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E. C. BURNS, JR., ET AL
SUPPORT FOR SURFACE PLUMBING

2,489,119

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FIG. 1.

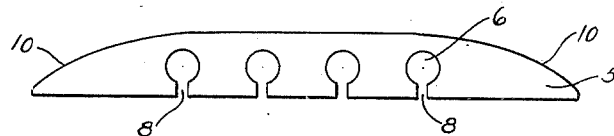


FIG. 2.

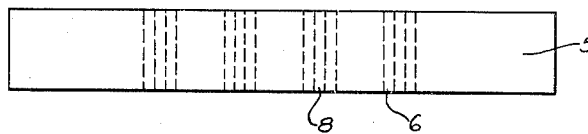


FIG. 3.

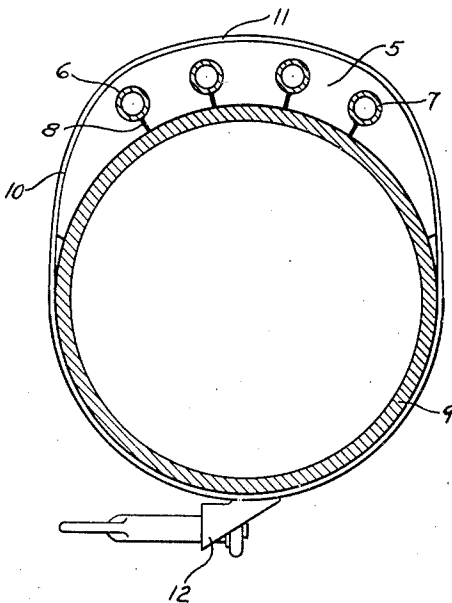
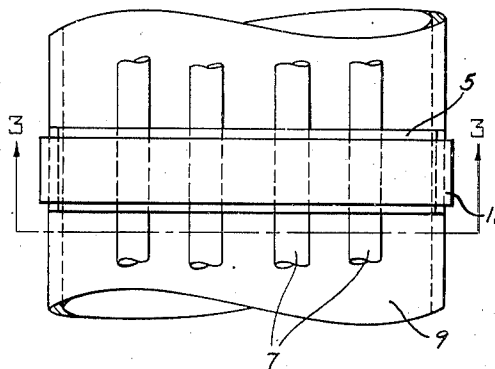


FIG. 4.



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SUPPORT FOR SURFACE PLUMBING

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2 Claims. (Cl. 248—68)

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The invention disclosed in this patent application relates to the mounting of the lines of tubing, rods and the like known as surface plumbing, on aircraft.

These lines of tubing and the like, generally in parallel relation, must be firmly and positively held against vibration and a particular problem is presented by the fact that the elements on which they are supported, such as beams; struts and shafts, vary in size, shape and surface contour.

Special objects of the invention are to provide means for mounting such plumbing which will be universally applicable to supports of varying contour and size and which will automatically conform to such supports and firmly and securely hold the plumbing in place.

Other, more specific objects are to provide conformable mounting means of the type indicated which can be quickly and easily adapted both to the plumbing lines and to the support, which will be light in weight, take up small space, be relatively inexpensive and be generally practical for the uses indicated.

Other desirable objects and the novel features through which the purposes of the invention are attained are set forth or will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present commercial embodiment of the invention. Structure, however, may be modified and changed in certain respects, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is an elevation of the pliable or conformable mount for holding the plumbing;

Fig. 2 is a plan of the same;

Fig. 3 is a cross sectional view of the complete device as in use;

Fig. 4 is a broken plan view of the same.

The mounting or supporting portion of the device consists, as shown in Figs. 1 and 2, of a generally narrow and thin strip 5 of flexible and somewhat resilient and compressible material having openings 6 through the mid-portion of the same for reception of the lines of tubing or other plumbing 7, and slots 8 extending from such openings through an adjoining edge to admit the tubing laterally into such openings.

This strip or block may be of rubber, plastic, cork, cork composition or the like, depending to some extent on the particular use and location of the article. Thus, conditions such as high

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or low temperatures and exposure to oils, gasoline, vapors, acids, etc., may largely control selection of such material.

Materials such as rubber, plastic and cork compositions are desirable because of their resiliency, conformability and frictional gripping qualities, they being pliant and readily bendable into conforming engagement and applying a frictional gripping engagement on the tubing. Additionally, and at the same time in conforming to the tubing, these mounts will conform to and make gripping engagement with variously shaped supports such as struts and the like, which may be of cylindrical or other conformation and be of different sizes.

In Fig. 3 the doubly conformable mounting body 5 is shown closed about four lines of tubing 7 and at the same time bent about the periphery of a cylindrical support 9.

The supports available for mounting the plumbing being usually more or less circular in contour, it is generally practicable and desirable to make the mounting strips with tapered and somewhat rounded end portions, substantially as indicated at 10. These rounded and tapered end portions will then conform more closely and enable the mount to more firmly grip the supporting structure.

The closing of the mount about the plumbing and the conforming of the mount to the supporting structure is accomplished all in one and the same operation and by a single confining means, comprising a flexible clamping band 11 having a width approximately the same or slightly less than the thickness of the mount, long enough to extend about the conformed mount and its support and provided with means for securing the ends of the same together in closely clamping engagement about the mount and support, such as the hose clamp connector indicated at 12. The latter is shown conventionally since any one of a number of different style screw clamping means may be employed.

The device is readily applied, for example after the lines of plumbing have been set up or partly installed alongside the supports, the pliable strips then being simply forced edgewise over the tubing or other elements and the bands put in place while holding the strips against the supports. The clamping bands, as they are tightened, will close the mounts about the tubing and draw the mounts into conformed engagement with the supports, gripping the tubing more firmly in such action to prevent slipping, vibration or loosening of any sort.

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In addition to gripping and supporting the surface plumbing, the mounts provide a certain cushioning effect tending to reduce vibration of intermediate, unsupported portions of the plumbing.

The cushioning and gripping mounts may be of insulating or of conducting material, depending upon requirements, and if bonding is required, metallic foil or equivalent may be applied to the inner or to the outer or to both edge surfaces of the flexible mounting strips.

While the passages in which the tubing is seated are shown as opening to the inner edge of the mount, it is possible that some or all of such seats may open to the outer edge of the mounting strip, as may be desirable to meet different or special requirements.

What is claimed is:

1. A support for surface plumbing on air-frames comprising a narrow and thin strip of easily bendable, resilient, frictional holding material having passages for tubing or the like there-through and slots extending from said passages through an inner edge to admit tubing or the like, said holding strip with the tubing in place being bendable on engagement of said inner edge with a strut or the like into conformity with the contour of a supporting strut or the like and a flexible clamping band engaged over the outer

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edge of said holding strip and bendable into conformity with the remaining contour of the strut or other supporting element, said flexible band having means for tightening the same about the conformed holding strip and support to compress and close the slotted portions of the holding strip about the supported tubing or the like.

2. A support for surface plumbing comprising a pliant cylindrical segment having a seat or seats to accommodate plumbing and open through one edge of the segment to admit the plumbing laterally and a surrounding flexible clamping band for squeezing the segment about admitted plumbing and for conforming the segment to the contour of a support about which said flexible clamping band may be passed.

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