Oct. 14, 1952 J. A. MacINTYRE 2,613,696

ACOUSTICAL CLOTH

Filed Nov. 1, 1948 2 SHEETS—SHEET 1

Fig. 1

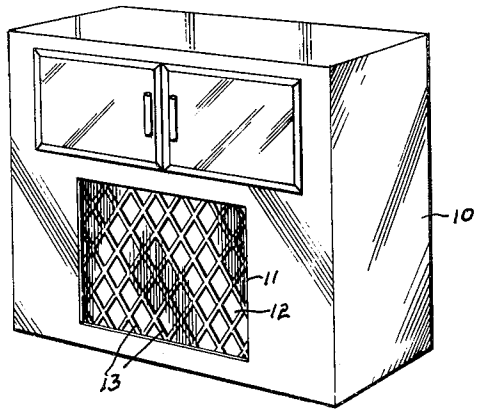
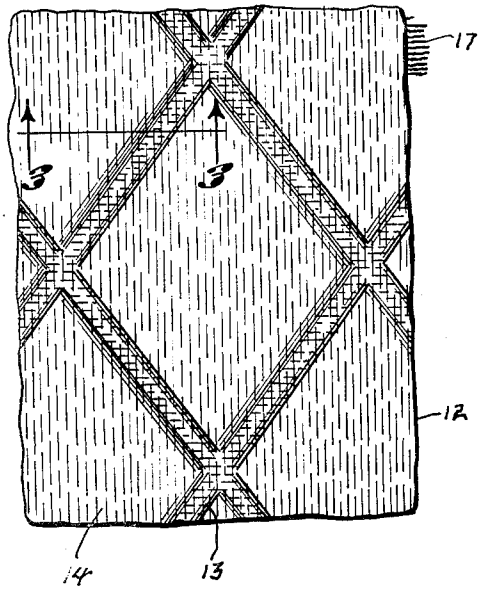


Fig. 2



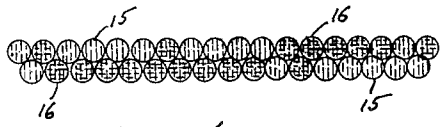


Fig. 3

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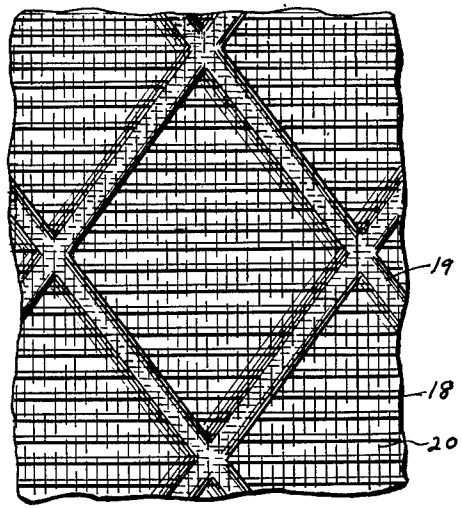


Fig. 4

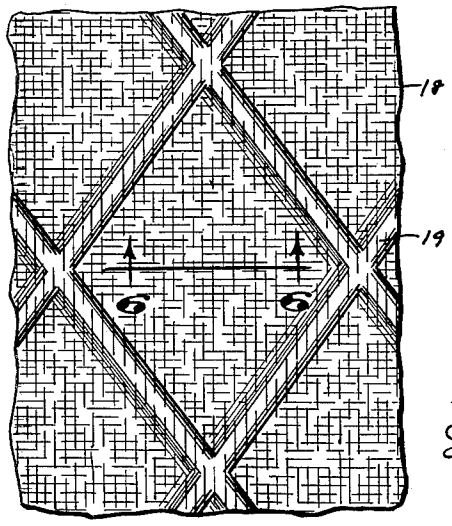


Fig. 5



Fig. 6

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ACOUSTICAL CLOTH

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2 Claims. (Cl. 139—418)

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My present invention relates to the textile industry, and more particularly to a novel construction of acoustical cloth.

The principal object of the present invention is to provide an acoustical cloth for a radio, phonograph, or similar sound reproducing apparatus, which can be placed in front of the loud speaker without impeding the tonal quality.

A further object of the present invention is to provide an acoustical cloth which also replaces the ornamental grille conventionally positioned in front of such cloths on radios and similar instruments.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more particularly defined in the appended claims.

In the drawings,

Fig. 1 is a perspective view of a radio cabinet with the acoustical cloth embodying my invention;

Fig. 2 is a front elevation of a piece of acoustical cloth embodying my invention;

Fig. 3 is a section thereof taken on line 3—3 on Fig. 2;

Fig. 4 is a front elevation of a modified form of cloth embodying my invention;

Fig. 5 is a rear elevation thereof; and

Fig. 6 is a section taken on line 6—6 on Fig. 5.

In the conventional construction of radios, phonographs, and similar instruments, the loud speaker opening is covered with a decorative cloth to prevent dirt and dust from entering and to provide a finished appearance. In addition, a metallic or plastic grille is placed in front of the cloth to relieve the monotony of the design, see Fig. 1. It has been found however that cloth has the effect of deadening and distorting sound. Experiments have therefore been conducted to determine the type of cloth least likely to interfere with the quality of the instrument.

The applicant has found that the best type of cloth for such purposes, called acoustical cloth, comprises a loosely woven cloth having between 80 and 100 ends of rayon cotton (a mixture of rayon and cotton fibers) threads to the inch with a heavier cotton filler running approximately 20 to the inch. However, the limits are not narrow, and applicant has found that good results could be obtained by increasing the warp to as high as 240 ends to the inch.

In addition to providing a suitable acoustical cloth, applicant has provided a construction

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which eliminates the necessity of a grille in the cabinet design. This is accomplished by weaving a grille design into the acoustical cloth to produce the effect shown in Fig. 1. The art of weaving a design, such as the grille, into a cloth is old and well known. However, when such a design is woven into an acoustical cloth, the edges of the grille design are broken and ragged and the camouflage effect is lost.

By the construction of the present invention, I provide an acoustical cloth having an integrally woven grille with clear sharp edges which give the effect of a separate metallic grille. I obtain this result by using a combination of a basic colored thread alternating with a metallic colored thread such as a gold or silver color, each 120 ends to the inch for a total of 240 ends to the inch. The filler is the conventional 20 to the inch construction. The very slight impairment of acoustical properties of this cloth is more than offset by the effective grille design obtained.

Referring more in detail to the drawings, Fig. 1 shows a cabinet 10 for a radio or similar instrument, having a conventional front opening 11 for the loud speaker, screened by the cloth 12. The cloth 12 is woven to produce the simulated grille effect 13. Referring to Figs. 2 and 3, the cloth 12 has been lined for color for purposes of illustration. The background 14 has been shown in purple. Any other suitable color may be used. The grille 13 is shown in gold. Since a metal bar is being simulated, gold, silver or black are preferable for the grille.

The cloth 12 is woven in a construction which products two layers, Fig. 3. In the illustrated form, there are 120 purple ends 15 to the inch, alternating with but above 120 gold ends 16 to the inch. These are held together by the coarse filler 17, matching the purple and running 20 to the inch. In weaving, the effect is produced by alternately running the purple ends four up and one down and the gold ends nine down and one up. With this relationship, the gold thread up does not coincide with the purple thread down and the gold thread is, therefore, invisible in the background. Along the simulated grille 13, the gold is woven 5 up with the purple 5 down in groups of approximately four threads and staggered to produce the diamond shaped effect.

The resultant cloth provides a front background 14 in purple with the gold invisible except at the grille 13. The gold back of the cloth is much more loosely woven (the gold is 9 down to one up). The grille 13 is sufficiently well defined to produce the simulated effected desired.

While the cloth has a double thickness, the weave is sufficiently loose, especially the gold backing, to avoid interfering with the quality or volume of the sound.

The above construction may be varied, not only as to color, but also in the cloth background to the grille. For example, in the form shown in Figs. 4, 5 and 6, the cloth 18 is provided with the grille effect 19 and a background 20 which is ribbed. This ribbing is accomplished by running the purple ends 21 alternately up 3 and down one. The result is an alternate gold and purple thread exposed along each rib with purple valleys between the ribs. The grille is provided in the same manner as hereinabove described.

It can thus be seen that with a proper contrasting of colors and backgrounds, an acoustical cloth is obtained which is only slightly less efficinet than the desired maximum efficiency, but which eliminates the necessity for a grille by providing a substitute woven into the cloth. The above construction balances the acoustical requirements with the visual requirements along the edge of the grille.

The described construction of 120 to the inch in each color with a 20 to the inch filler is for purposes of illustration only. For example, I have found that certain designs permit less than 240 warp ends to the inch and with smaller designs with finer thread up to 30 threads to the inch may be used in the filler.

While I have described specific embodiments of my invention, it is obvious that changes may be made within the spirit and scope of the invention as defined in the appended claims.

I claim:

1. An acoustical cloth comprising a loosely woven cloth having a coarse filler of 20 threads to the inch and two layers of warp thread each 120 ends to the inch, the background of the front of said cloth being formed by the upper layer, the upper layer being of the desired background color and being woven with alternate threads four up and one down, and the lower layer being of a metallic color and being woven with alternate threads one up and nine down, said weave being modified to that said lower layer is woven with said upper layer to form a simulated metallic grille on the face of said cloth.

2. An acoustical cloth comprising a loosely woven cloth having a coarse filler of 20 threads to the inch and two layers of warp thread each 120 ends to the inch, the upper layer being of the desired background color and being woven with alternate threads four up and one down, and the lower layer being of a gold color and being woven with alternate threads one up and nine down, said lower layer being woven with said upper layer to form a simulated metallic grille on the face of said cloth, said gold threads running 5 up and said background threads running 5 down along said grille.

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