April 17, 1928. 1,666,311

S. ROSENZWEIG

INSULATING UNIT FOR DEADENING VIBRATION AND SOUND

Filed Aug. 25, 1925 2 Sheets-Sheet 1

Fig. 1.

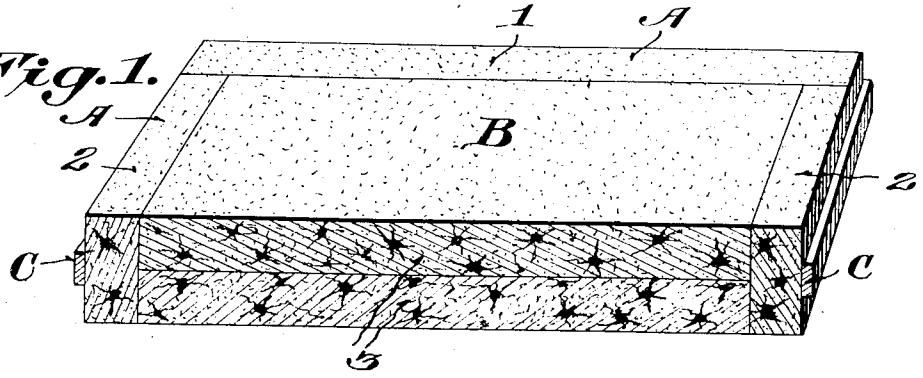


Fig. 2.

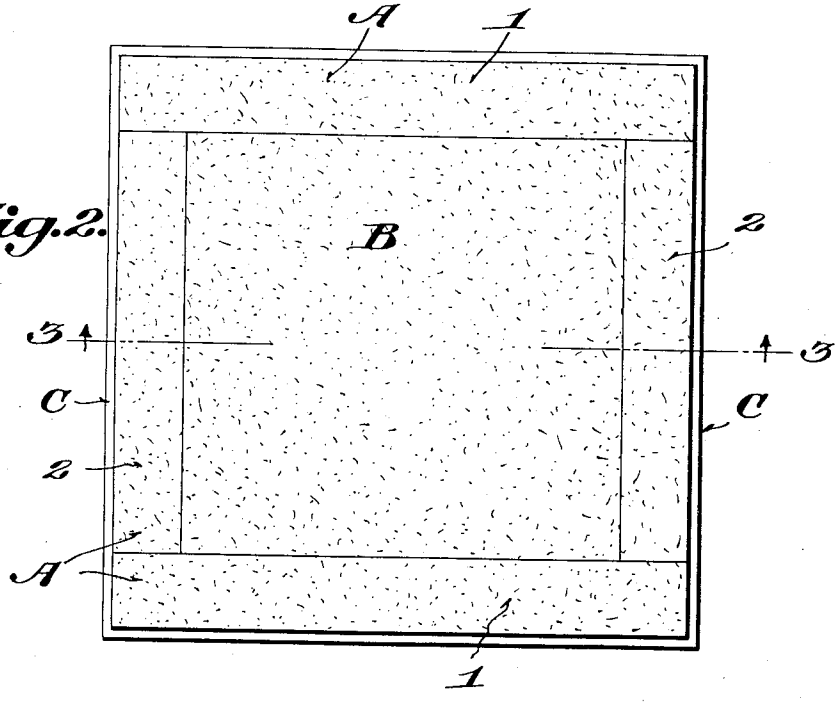
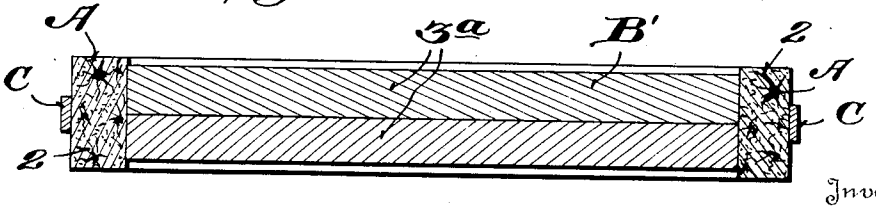


Fig. 3.



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Fig. 4.

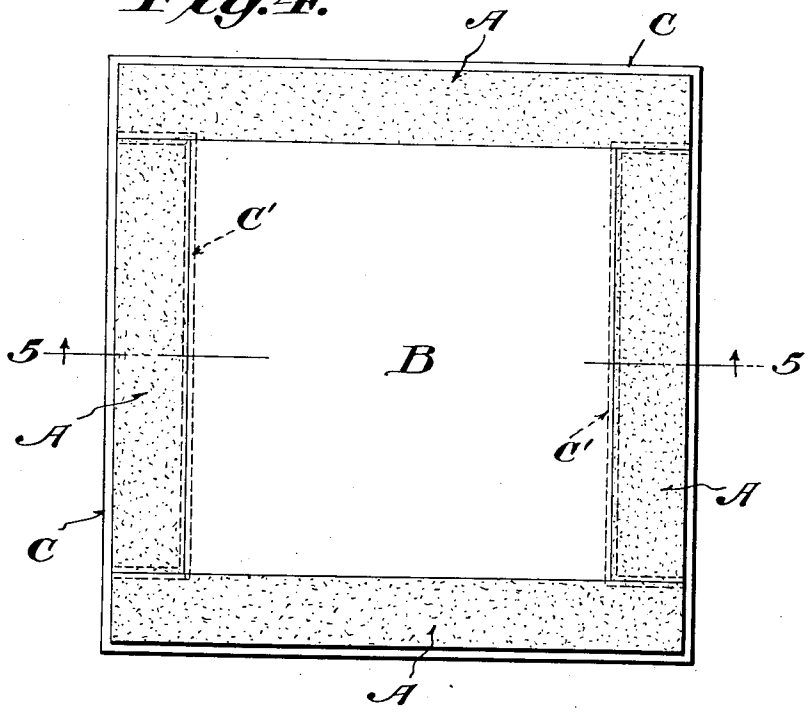


Fig. 5.

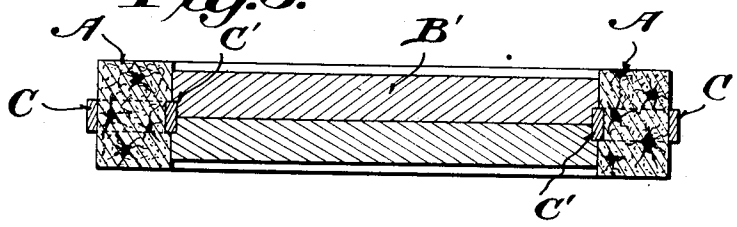
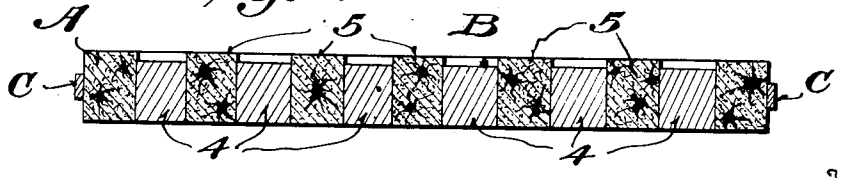


Fig. 6.



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UNITED STATES PATENT OFFICE.

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INSULATING UNIT FOR DEADENING VIBRATION AND SOUND.

Application filed August 25, 1925. Serial No. 52,393.

This invention relates to a novel sound and vibration insulating unit adapted to be positioned between machinery and the floor or other support to deaden and prevent the transmission of sound and vibration to the building.

In making units of the type referred to, it is preferable to use cork, which, because of its natural suberous characteristics possesses superior sound deadening properties thereby reducing noise, while also having the desirable capacity of supporting great weight or loads with a persisting or enduring cushion effect. In the use of cork, however, it is preferable to combine the same with suitable reinforcement such for example as illustrated in the patent to Genest, et al., 971,369, Sept. 27, 1910, wherein sections of cork are held together by an iron band and intermediate locking plates thereby holding the cork against lateral spreading and increasing its vertical resistance to superposed loads. Also, it has been found that several horizontal layers of cork are more efficient than solid blocks or slabs of the same thickness, yet on the other hand cork blocks in this form cannot be conveniently held in position because it is necessary to position the iron band at the central part of each layer of cork in order to leave ends of cork projecting above and below the band for bearing purposes, and so that the frame will not engage the support and the article to be supported.

Accordingly, the present invention has primarily in view the elimination of the practical objections to combining horizontal layers of cork, or other sound and vibration absorbing material, by providing a novel arrangement of the materials whereby maximum efficiency may be obtained therefrom while at the same time the manner of making and assembling the construction is advantageous from both the standpoint of manufacturing and installation for use.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is a vertical cross-sectional view of an insulating unit constructed in accordance with the present invention.

Figure 2 is a top plan view thereof.

Figure 3 is a cross-sectional view of a modified form of construction.

Figure 4 is a plan view similar to Fig. 2 illustrating a modified arrangement of clamping bands for the cork frame.

Figure 5 is a detail cross-section on the line 5—5 of Fig. 4.

Figure 6 is a detail cross-sectional view of a further modification of the invention.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

In carrying the invention into effect it is proposed to provide an insulating and cushioning unit for supporting machinery and the like which consists primarily of a cork frame designated generally as A and a central filler portion B consisting of one or more sections or pieces of suitable material which are held together by a metallic clamping band C or its equivalent.

As will be observed from Figures 1 and 2 of the drawings, the cork frame A preferably consists of the side strips 1—1 and the end strips 2—2 of cork whose height and thickness are largely determined by the specifications of the installation wherein the unit is to be used. These strips 1 and 2 are arranged about the filler section B which in Figures 1 and 2 consists of the cork slabs 3—3 whose combined thickness is preferably equal to the depth of the cork strips 1 and 2 forming the frame A, thereby providing a unit wherein the surface of the filler section is flush with the surfaces of the cork frame 1—1, and also acts as a load supporting member.

As will be observed from Figure 1 the cork frame A is held in position about the filler B by the metallic clamping band C which embraces the medial portion of the cork frame and exerts its clamping effect on the frame strips 1 and 2 which in turn evenly clamp the side edges of both cork slabs 3—3 thereby effectively distributing the clamping effect of the band C to the cork slabs 3.

This multiple-section filler B provides a

very efficient and practical construction wherein a cork frame as well as a cork filler section is used.

However, under some conditions of use where the load carrying capacity is not so great, and a more economical construction may be used with satisfactory results, it is proposed to use the arrangement shown in Figure 3 of the drawings. In this form of construction the cork frame A and encircling band C are used in conjunction with a filler section B′ made of a sound deadening material cheaper than cork. This material may be in one piece or several pieces or sheets of any sound deadening material available for the purpose, such for example as felt, or the like. In this case the sound deadening material need not necessarily be flush with the upper surface of the cork frame A. The cork frame primarily carries the load or weight of the machine while the filler section B′ may be non-loading carrying but acts as a sound deadener and prevents the setting up of a resonant or drum effect within the frame A.

Accordingly, under circumstances where absorption of noise is of greater importance than load carrying capacity the construction shown in Fig. 3 may be used. As a matter of fact there is probably no material which possesses both the resistance to vibration and deadening properties of sound as cork, but there are other materials which are very efficient sound deadeners but lack load carrying capacity, and for that reason it is not only unwise but detrimental to place machinery on materials which only deaden the sound. However, by the use of the cork frame shown in Figure 3 the weight of the machinery rests on the frame rather than on the sound deadening material, whereby a much cheaper material than cork may be used.

Figure 4 illustrates the use of iron strips about the end sections 2 of the cork frame thereby to give the same added vertical resistance to superposed loads.

Figure 6 of the drawings illustrates a further modification of the invention wherein the frame A of cork surrounds a multiple-section filler B^2 wherein the sections 4 and 5 are strips of different height alternately arranged so that the strips 4 come below the plane of the top of the frame A while the strips 5 are of the same height as the strips forming the frame A, thereby providing a filler section B^2 containing a multiplicity of sections certain of which come into play sooner than others under different loading conditions. In this construction the frame A is held about the filler section B^2 by the clamping band C in the usual manner.

From the foregoing it will be apparent that the distinguishing characteristic of the present invention resides in the provision of an outside frame A consisting of strips of cork which act as a container for a plurality of pieces of cork, and constitute the primary load carrying elements of the unit, while the central portion thereof which is surrounded by the frame provides a sound deadening center which may or may not have load carrying characteristics, the primary object in the latter case being to deaden the sound while the frame members carry the load.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:

1. An insulating unit for preventing transmission of vibration and sound to buildings and the like, comprising a load carrying frame consisting of a plurality of cork strips, and a central sound deadening portion consisting of a plurality of horizontally disposed slabs of sound deadening material of less combined thickness than the height of the cork strips constituting the frame, and a clamping band surrounding the frame.

2. An insulating unit for preventing transmission of vibration and sound to buildings and the like, comprising a load carrying frame consisting of a plurality of cork strips, and a central sound deadening portion including superposed horizontally arranged slabs of sound deadening material, said slabs being co-extensive with the space defined by the inside of the frame, and a clamping band surrounding the load carrying frame and having the joint between them concealed by the frame.

3. An insulating unit for preventing transmission of vibration and sound to buildings and the like, comprising an outer load carrying frame consisting of a plurality of cork strips of sufficient area to support and sustain the load, a central sound deadening filler consisting of a plurality of horizontally disposed layers of sound deadening non-load carrying material, the joints between said layers being concealed by the frame, and a clamping band surrounding the frame.

4. An insulating unit for preventing transmission of vibration and sound from machinery to buildings and the like comprising a load sustaining frame consisting of cork strips, each of a length corresponding to a side of the unit and of a height and width to provide sufficient area to sustain the load, and a central filler consisting of superposed layers of non-sectional sound deadening material having their meeting

edges concealed by the cork strips, and a metallic band surrounding the outer faces of the cork strips.

5. An insulating unit for preventing transmission of vibrations and sounds from machinery to buildings and the like comprising cork strips of greater height than their width arranged to sustain the load, and a part adjacent the cork strips being of sound deadening material and less load-sustaining capacity than the cork, and a clamping band surrounding the outer edges of the unit.

In testimony whereof I hereunto affix my signature.

SIEGFRIED ROSENZWEIG.