

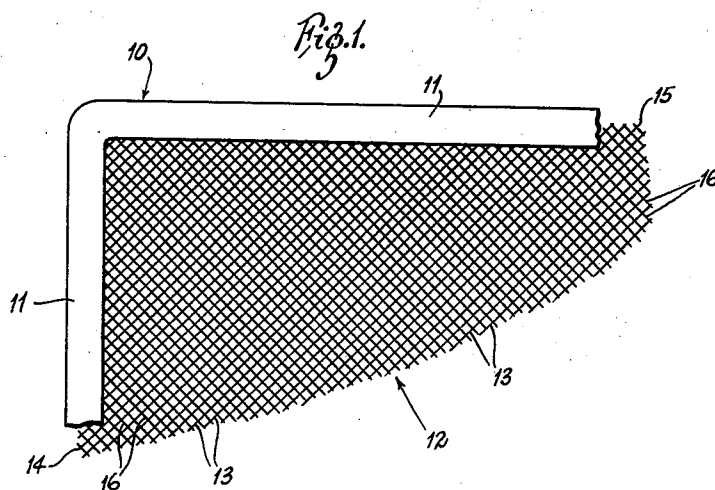
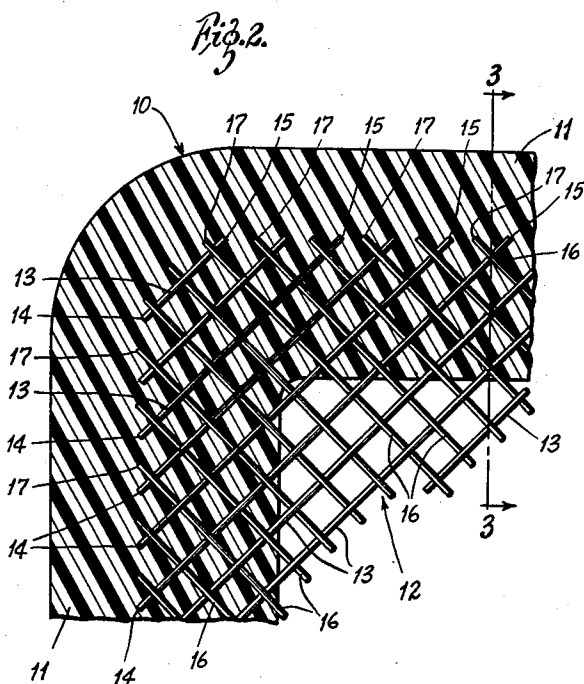
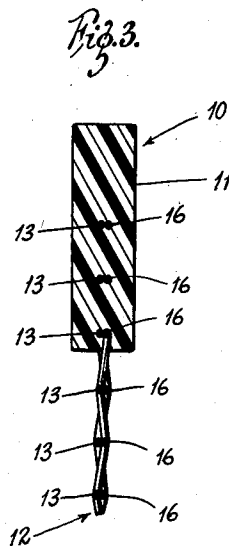
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SCREEN

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SCREEN

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This invention relates to a screen construction and more particularly to the construction of a screen in which the frame and the cloth for the screen are formed of different materials. The construction of this screen avoids the distortions heretofore encountered in such screens.

In the illustrated embodiment of the invention, the frame of the screen is formed of a plastic material, whereas the cloth is constructed of interwoven metal wire mesh. The frame is rectangular and is molded to the peripheral edges of the wire cloth. The wire strands are positioned diagonally to the frame so that each strand is at the greatest possible angle to the line of each side of the frame. Plastic has certain advantages over other materials such as wood or metal. The plastic can be molded directly to the screen cloth whereas wood cannot. Plastic is cheaper and lighter in weight than metal, and plastic does not rust nor lose its color. There are many uses for screens of the illustrated construction. One example of such a use, not intended to be limiting of the invention, is as a filter for the air outlet of a clothes dryer to prevent the passage of lint through the screen.

Previous attempts to construct a screen with different materials for the frame and cloth have resulted in serious defects during both construction and use of the screen. Initially, when the frame is molded onto the wire cloth, the plastic material has shrunk after being removed from the mold. This shrinking of the frame has produced distortion in the overall appearance of the screen, causing the wire cloth to buckle and warp. Some attempts have been made to mold a plastic frame for a screen taking into account the shrinkage of the plastic frame when the frame is removed from the mold. Such efforts have been largely directed toward the design of a mold having a "reverse distortion." The incorporation of reverse distortion into the design of a mold is costly and often inaccurate because shrinkages may not be uniform.

Other defects in conventionally made screens having a plastic frame molded to a metal cloth have appeared during use of the screen under conditions in which the temperature is substantially above normal room temperature. The use of a screen with a clothes dryer is again an example. Under these operating conditions, the frame of the screen expands more than the cloth, causing buckling of the frame.

An important object of the invention is to provide a screen having a frame and cloth formed of different materials wherein the construction of the screen virtually eliminates distortion of the frame or cloth under changing temperature conditions. Specifically, it is an object of the invention to provide a screen having a plastic frame and a wire cloth wherein the relationship between the two substantially eliminates the distortions already referred to.

Other objects and advantages will be apparent to those skilled in the art.

In the drawing:

FIGURE 1 is a partial plan view of the corner of a typical screen incorporating the features of the invention;

FIGURE 2 is a partial view of the corner of the screen of FIGURE 1, on an enlarged scale, with the frame shown in section; and

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FIGURE 3 is a view in section taken along the line 3—3 of FIGURE 2.

Referring now to the drawing, the screen has a plastic frame 10 with sides 11 molded to the peripheral edges of wire cloth assembly 12. While the frame 10 is illustrated as being rectangular in cross section, it may be formed of any desired shape according to the use to which it is to be put. Also, the frame 10 is formed of a plastic material. Any commercially available, moldable plastic may be used.

The cloth assembly 12 comprises a series of parallel wires 13, each having ends 14 and 15. The wires 13 are interwoven with another series of wires 16, the wires 16 having one end 17 and an opposite end that does not appear in the drawing. The wires 13 are spaced from one another and the wires 16 are spaced from one another so that their intersections define a plurality of small squares as is conventional for wire cloth which is used as a screen. The wires 13 and 16 may be made of copper, aluminum, or other metal.

The essential feature of the invention is that the wires 13 and 16 of the cloth assembly 12 are molded to the frame 10 at an angle. In other words, instead of being parallel to the sides 11 of the frame 10, the wires 13 and 16 intersect the sides 11 at approximately 45° angles (as illustrated). Stated in still different terms, there are no wires 13 and 16 parallel to the sides 11 of the frame.

The screen of the present invention is no more difficult to make than conventional screens. The construction involves the steps of cutting the cloth assembly 12 so that its longest edges are diagonal to the mesh of the cloth. The cloth is then placed with its edges within the frame mold, and the frame is molded to the cloth. When the screen is removed from the mold, the cloth will not buckle when the frame contracts. And when the screen is used under conditions of excessive temperature variation, virtually no distortion will occur in either the frame or the cloth.

Various changes and modifications may be made within the process of this invention as will be readily apparent to those skilled in the art. Such changes and modifications are within the scope and teaching of this invention as defined by the claims appended hereto.

What is claimed is:

1. In a screen: a polygonal frame of moldable plastic material and screening of criss-cross interwoven metal strands; the plastic and screening having different coefficients of expansion; the frame having at least one substantially straight side and the strands of the material being on the bias with respect to the substantially straight side and having their ends permanently embedded therein, and individual strand ends being surrounded by the plastic material, the bias arrangement being such that no strand extends parallel to the side in or adjacent thereto, the side thereby having closely similar expansion and contraction properties along its inside and its outside portions so as to minimize distortion of the frame.

2. The screen of claim 1, wherein the screen strands are at right angles to each other and all are at about 45° to the straight side of the frame.

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