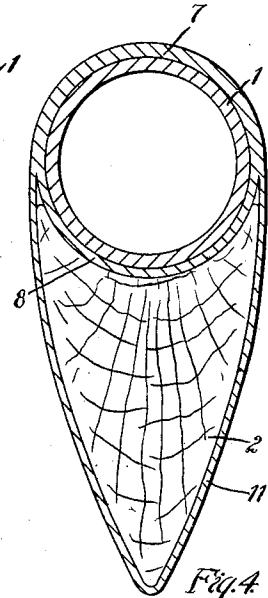


Fig. 4.

WITNESSES:

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JOINT FOR STREAM LININGS.

Application filed July 22, 1918. Serial No. 246,019.

To all whom it may concern:

Be it known that I, ROBERT KEMP, a citizen of the United States, and a resident of Washington, District of Columbia, have invented a new and useful Improvement in Joints for Stream Linings, of which the following is a specification:

My invention relates to stream-lined struts and it has for its primary object the provision of a support or joint construction which may be employed for supporting tubular stream-lining on struts and for joining adjacent ends of stream-line sections in case several sections are applied to a single strut.

Heretofore, difficulty has been experienced in the manufacture of stream-line tubes, which have relatively thin walls, of sufficient length for stream-lining struts. In view of this, one object of my invention is to construct a strut which may be stream-lined with tubes of lengths convenient to manufacture, several sections being employed for a single strut and their adjacent ends being connected.

Another object of my invention is to construct a strut having a properly shaped block disposed thereon which may be enclosed by the abutting ends of sections of stream-line tubes, which have been slipped over the strut, to thereby afford a suitable support to which the ends of the tubes may be fastened to hold them in place.

With these and other objects in view, a better understanding of my invention may be had by reference to the drawings in which Fig. 1 is a perspective view, parts being broken away, of a stream-lined strut embodying my invention; Fig. 2 is a transverse sectional view of the strut shown in Fig. 1; Fig. 3 is a perspective view, parts being broken away, of a stream-lined strut in the construction of which the stream-lining is wound and pressed on a two-part mandrel of which the tube constituting the strut may be one part; Fig. 4 is a transverse sectional view of the stream-lined strut shown in Fig. 3.

In practising my invention, I may fasten a suitably shaped block on a tubular element and slip sections of stream-line tubing over the tubular element and block thereon and fasten the abutting ends of the stream-line sections to the block, the sections of stream-line tubing being, preferably, com-

posed of superimposed layers of impregnated sheet material pressed into the proper shape and hardened so that they will maintain their shape.

In constructing another form of a stream-lined strut embodying my invention, I may wind a sheet of impregnated material about a tubular mandrel, the winding operation being continued until a suitable thickness of material has been reached, after which a mandrel having a stream-lined shape may be placed in contact with the material wound about the tubular mandrel and the winding continued to form a trailing edge of stream-line contour. The stream-line sections formed in this manner completely enclose the block or supporting element employed to join their ends together when they are removed from the forming mandrels and slipped over the strut.

My invention consists broadly of stream-lining struts with relatively short lengths of stream-line tubes and joining said tubes by fastening their abutting ends to a block suitably positioned on the strut which is being stream-lined.

Referring to Figs. 1 and 2 of the drawings, 1 is a tube of suitable material, preferably metal, which acts as a structural element or strut and to which a supporting element or block 2 is glued or otherwise fastened. Stream-line tubes 3 and 4, comprising a plurality of superimposed layers of impregnated sheet material, are disposed about the strut 1 and the block 2 and have their abutting ends 5 held in place by screws 6, or other suitable means, which engage the tubes 3 and 4 and the block 2.

As shown in Figs. 3 and 4, the stream-line sections 7 and 9 have inner tubular portions 8 and 10 formed integrally with the outer stream-line portions 11 and 12 and the block 2 fits between such inner tubular portions and the stream-line portions of the stream-line sections. The block 2, thus positioned in the stream-line sections, affords a means for fastening the ends of the sections to hold them together and in alignment with each other.

In view of the fact that it is difficult to join stream-lining of metal or sheet material and requires very careful, as well as skillful, work to manufacture stream-line tubes of sufficient length to be of practical use, the method disclosed obviates many difficulties

in the stream-lining of aeroplane struts. The method herein set forth may also be employed to great advantage in repairing damaged stream-lining, since, by removing short lengths of the damaged parts and joining new parts to the remaining stream-lining, a saving of material may be consummated.

Obviously, minor changes may be made in stream-lining a strut in accordance with my invention without departing from the spirit of the invention and I desire, therefore, that no limitations shall be imposed except such as are indicated in the appended claims.

I claim as my invention:

1. The combination with a strut stream-lined by sections of stream-line tubes, of means for securing the abutting ends of the sections in place, said means comprising supporting elements of stream-line shape.

2. The combination with a strut stream-lined by sections of stream-line tubes, of means for securing the abutting ends of the

sections in place, said means comprising blocks of wood of stream-line shape.

3. The combination with a strut stream-lined by sections of stream-lined tubes, each composed of a plurality of convolutions of impregnated sheet material, of means for joining and maintaining said sections in alinement with each other, said means comprising blocks of stream-line shape interiorly disposed with respect to the sections of stream-line tubes.

4. The method of stream-lining a strut that comprises securing supporting members to the strut at spaced intervals, placing tubular sections of stream-lining about the strut, with each of the members projecting into the ends of adjacent sections and securing the sections to the members.

In testimony whereof, I have hereunto subscribed my name this 13th day of July, 1918.

ROBERT KEMP.