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E. M. MOREHOUSE
CONDUIT SUPPORTING BLOCK

2,355,742

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Fig. 1.

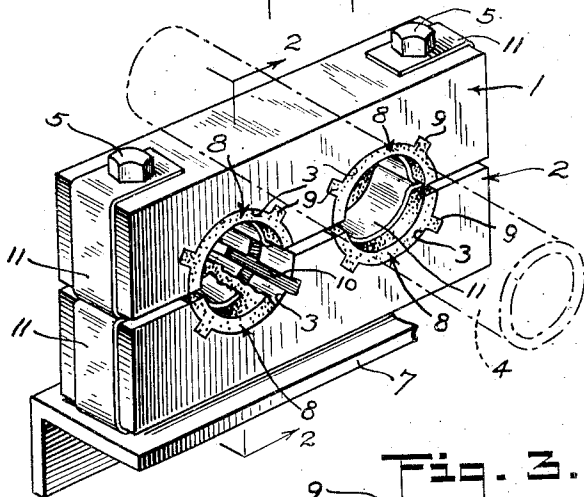


Fig. 2.

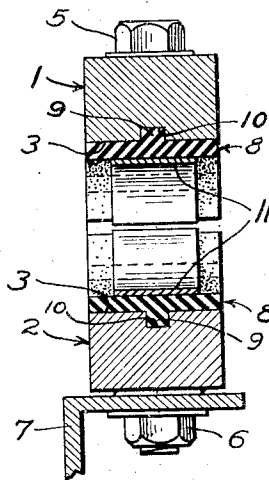


Fig. 3.

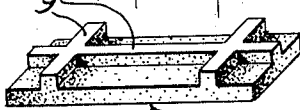


Fig. 6.

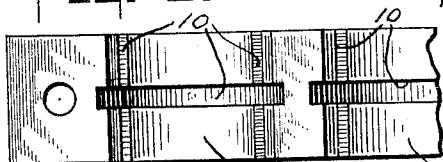


Fig. 4.

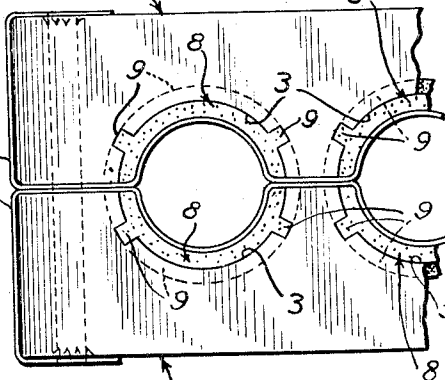


Fig. 7.

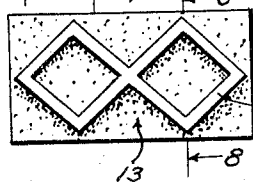


Fig. 8.

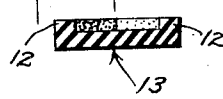


Fig. 9.

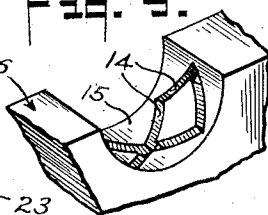


Fig. 5.

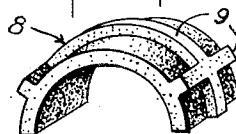


Fig. 10.

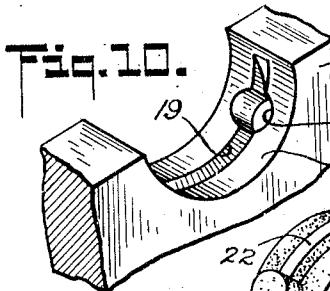
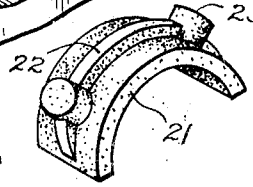


Fig. 11.



Inventor
EUGENE M. MOREHOUSE

By

R. S. Berry

Attorney

UNITED STATES PATENT OFFICE

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CONDUIT SUPPORTING BLOCK

Eugene M. Morehouse, Tujunga, Calif., assignor
to Adel Precision Products Corp., a corpora-
tion of California

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8 Claims. (Cl. 248—68)

This invention relates to blocks for supporting groups of aircraft conduit lines on cushioning and vibration absorbing seats with said lines electrically bonded or "grounded" to the metal frame structure of the aircraft.

More particularly the present invention relates to improvements in the newer type of conduit supporting block wherein the body portion thereof is made of opposed sections of wood, plastic or similar rigid, inelastic and non-critical material instead of rubber, synthetic rubber or the like, and provided with small strips of cushioning material arranged to embrace and cushion the conduits clamped between said sections.

In this newer type of block difficulty is experienced in applying the cushion strips to the sections of the block so that they will be retained in place. Glue or cement is usually employed and pressure is required to cause the strips to be adhered to the block sections.

It is the primary object of this invention to provide a conduit supporting block of the character described in which the cushion strip and block are constructed so that they may be quickly and easily interlocked to securely hold the cushion strips in place without the use of adhesives or extraneous fastenings, thereby saving time, labor and material and effecting a reliable mounting of the cushion strips.

Another object of this invention is to provide a conduit supporting block of the character described in which the interlocking provisions between the block and the cushion strips will positively hold the strips against derangement or movement relative to the block regardless of the vibratory movement of the conduits.

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 drawing, in which:

Fig. 1 is a fragmentary perspective view of a block embodying the present invention;

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

Fig. 3 is a perspective view of one of the cushion strips in flat form and removed from the block;

Fig. 4 is an enlarged fragmentary side elevation of the block hereof;

Fig. 5 is a perspective view of one of the cushion strips bent into the arcuate form as when applied to the block;

Fig. 6 is a fragmentary plan view of one of the sections showing the locking grooves therein, the cushion strip being removed;

Fig. 7 is a bottom plan view of a modified form of cushion strip;

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

Fig. 9 is a fragmentary perspective view of a section of the block for the modified form of cushion in Figs. 7 and 8.

Fig. 10 is fragmentary perspective view of a modified form of block with the cushion removed;

Fig. 11 is a perspective view of the cushion strip employed in connection with the block shown in Fig. 10.

Referring to the drawing more specifically, it is seen that my improved conduit supporting block generally includes a body portion made of opposed elongated sections 1 and 2 having transverse channels 3 in opposed faces thereof adapted to receive conduits 4 clamped between the sections by means of bolts 5 and nuts 6. These bolts are also employed to secure the block to a metal structural part of the aircraft such as the part 7 shown in Figs. 1 and 2.

As here provided the sections 1 and 2 are made of wood or plastic material or any other rigid and inelastic and non-metallic and non-critical material instead of rubber, synthetic rubber heretofore used.

In order to provide cushioned and vibration-absorbing seats for the conduits with but a small amount of synthetic rubber or the like, the channels 3 are lined with small strips 8 of elastic compressible cushioning material such as synthetic rubber, whereby the strips will surround the conduits.

In accordance with this invention the sections 1 and 2 and the cushion strips 8 are constructed so that they may be quickly and easily frictionally interlocked to retain the strips in place without the use of adhesives or extraneous fastenings.

One way of effecting the interlocking of the cushion strips and sections of the blocks consists in the use of ribs or projections 9 formed on one face of each cushion strip to extend longitudinally and transversely thereof as shown in Fig. 3 and adapted to be seated in similarly arranged grooves 10 formed in the channels 3. The ribs 9 and grooves 10 are of such relative size that when the strips are bent to arcuate form as shown in Fig. 4 and pressed into the channels 3, the ribs may be forced into the grooves 10 and will be frictionally held therein under compression to

produce a dovetailed joint effect and thereby retain the strips in the arcuate form and hold them against movement relative to said grooves and channels. The transverse portions of the ribs 9 prevent circumferential movement of the cushion strips while the longitudinal portions of the ribs prevent axial movement of the strip relative to the block sections and conduit. In regard both to the ribs and the grooves, their transverse portions are shown intersecting their longitudinal portions at substantially right angles thus providing definite groove corners and rib corners which interfit with each other, thereby securing more satisfactory and positive interlocking connections between the cushions 8 and the channel members 3. This mounting of the cushion strips may easily and quickly be effected without adhesives and the necessity of holding the strips until the adhesive takes hold, thereby saving time and labor and bringing about a more secure and reliable joint of the strips and block sections than heretofore.

In the present instance the cushion strips 8 are equal in width to the channels 3 but could be somewhat wider or otherwise at variance as desired, and in any case will support on their conduit-engaging faces thin metallic bonding strips 11 which are somewhat narrower than the cushion strips. These bonding strips extend between the sections 1 and 2 and around the ends thereof, being penetrated by and contacted with the bolts 5. The heads of the bolts overlie the ends of the bonding strip on the section 1, whereas the ends of the bonding strip on the section 2 lie against the metal structural part 7 of the aircraft. This arrangement of the bonding strips "grounds" the conduits to the metal frame structural part of the aircraft and prevents accumulations of static electricity in the conduit lines.

In Figs. 7, 8 and 9, the modified form of my invention takes into consideration the provision of diamond-shaped ribs 12 on cushion strips such as the one 13, and the formation of similar grooves 14 in the channels 15 in the block 16, as shown in Fig. 9. It should here be noted that any shape or arrangement of ribs and grooves which will effectively interlock the cushion strips and sections of the block is deemed within the scope and purview of this invention provided such ribs and grooves will produce the effect or the equivalent of the effect of those shown herewith.

It is now seen that my invention includes the provision of interlocking grooves and ribs on a body portion of a conduit support and a cushioning seat for a conduit whereby the seat will remain in place on the body portion without the use of adhesive or extraneous fastenings and that while I have here shown the interlocking means as applied to a sectional body portion of a particular type, it may be employed in any type of conduit support where it is essential to join a cushion strip with a body or conduit supporting member in the manner here provided. Moreover, it should be understood that I may, as within the scope of the invention, provide the ribs on the body portion or section thereof, and the grooves on the cushion strip.

Another modified form of my invention shown in Figs. 10 and 11 includes block sections such as the one 17 of wood or other non-metallic and inelastic material, provided with a transversely extending channel 18 for the conduit, and a cushion-anchoring groove 19 in said channel, also circular depressions or sockets 20 which are intersected by and located adjacent the ends of

said groove. The cushion 21 as shown in Fig. 11 is provided with a rib 22 corresponding to and adapted to fit snugly under compression in the groove 19 while lugs or protuberances 23 of cylindrical form, formed on the cushion fit snugly and under compression in the socket 20.

With this arrangement, the interfitted parts of the block and cushion provide for securely holding the cushion on the block as in the other forms previously described. This form may be advantageous in some instances in that the groove 19 and sockets 20 do not extend to the margins of the block and require the cutting away of less material than in the other forms, thereby making for a stronger construction. Due to the angles at which the lugs 23 extend into the sockets relative to the longitudinal axis of the block and the greater outward extent of the lugs, an effective holding of the cushion against being lifted or moved perpendicularly or otherwise out of the channel is provided for. The ends of the rib 22 are beveled and the ends of the groove 19 are correspondingly formed so as to avoid weakening the block where the channels 18 are separated by but a narrow web portion.

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 support, a body portion having a semi-circular channel therein for reception of a conduit and provided with an arcuate groove in the face of the channel and sockets which are intersected by said groove, a cushion strip of compressible material lining said channel as a cushioned seat for the conduit, a rib on said strip fitting in said groove, and lugs on said strip extending into said sockets.
2. In a conduit support, a body portion having a semi-circular channel therein for reception of a conduit and provided with an arcuate groove in the face of the channel and sockets which are intersected by said groove, a cushion strip of compressible material lining said channel as a cushioned seat for the conduit, a rib on said strip fitting in said groove, and lugs on said strip extending into said sockets, said lugs projecting outwardly beyond the rib.
3. In a conduit support, a body portion composed of opposed sections of rigid inelastic material having arcuate conduit-receiving channels extending across opposed faces thereof, strips of cushioning material lining said channels and positioned to embrace the conduit, interfitting frictionally interlocked ribs and grooves provided on the opposed surfaces of the cushion strips and said section, said ribs extending both longitudinally and transversely of said strips and sections, said ribs and grooves having angular corner portions which are fittable together in an interlocked relation to each other, said ribs having portions which intersect each other and said grooves also having portions which intersect each other.
4. In a conduit support, a body portion having transverse channels in one face thereof, an arcuate and relatively thin cushion strip lining said channel so that it will be interposed as a seat for the conduit, and frictionally interlocked portions on said body portion and strip constructed and

arranged to hold said strip on and against movement relative to said body portion.

5. In a conduit supporting block, a body portion composed of opposed sections of rigid inelastic material having conduit receiving channels extending transversely on opposed faces thereof, arcuate and relatively thin strips of material lining said channels and adapted to embrace a conduit, and frictionally interlocked ribs and grooves provided on the opposed surfaces of the cushion strips and said sections.

6. In a conduit supporting block, a body portion composed of opposed sections of rigid inelastic material having conduit receiving channels extending transversely on opposed faces thereof, arcuate and relatively thin strips of material lining said channels and adapted to embrace a conduit, and frictionally interlocked ribs and grooves provided on the opposed surfaces of the cushion strips and said sections, said ribs and grooves extending longitudinally and transversely of said strips and said sections, said ribs materially increasing the thickness of the part of the strips which they occupy.

7. In a conduit support, a rigid body portion, a

relatively thin arcuate cushion strip of material mounted on said body portion to serve as a cushioning seat for a conduit, and interfitted portions on opposed faces of said strip and body portions for locking said strip against movement on said body portion both axially and circumferentially of said conduit, said opposed faces being under a pressure which urges them toward each other.

8. In a conduit supporting block, a body portion composed of opposed sections of rigid inelastic material having conduit receiving channels extending transversely on opposed faces thereof, strips of cushioning material lining said grooves and adapted to embrace the conduit, and frictionally interlocked ribs and grooves provided on the opposed surfaces of the cushion strips and said sections, said ribs where they occur substantially increasing the thickness of said strips, said ribs and grooves extending longitudinally and transversely of said strips and said sections, the transverse ribs and grooves being extended entirely across the faces of said channels and said longitudinal ribs and grooves being equal in extent to the channels.

EUGENE M. MOREHOUSE.