

July 23, 1946.

A. ROBERTSON

2,404,531

CONDUIT SUPPORTING BLOCK

Filed Dec. 13, 1943

2 Sheets-Sheet 1

Fig. 1.

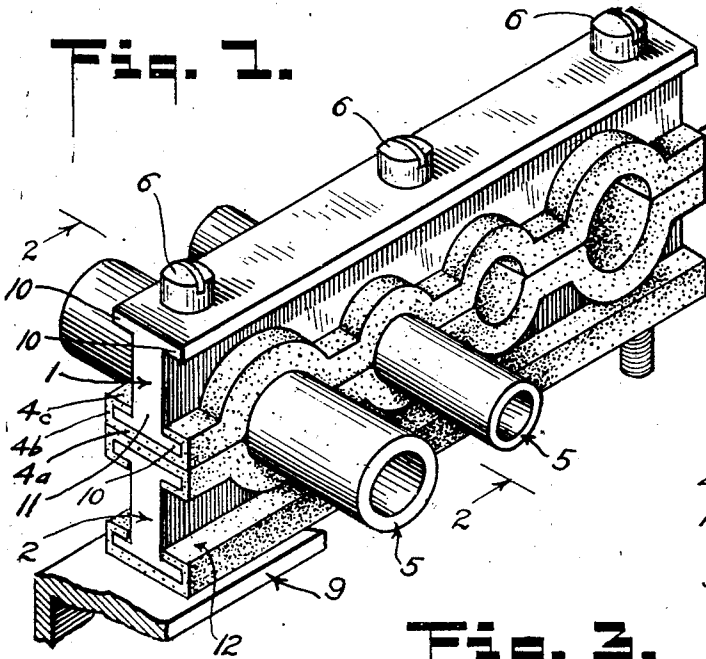


Fig. 2.

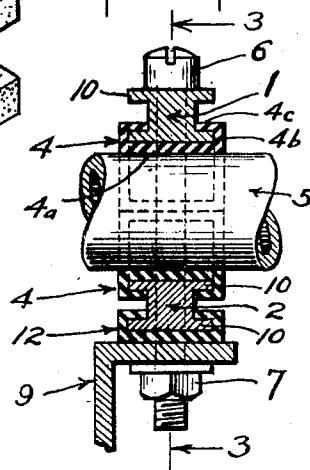


Fig. 3.

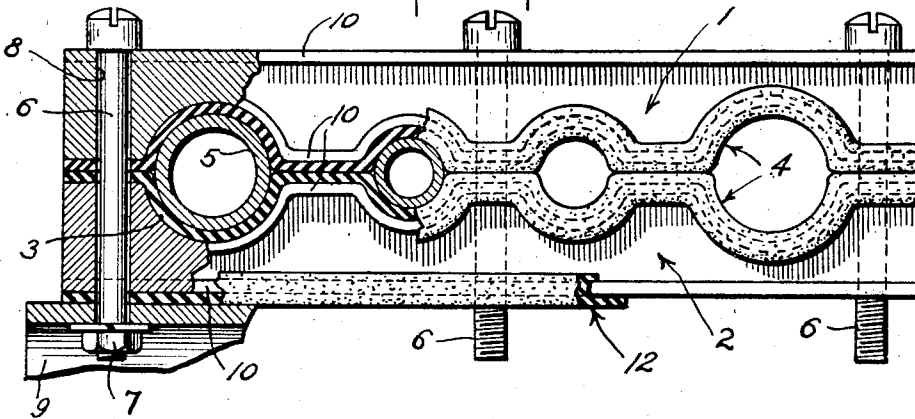
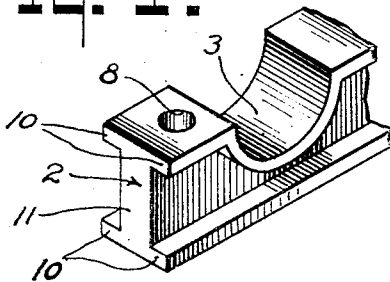


Fig. 4.



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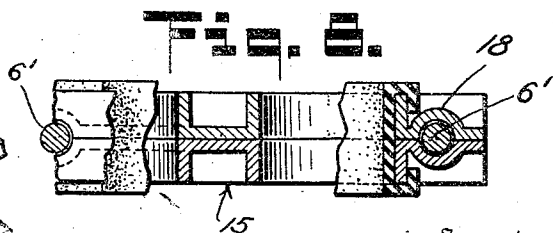
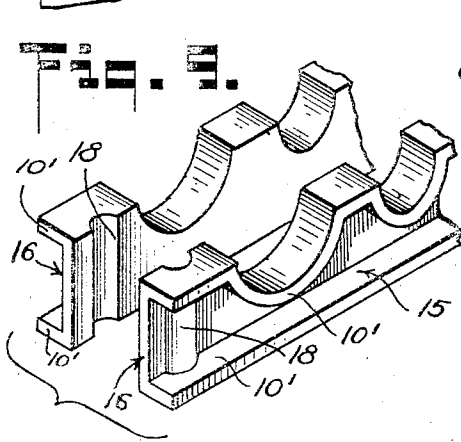
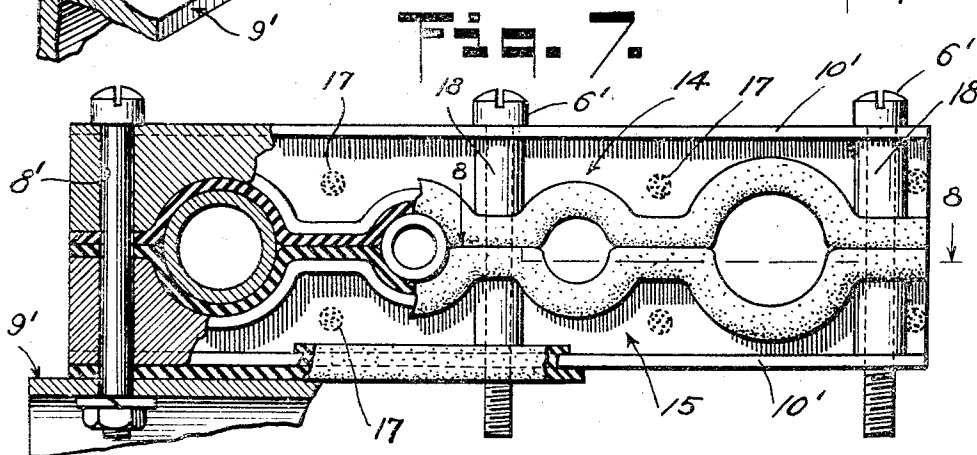
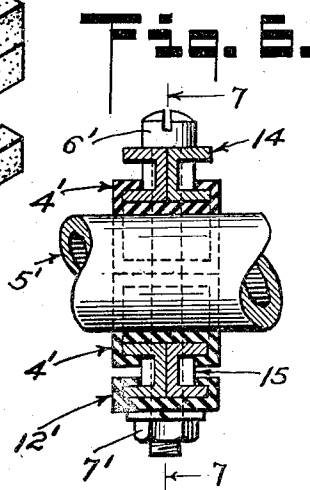
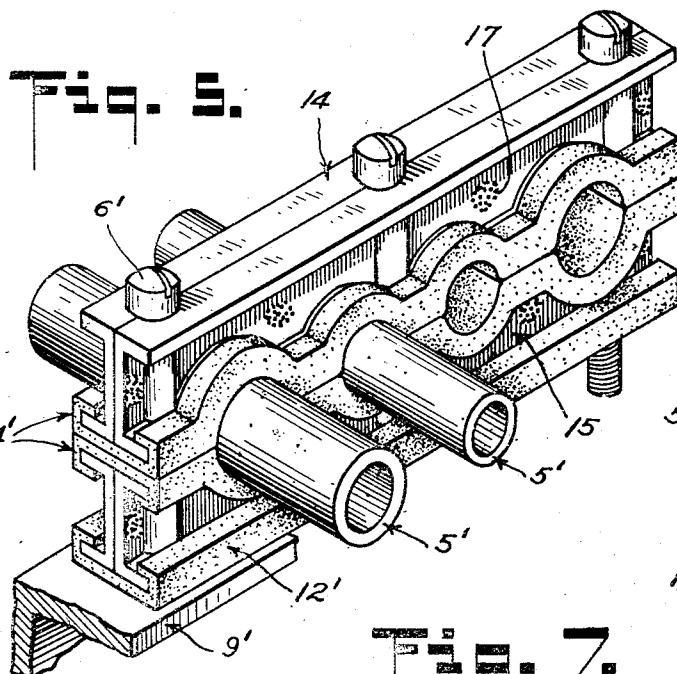
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CONDUIT SUPPORTING BLOCK

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,404,531

CONDUIT SUPPORTING BLOCK

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Application December 13, 1943, Serial No. 514,137

3 Claims. (Cl. 248—68)

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This invention relates to a sectional block-like support for holding in place in aircraft a group of conduit lines, with said lines clamped on cushioned seats to dampen vibrations and protect the lines against wear, this type of support being exemplified in United States Letters Patent No. 2,227,528 issued to Paul W. Adler on January 7, 1941.

One of the objects of this invention is to provide a sectional conduit supporting block of the character described in which the sections are made of plastic, wood, metal or other rigid and relatively stiff material and provided with flanges to facilitate the mounting thereon of yieldable cushion strips of rubber, synthetic rubber or the like, thereby making it possible to use but a small amount of the strategic cushioning material as compared to the thick block-like cushions heretofore used and at the same time insuring a more secure holding of the cushion strips on the rigid sections of the block.

A further object of my invention is to provide a conduit-supporting block of the character described which will permit of the advantageous use therein of extruded cushion strips which are substantially C-shaped in cross section, this type of strip having become a standard product in the art for use on conduit clips of the type shown in United States Letters Patent No. 2,215,283 for Line supporting clip, issued to Paul W. Adler on September 17, 1940, thereby making one form of cushion strip suited to blocks of the type here shown as well as to said clips.

Another object of my invention is to provide an improved body construction for conduit supporting blocks of the character described wherein the sections of the body are each made of like half sections of sheet metal stampings or molded sections of plastic material to facilitate and reduce the cost of the manufacture of the blocks and preform the cushion retaining flanges thereon.

A further object of my invention is to provide a conduit-supporting block of the character described in which each section has an I-shaped cross section to reduce weight and provide flanges that reinforce the structure as well as make possible a convenient mounting and a secure holding of the cushion strips on said sections.

With the foregoing objects in view, together with such other objects and advantages as may subsequently appear, the invention resides in the parts and in the combination, construction and arrangement of parts hereinafter described and claimed, and illustrated by way of example in the accompanying drawings, in which:

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Fig. 1 is a perspective view of a conduit-supporting block embodying my invention;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary longitudinal sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary perspective view of one of the sections of the block with the cushion removed therefrom;

Fig. 5 is a perspective view of a modified form of this invention;

Fig. 6 is a cross sectional view taken through Fig. 5;

Fig. 7 is a fragmentary longitudinal section taken on the line 7—7 of Fig. 6;

Fig. 8 is a fragmentary sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a fragmentary exploded perspective view of one of the two-part sections of the block as shown in Figs. 5 to 8 inclusive, showing how the two parts are fitted together to make a section of the block.

As shown in the accompanying drawings a conduit-supporting block embodying my invention is made up of a pair of opposed elongated and rigid body sections 1 and 2 having complementary conduit-receiving channels 3 in opposed faces thereof of which latter as well as the channels are lined by cushion strips 4 of yieldable elastic material such as rubber or synthetic rubber so that the conduits 5 will be embraced by and clamped between said strips when said sections are clamped together by bolts 6 and nuts 7. The bolts are passed through openings 8 in said sections and also provide for securing the block as a whole with the conduits clamped therein to a structural part of the aircraft, such as the part 9 here shown.

The present invention deals more particularly with the construction of the body sections 1 and 2 and the particular association thereof of the cushion strips 4. Each block section is of an I-shape in cross section and made of a rigid plastic material or wood or metal. This formation provides desired strength with a relatively thin section of light weight which may be readily and inexpensively stamped, cast or molded. It also provides flanges 10 projecting laterally from opposite longitudinal edges of the web portion 11 of each section. The flanges 10 on the opposed surfaces of the sections 1 and 2 as shown in Fig. 4, follow the curvature of and project laterally from the channels 3, thus forming portions of the walls of the channels.

The cushion strips 4 are substantially C-shaped

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in cross section and comprise a main body strip 4a adapted to lie upon the flat surfaces between the channels 3 and also line said channels from one end of the block to the other; side flanges 4b extending at right angles to the body strip to lie against the outer edges of the flanges 10, and flap-like flanges 4c projecting inwardly from the flanges 4b and parallel to the strip 4a so as to lie against the inner surfaces of the flanges 10 with their longitudinal edges against the webs 11.

It is now seen that the cushions may be slipped endwise onto the flanges 10 throughout the length of the sections 1 and 2 and will be securely held thereon by means of the flanges 4b and 4c. With this arrangement the cushion strips form a cushion between the body sections 1 and 2 also embrace the conduits so as to effectively dampen vibration in the conduits and prevent wear thereof. This method of affixing the cushion makes it unnecessary to cement or otherwise fasten the cushion strips and makes it possible to readily replace a worn or damaged cushion in the field.

If desired the edge or face of the section which is opposed to the structural part 9 of the aircraft may be fitted with a cushion 12 of the same construction as the cushion 4 as shown in Figs. 1, 2 and 3 so as to cushion the block against said structural part. In this connection it is noted that the flanges 10 on the outer edges or faces of the sections 1 and 2 are straight and that the cushion strip 12 may be fitted thereon in the same manner as the cushions 4 are fitted on the flanges at the opposed surfaces of the body sections.

It is now seen that in having the block body made of half-sections having the flanges 10 along opposite sides of its longitudinal edges as here provided, the sections may be made with relatively thin webs and flanges of non-strategic material such as wood or plastic or of thin sheet metal, yet will have requisite strength and rigidity and provide for a most convenient use of flanged cushion strips which are securely held in place by the flanges on the sections. Moreover the flanged construction makes it possible to mount the rubber cushion strips on the outer edges as well as the inner or opposed edges of the body sections as the occasion demands. Furthermore, the flanges on the inner or opposed faces of the block sections provide for relatively long cushioned seats axially of the conduits and complementary channels 3 as said flanges form portions of the walls of the channels which provide in effect a series of sleeve-like conduit-embracing seats securely holding the conduits in place.

In Figs. 5 to 7 inclusive I have shown a modified form of the invention which embodies all of the features of the first described form and is of the same construction except that the sections 14 and 15 forming the body of the block are each made of two channel shaped parts that may be cast, stamped or molded. More particularly this form of my invention lends itself to being conveniently and inexpensively made of sheet metal stamped in the formation best shown in Fig. 9.

In this form the two channeled parts making

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up each body section are designated 16 and are spot welded together as at 17 to form a complete I-shaped half section of the block.

As all other parts of this modified form are of the same construction as those shown in Figs. 1 to 4 inclusive, they are identified by the same reference numbers plus a prime character, for example, the cushion strips are 4', the bolts 6', nuts 7', flanges 10', and so on.

This modified form is employed in the same manner as the first described form and its stamped out formation of two channeled parts for each half section of the body of the block and the I-beam shape of the sections makes for requisite strength with a low weight and but a small amount of body material. The half circular rib-groove formations 18 which form the bolt holes afford effective reinforcement along with the flanges per each half of each body section.

While I have shown and described specific embodiments of my invention I do not limit myself to the exact details of construction set forth, and the invention embraces such changes, modifications and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

I claim:

1. In a conduit supporting block, opposed block sections having complementary conduit-receiving channels extending transversely of opposed faces thereof, laterally extending flanges on said sections, cushions of yieldable material mounted on said flanges and lining said opposed faces and said channels; and means for securing said sections together to clamp the conduits therebetween.

2. In a conduit supporting block, a pair of opposed body sections having complementary conduit-receiving channels extending transversely of opposed faces of said sections, each of said sections being of I-shape in cross section and defining flanges projecting laterally outward from opposite sides thereof, certain of said flanges following the contour and forming portions of the walls of said channels, cushion strips embracing the side edges and opposite faces of said certain flanges and lining said channels, and means for securing said body sections together to clamp the conduits therebetween.

3. In a conduit supporting block, a pair of opposed body sections having complementary conduit-receiving channels extending transversely of opposed faces of said sections, each of said sections being of I-shape in cross section and defining flanges projecting laterally outward from opposite sides thereof, certain of said flanges following the contour and forming portions of the walls of said channels, cushion strips embracing the side edges and opposite faces of said certain flanges and lining said channels, and means for securing said body sections together to clamp the conduits therebetween, said cushion strips having flanges thereon and being of an approximate C-shape in cross section and subject to being moved endwise onto said flanges and sections.

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