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APPARATUS FOR FLUFFING ASBESTOS

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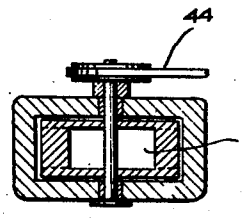


FIG. 2

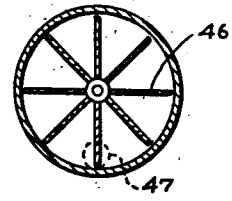


FIG-3

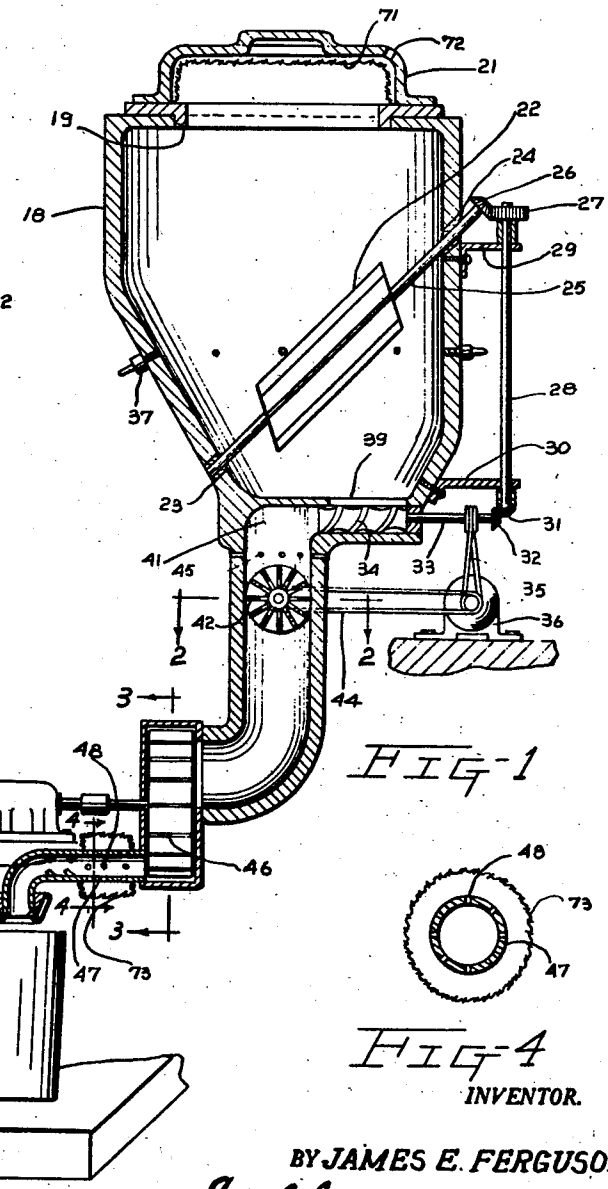


FIG-1

FIG-4

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APPARATUS FOR FLUFFING ASBESTOS

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3 Claims. (Cl. 259—151)

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This invention relates to insulating, fire and sound proofing blocks and to the method and apparatus for the manufacture of the same.

It is an object of the present invention to provide in an insulating, fire proofed and sound proofed block a new method for the application of the material forming the same on a wall or other surface whereby to eliminate occupational hazards, material loss, labor loss and greatly reducing maintenance costs where this material has been applied by methods other than with blocks such as by spraying, wherein cumbersome equipment is required for the operation.

It is another object of the present invention to provide a method of applying fire proofing material or give a building acoustical treatment without being put to extensive or excessive costs of cleaning, removing or covering of the surface to which material is to be applied and wherein the application can be made without damage to office equipment, machinery and so forth which may be within the building at the time and wherein there is provided a method of application whereby such cost of removing the equipment in order to make the application is unnecessary.

It is another object of the present invention to provide apparatus for the forming of blocks of insulating, fire proofing and acoustical material which is of simple construction, easy to operate, which maintains the material in a fluffed condition up to the time that it is deposited in the mold, and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which

Fig. 1 is a sectional view, in elevation, of the fluffing apparatus which is used for dispensing the material to the molds which are used for forming the blocks.

Fig. 2 is a sectional view taken through the apparatus shown in Fig. 1 and on line 2—2 thereof.

Fig. 3 is a sectional view taken through the apparatus of Fig. 1 and on line 3—3 thereof.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

Heretofore, insulating, fire proofing and acoustical material has been applied to surfaces by means of spraying with large and cumbersome apparatus requiring that the room or wall space be cleared to receive the material and causing, if the material is being placed in a building already constructed, considerable moving of furniture and machines and the dispensing of the material upon the surface with uneven depth and with loss of much material as a result of the material being misdirected or not clinging to the wall surface or such amount of material as may have been disposed thereover.

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According to the present invention, the material is prepared with fluffing apparatus and made into blocks which are connected to the wall surface by an adhesive which may be disposed thereon before the blocks are placed thereover. There is no loss of material and the room need not be cleared to such great extent for the operation, and the surface need not be especially prepared to receive the blocks as the adhesive can be extended over the surfaces without cleaning. The surfaces should be made free of oil and grease for good application of the adhesive.

The material comprises a large percentage of asbestos, rock wool, mica or vermiculite and a small percentage of cement to serve as a binder when the material, upon being dispensed to the mold, is moistened with a mist. A block or mat may be formed of ninety-five percent asbestos and five per cent white Portland cement has been found suitable. Any combination of the materials including asbestos or other than asbestos can be used. It has been found that a mixture of seventy-five per cent vermiculite and twenty-five percent asbestos plus a binder makes a good block. The kind of materials will depend upon the primary use the blocks are to be put to. In order to give stiffness to the finished block and to maintain the shape of the same a starchy material may be later extended over the surface of the block in solution form and permitted to dry.

This material in its dry state, comprising say asbestos, ninety-five percent and cement, five percent, is dumped into a hopper 18, Fig. 8, through opening 19 which is normally closed by a cover 21. Within this hopper, the material is agitated by a revolving paddle 22 extending in an inclined manner through the hopper and journalled in bearings 23 and 24 disposed respectively at the opposite sides of the hopper. A shaft 25 carries the paddles and extends outside of the hopper. This shaft has a bevel gear 26 which meshes with a gear 27 of a vertically extending driving shaft 28 journalled on brackets 29 and 30 extending from the side of the hopper. The lower end of the shaft 28 has a gear 31 which connects with a gear 32 of a driving shaft 33 for a screw conveyor 34 which is power driven through a belt 35 by a motor 36. Besides agi-

tating the material with the paddle wheel 22, air is extended into the hopper through air jets 37 whereby to thoroughly mix the material, separate the fibers and to fluff or air float the same. The screw 34 will remove the fluffed material from the bottom of the hopper through opening 39 to force the material into a vertical passage 41 which contains a spinning cage 42 driven by a pulley belt 44 connected to the motor 36. This cage breaks up the material which has been slightly packed by the screw feeder.

Above the cage 42 are a series of air intake holes 45 to allow an air intake for blower 46 which is located below the cage 42. This blower 46 gives the final fluffing action to the material. At the outlet side of the blower 46 is a pipe extension 47 having holes 48 to allow for the dissipation of excess air which has been taken in by the blower. Projecting into the pipe 46 are air resistors 49 which control the air pressure. These resistors are located after the air vents or outlets 48.

The pipe 47 is bent down at its end and the material drops from the end into a funnel 51 under low pressure. As it falls into the funnel, it is sprayed with a fine liquid or water mist by a fitting 52 surrounding the pipe end. With the funnel 51, the material is guided to a mold.

Dust proof material 71 through which air may escape is provided in cover 21. The air may leave the cover through holes 48 therein. Other dust proof material 73 is provided about holes 48. The dust proof material may be secured to the parts in any suitable manner.

It will be apparent that while a single mold form has been shown, that the mold can be of a multiple unit type and operated by power rather than by hand.

It has been found that the blocks may be made in five foot lengths and cut in square foot sizes with a revolving knife.

It will be apparent that there has been provided a method and apparatus of fluffing such material as asbestos or the like with a portion of dry cement causing the same to be passed through a pipe extension under low pressure and while being expelled from the pipe to be showered with a liquid mist to cause, when the material has reached the mold, the fiber particles to join with one another by the action of the cement.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

I claim:

1. An apparatus for fluffing asbestos or the like material and cement comprising a hopper, agitating means within the hopper, means for projecting air into the hopper to fluff the material, screw conveyor means at the bottom of the hopper for removing the material, outlet passage means for receiving material from the conveyor, a blower in the outlet passage means, for drawing the material and for delivering the same under pressure, a pipe extending from the blower for receiving the blown material, and means for extending mist onto the material as it is being expelled from the pipe.

2. An apparatus as defined in claim 1 and means in the outlet passage for breaking up the material after it is extended to the passage by the screw conveyor, and air resistor means in the pipe extending from the blower, air inlets in the outlet passage, and air vents in the pipe through which excess air can be extended from the material when blown into the pipe by the blower.

3. An apparatus as defined in claim 1 and means within the outlet passage for breaking up the material as it is expelled from the conveyor, and common power means for operating the agitating device in the hopper, the screw conveyor and the means for breaking up the material within the outlet passage.

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