DUST FILTERS FOR GRAVITY WARM AIR HEATING SYSTEMS

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This invention relates to improvements in air filters. The main objects of this invention are:

First, to provide an air filter which is efficient in the filtering of air and does not require the use of oils or the like and permits relatively free passage of air therethrough so that it may be used in connection with the grids of cold air registers and the like without serious obstruction to the air flow.

Second, to provide an improved grid filter combination in which the filter may be quickly and easily removed from the grid and removed therewith for cleaning and easily replaced and one in which the pad may be cleaned by washing.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a perspective view of an air filtering register or grid embodying my invention. 

Fig. 2 is a perspective view of the filter pad, the hair or the filaments thereof being conventionally illustrated. 

Fig. 3 is an enlarged fragmentary view illustrating the hairs or filaments and the coating thereon. 

Fig. 4 is a side view of a pad fastener element. 

In the accompanying drawing 1 represents the floor and 2 a wall of the room, the floor having an opening 3 therein for the register grid 4. The grid 4 is shown conventionally as being made up of crossing bars 5 and 6 forming openings 7. The joints of the bars are not illustrated. The grid shown is illustrated as being formed of wood which is a common practice with cold air registers. The cold air conduit is shown at 8. The conduit 8 together with the walls of the opening 3 through the floor 1 provide a passageway for cold air from the room to a furnace (not shown) to be heated to return by a passageway (not shown) back to the room. 

The filter pad of my invention designated generally by the numeral 9 is of substantially uniform thickness throughout and corresponds in shape and dimensions to the grid. This pad is formed of loosely felted hair and is resiliently compressible. The hairs or filaments are inherently resilient so that they do not become matted or compacted even when loosely felted.

After the pad is formed it is sprayed with aluminum paint, the paint covering the strands or filaments of hair as indicated at 10 in Fig. 3. The aluminum powder or flakes 11 increase the roughness of the hairs or filaments or provide minute projections thereon which add to the filtering capacity of the pad. This coating also adds to the resiliency of the hairs or filaments and acts to prevent them from becoming matted in handling such as in applying or removing the grid and the washing thereof. 

The pad is secured on the underside of the grid by means of staple-like or U-shaped bendable fasteners or clips 12 which are disposed over the grid bars in suitably spaced relation with their prongs 13 disposed through the pad and bent laterally at 14 in supporting relation to the underside of the pad. This provides effective means for supporting the pad without materially obstructing the flow of air therethrough. 

The filtering pads may be produced quite economically and they are very efficient and durable. To clean them it is only necessary to wash with soap and water or flush water through them. No oil or other dust catching medium is required. The aluminum paint also adds to the appearance of the pad as it is viewed through the grid. Inherent resilient filaments other than hair might be used but the hair filaments are highly desirable.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a cold air register grid or the like of a resiliently compressible air filter pad of substantially uniform thickness throughout corresponding in shape and dimension to the grid and formed of loosely felted hair, the hairs being coated with aluminum paint, and a plurality of downwardly facing U-shaped grid bar embracing clips, the arms of which are disposed through the pad and bent laterally upon the underside thereof to support the pad in contacting supporting relation to the underside of the grid.

2. In combination with a cold air register grid or the like of a resiliently compressible air filter pad of substantially uniform thickness throughout corresponding in shape and dimension to the grid and formed of loosely felted hair, and a plurality of downwardly facing U-shaped grid bar embracing clips, the arms of which are disposed through the pad and bent laterally upon the underside thereof to support the pad in contacting supporting relation to the underside of the grid.

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