

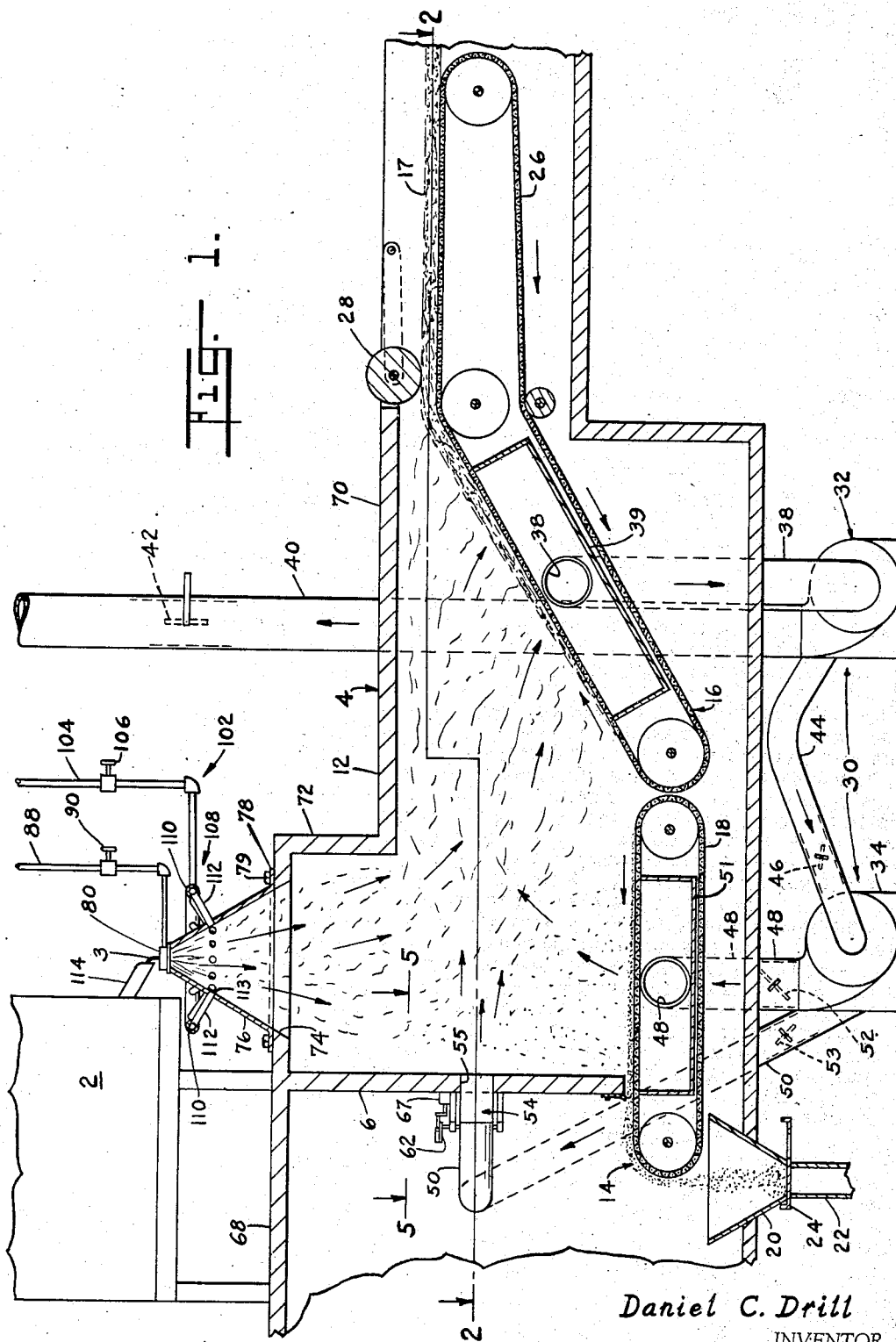
April 27, 1943.

D. C. DRILL
MEANS FOR AND METHOD OF MANUFACTURING MINERAL WOOL
PRODUCTS BY THE "DRY" PROCESS

2,317,895

Filed March 3, 1941

4 Sheets-Sheet 1



Daniel C. Drill

INVENTOR.

BY

Carlton C. Davis

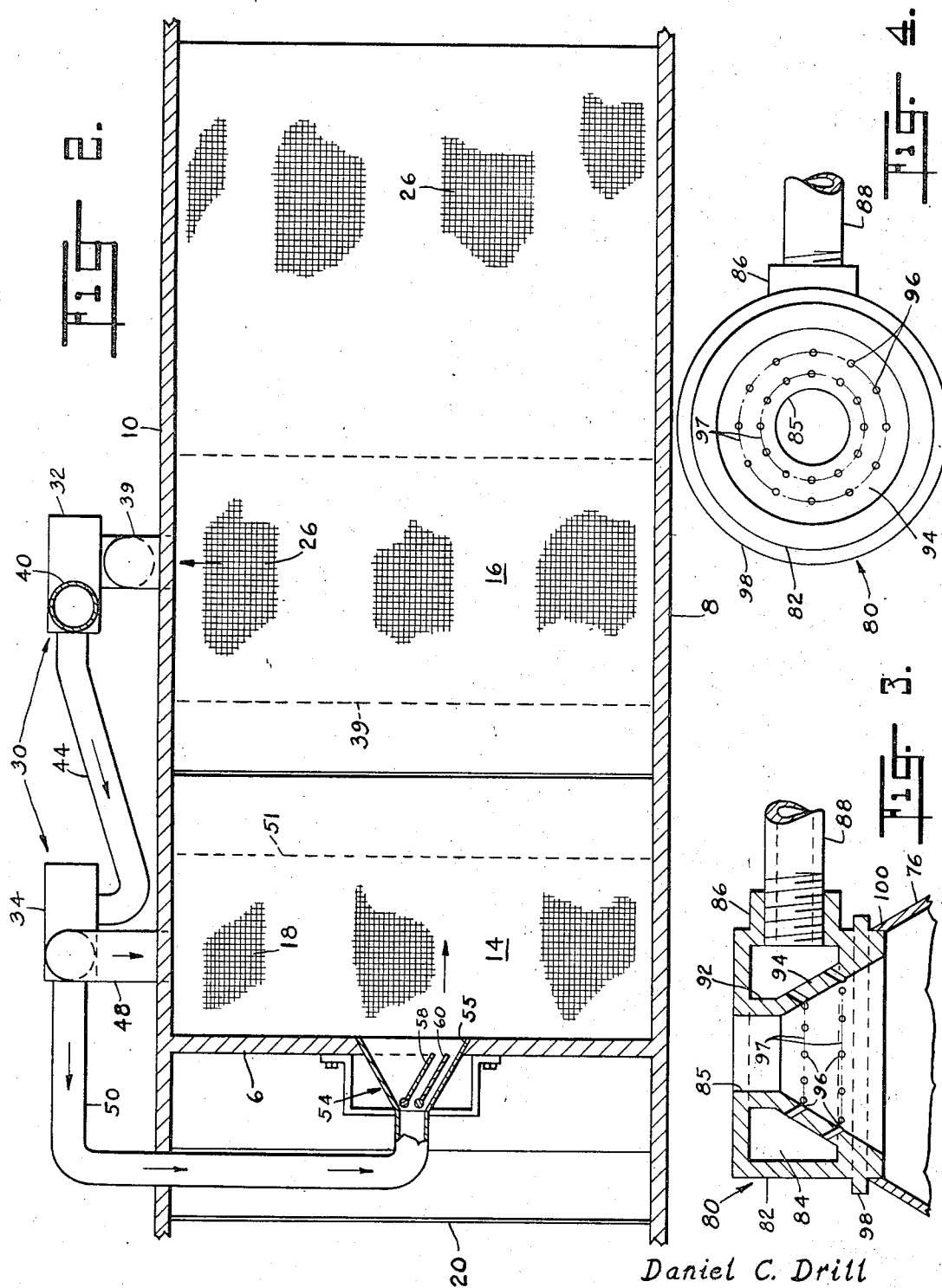
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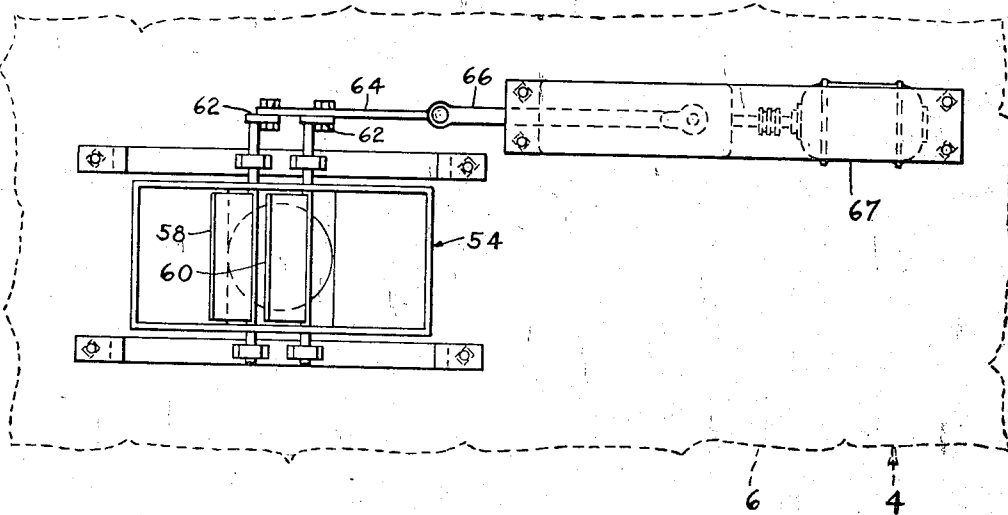
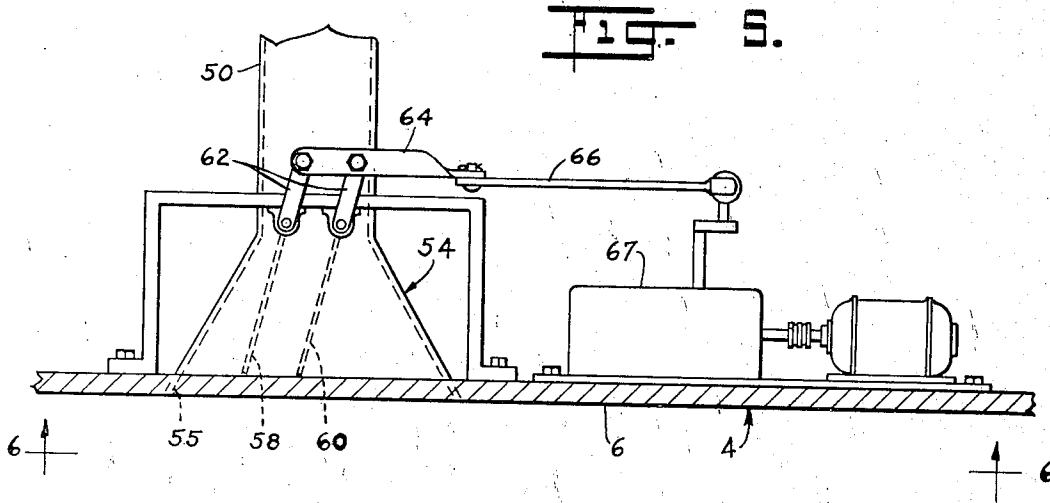


FIG. 6.

Daniel C. Drill
INVENTOR.

BY *Carlton C. Davis*

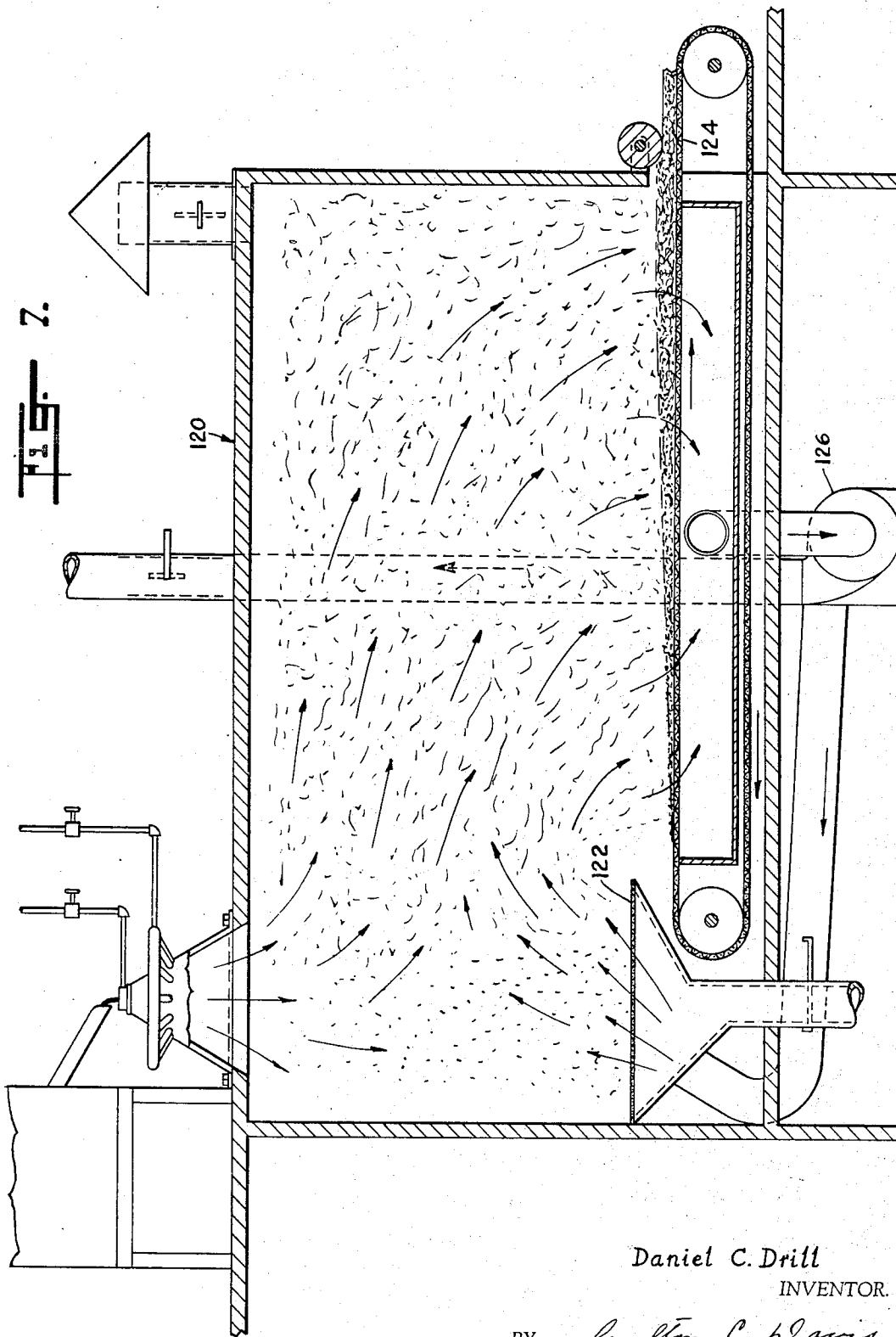
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Daniel C. Drill
INVENTOR.

BY *Carleton C. Davis*

ATTORNEY.

UNITED STATES PATENT OFFICE

2,317,895

MEANS FOR AND METHOD OF MANUFACTURING MINERAL WOOL PRODUCTS BY THE "DRY" PROCESS

Daniel C. Drill, Wabash, Ind., assignor to American Rock Wool Corp., Wabash, Ind., a corporation of Indiana

Application March 3, 1941, Serial No. 381,556

14 Claims. (Cl. 154—27)

This invention generally relates to a mineral wool felted product having a low "shot" and non-fibrous content and to means for and methods of manufacturing the same by the "dry" process.

In the conventional method of manufacturing mineral wool felted material by the "dry" process now generally employed by the industry, a stream of suitable siliceous materials is disintegrated by the shredding blast—not into fibrous portions alone—but into a stream or mass of glass-like slugs, slivers, and "shot," to the last of which there are appended the true mineral wool fibers. These fibers provide substantially all of the heat insulating and acoustical properties, the tensile strength, and the resilience of the finished product. The slugs, slivers and shot, however, are of no value whatever in the felted mineral wool blanket or batt, but materially impair its quality and readily stick into or perforate the hands of the operators who handle the product in preparing it for shipment and in applying it in the structures which are to be insulated or to be made more sound absorbent.

In the conventional manufacturing operation, the disintegrated mass of fibers, shot, slugs, and slivers are all blown by the blast into the settling chamber where they become felted together on a continuously movable floor of the settling chamber upon which they form an elongated blanket which is continuously withdrawn from the settling chamber and thereafter compacted and cut into the desired blanket sections, pads, batts or wall boards, hereinafter referred to as "batts."

Since the beginning of the mineral wool industry, the inclusion of the shot and other non-fibrous portions has been recognized as an unmitigated evil and many efforts have been made by those skilled in the art to eliminate these non-fibrous portions from the unfinished material.

One method is to granulate the wool by tumbling the disintegrated mass and passing it over a rotating screen through which a large part of the shot and other non-fibrous portions become sifted out. In this operation, the wool is rolled into the small balls, pads, or pellets which are known to the industry as granulated wool. These fibrous balls, pads, or pellets, however, are not suitable for forming batts or the like by the "dry" process because these balls, pads, or pellets do not readily felt to each other and the resulting batts have little or no tensile strength. When it is desired to use this granulated wool to make felted material, the granulated wool is first mixed and bonded together in water with wet paper

pulp. The wet mixture is then compacted, dried, and cut to form a batt or the like.

The present invention has for its object the provision of improved apparatus and methods whereby the shot and non-fibrous portions may be, to a large extent, separated from the fibrous portions before the fibrous portions become deposited on the movable floor or conveyor of the blow chamber.

A further object of the invention is the provision of ways and means whereby substantially shot free batts may be continuously and economically produced.

A further object is the provision of an improved settling chamber in which the gases and the fibers of the chamber are withdrawn in a manner adapted to provide a more efficient felted strip of fibers on the movable floor of the blow chamber.

Another object is the provision of ways and means whereby substantially all of the gases in a blow chamber of the character described may be withdrawn through the felted strip forming on the conveyor of the blow chamber and a portion of these withdrawn gases may be blown back into the settling chamber to aid in the elimination of much of the shot in the finished batt, to aid in maintaining the settling chamber at the desired temperature, and to aid in producing a more perfect batt.

A further object is the provision of ways and means whereby a stream of gases may be directed against a falling stream of fibers to aid in obtaining an even distribution of said fibers on the movable floor or conveyor of the blow chamber upon which the mineral wool strip is being formed.

A further object is the provision of a blow chamber having two movable floors or conveyors upon one of which the felted strip is formed and removed from the chamber and upon the other of which the shot is deposited and removed from the blow chamber.

A further object is the provision of a mineral wool settling chamber having means whereby substantially all of the loose shot may be automatically removed from the settling chamber.

The other objects and purposes of this invention will appear from the following description, claims, and accompanying drawings.

In the drawings:

Figure 1 is a partly side elevational and partly cross sectional view of a preferred form of the apparatus of my invention,

Figure 2 is a section taken along the lines 2—2 of Figure 1,

Figure 3 is a cross sectional view showing the blast nozzle shown in Figure 1,

Figure 4 is a bottom plan view of same,

Figure 5 is a section taken along the lines 5—5 of Figure 1,

Figure 6 is a bottom plan view taken substantially along the lines 6—6 of Figure 5, and

Figure 7 is a cross sectional view of a modified form of my invention.

In Figures 1 to 6, inclusive, I have shown a preferred form of apparatus which is adapted to be used in carrying out my invention, but I wish it to be understood that other suitable forms of apparatus may also be employed in manufacturing mineral wool products in accordance with the teachings and methods of my invention.

In Figure 1 there is shown a cupola or melting means 2 in which suitable raw materials may be melted in a manner adapted to provide a continuously flowing stream 3 of suitable molten materials of a type adapted to provide mineral wool fibers.

In the same figure I have also shown a blow chamber 4 which is particularly adapted to be used in carrying out my invention. This chamber preferably includes a rear wall 6, side walls 8 and 10, a roof 12, a rearwardly movable shot removing conveyor 14 and an adjacent upwardly inclined and forwardly movable conveyor 16.

The shot receiving conveyor 14 is provided with a foraminous continuously movable belt 18 which is adapted to move the separated shot and other non-fibrous particles deposited thereon backwardly out of the blow chamber and to discharge these particles into any suitable receiving means, such as a hopper 20, having a downwardly extending conduit 22 through which the shot and other non-fibrous portions may be discharged into a truck or the like by opening a sliding gate 24.

The upwardly inclined conveyor 16 includes a continuously movable belt 26 upon which the mineral wool fibers may be deposited from gaseous suspension in a manner adapted to form an elongated blanket 17 of mineral wool which, in operation, continuously moves forwardly under a compacting roller 28, and then out of the blow chamber where the blanket is cut into sections to provide felted mineral wool products, such as rolled strips, heat insulating batts, and acoustical pads.

Each of these conveyors are, of course, provided with suitable driving means (not shown) whereby the conveyors may be driven at the desired operating speeds. The shot removing conveyor may be moved at any desired speed. The forwardly movable conveyor should, however, be driven by some suitable variable speed drive means (not shown) at a speed preferably determined by the thickness of the blanket to be produced and by the rate at which the mineral wool is deposited on this conveyor.

I have also provided a blower construction 30 which is adapted for withdrawing the steam and air or other gases from the blow chamber through the foraminous upwardly inclined conveyor belt 26, for discharging a desired part of the withdrawn vapor and gases into the outer atmosphere and for feeding the remaining portion of the withdrawn gases back into the blow chamber for purposes which will become more apparent as the specification proceeds.

This blower construction may be made in any

suitable form, but I preferably employ the construction shown in the accompanying drawings which includes blowers 32 and 34. The blower 32 is operatively connected to an upwardly inclined conduit 38 and a suction pan 39 through which the vapor and gases are withdrawn from the inclined conveyor 16. This blower is also provided with a preferably upwardly extending discharge conduit 40 which is preferably in communication with the outside atmosphere, and it may be advantageously provided with a suitable damper means 42 whereby the flow of the gases and vapor through the discharge conduit may be controlled as desired. This blower 32 is operatively connected to the intake side of the blower 34 by any suitable conduit 44 which may also be provided with an adjustable damper 46 for the purpose of controlling the rate of flow of the gases which pass through the blower 34. This blower 34 preferably has two discharge conduits 48 and 50, the first of which is operatively connected to a pan 51 which may be operatively associated with the foraminous shot removing belt 18 between its upper and lower portions substantially as shown. Each of the conduits 48 and 50 is preferably provided respectively with dampers 52 and 53 whereby the flow of the fed back vapors and gases through these conduits may be controlled.

The discharge conduit 50 (see Figures 2, 5, and 6) is connected at its upper end to a preferably rectangular funnel-like discharge member 54 (see Figures 1, 5, and 6) connected and secured around an open portion 55 in the lower central portion of the rear wall 6. This discharge member may be advantageously provided with two pivotally mounted and substantially parallel dampers 58 and 60 having crank handles 62. These handles are operatively connected by connecting bars 64 and 66 to a motor driven variable speed drive means 67 in a manner whereby each of the two dampers may be simultaneously swung to and fro in a preferably horizontal plane to direct the stream of gases blown through the conduit 50 to and fro over the shot removing conveyor and toward the forwardly movable conveyor on which the mineral fibers are being deposited.

The roof 12 of the settling chamber preferably, although not indispensable, includes a raised rear roof portion 68 and a substantially lower front portion 70 which may be connected together by a wall portion 72.

In the raised roof portion 68 I have provided a preferably circular open portion 74 upon which is mounted a blow tube 76 which is preferably in the form of a hollow truncated cone. This blow tube may be operatively connected to the blow chamber in any suitable manner, but it is preferably supported in position by an outwardly extending peripheral flange 78 which may be rigidly secured to the upper roof portion 68 by any suitable means such as, for instance, bolts 79.

This blow tube carries at its upper end a blast nozzle means 80 which is preferably of the doughnut type and may be fitted to the blow tube substantially as shown in Figures 3 and 4. This blast nozzle means preferably includes a hollow casing 82 having an annular chamber 84, a central open portion 86 and a preferably internally threaded nipple portion 88 which is adapted to be threadedly connected to a blast fluid supply conduit 88 having a valve 90. This fluid supply conduit, in operation, is connected

to any suitable blast fluid supply means, for instance, a steam generating plant (not shown). The periphery of the central open portion 85 is defined by a cylindrical wall portion 92 and a lower truncated cone-like wall portion 94.

This cone-like wall portion is provided with a plurality of preferably downwardly and inwardly extending conduits or nozzle orifices 96 whereby the blast fluid may be directed in a plurality of streams downwardly and at an angle on the lava stream. These blast streams disintegrate the lava stream, as has been before mentioned, into mineral wool fibers and non-fibrous portions such as slugs and shot.

This blast nozzle construction may, if desired, be provided with a peripheral flange 98 whereby the blast nozzle means may be supported upon the open upper portion 100 of the blow tube substantially as shown. The nozzle orifices 96 may be formed in a plurality of spaced apart rings 97 in a manner adapted to direct the jets of the shredding fluid around the lava stream at different vertical levels in order that this lava stream may be more thoroughly shredded by the action of the shredding blast.

The blow tube 76 is preferably provided with some suitable liquid spray or injection means whereby liquid or molten adhesives may be sprayed upon and intermixed with the newly formed fibers in the blast of fiber formation. One such means 102 is shown in Figure 1 and includes a supply conduit 104 which is adapted for operative connection to any adhesive supply system (not shown) designed for providing a continuous supply of fluid or molten adhesives under pressure. This conduit 104 may be advantageously provided with a valve 106 for the purpose of controlling the rate of flow of the adhesives applied to the blast of fiber formation, in accordance with the proportion of adhesives desired in the finished mineral wool product. This conduit is operatively connected to a fluid nozzle construction 108 which includes an annular conduit 110 having a plurality of spaced apart and inwardly inclined spray tubes 112 which are adapted to discharge a plurality of adhesive sprays or streams through the open portion 113 in the blow tube and into the comingled blast of steam or air and newly formed fibers a short distance below the blast nozzle means.

In operation the lava stream is poured from the spout or lip 114 of the cupola 2 and falls in the close vicinity of the blast nozzle where it is drawn centrally into the open portion 100 of this nozzle by reason of the suction of the air drawn through this open portion by the force of the suction blast. As the lava stream passes through the nozzle it is, of course, shredded by the action of a plurality of shredding blast jets issuing from the nozzle orifices 96.

As has been previously mentioned, the shredding blast unfortunately does not shred the lava stream into mineral wool fibers alone but also into non-fibrous portions such as, for instance, shot, slugs and the like.

These disintegrated portions, of course, are first blasted or blown down rapidly by the force of the shredding blast and are hurled with a high velocity against the relatively stationary atmosphere in the interior of the blow chamber. The skin friction, "drag," or resistance of the atmosphere is, of course, much greater on the fibrous portions than the non-fibrous portions. The fibrous portions (i. e. the real min-

eral wool fibers) are therefore quickly decelerated and placed in atmospheric suspension while the slugs, and unattached shot immediately fall upon the shot removing conveyor.

A large part of such shot as remains attached to the mineral wool fibers continues on its downward course and is therefore torn or pulled apart from the real mineral wool fibers and falls upon the shot removing conveyor. The fibers, together with the small amount of shot which still remains attached to the wool, are blown toward the forwardly moving conveyor where they are drawn downwardly and deposited on this conveyor by reason of the stream of gases being drawn downwardly through this conveyor by the blower 32. While the fibers are being drawn toward this conveyor, the stream of fed back gases issuing from the conduit 50 is constantly moving laterally to and fro across this conveyor in a manner adapted to distribute these suspended fibers above that portion of the conveyor immediately above the suction pan 36. This transverse movement of the gases, of course, serves to distribute the fibers more or less evenly upon the conveyor. Should the fibers, however, be deposited on one portion of the conveyor more than on an adjacent portion, this condition is quickly remedied by reason of the fact that the resistance to the suction of the gases through the thicker portion of the felted strip is greater than the resistance offered to the gases through the thinner portions. A larger proportion of the gases will, therefore, be drawn through these thinner portions until the fibers are evenly deposited on that part of the conveyor.

This ability of my apparatus to evenly distribute the fibers on the conveyor is considered an important feature of my invention. At the present time the tendency of both the consumers and the buyers is to become more and more insistent that felted mineral wool products have a uniform density. This is, of course, due to the fact that when one portion of the product has a substantially lower density than other portions, the overall heat insulating value of the product is substantially reduced because the flow of heat energy, like water, tends to follow the path of least resistance.

Another important feature of the apparatus of my invention is believed to reside in the fact that the drawing of a gaseous stream through the forwardly movable conveyor belt 26 exerts a resilient oscillating pressure downwardly upon each individual fiber as soon as it is deposited on the forming blanket and thereby forces the fibers to move into closer contact with the adjacent fibers and become more thoroughly felted in the forming blanket. This, of course, causes the product to have a greater tensile strength than it would otherwise have. This is especially true when adhesives are employed because it brings the adhesively treated surfaces of the fibers closer together and holds them in this close relationship until they have passed under the compacting roller 28 after which the adhesives are cooled by the relatively cold air of the atmosphere outside the blow chamber which may, if desired and often is, rapidly drawn through the felted blanket by any suitable means such as a suction means (not shown) which may include a suction pan, conduit and blower (not shown) of any type adapted to draw cold air through the felted blanket after it has passed under the compacting roller 28.

Another feature of my apparatus is that the

force and rate at which the gases are withdrawn and fed back into the blow chamber may be increased or decreased by suitably moving the dampers 42, 26, 52, 53 provided in the conduit of the blower construction 30 of my blow chamber apparatus.

The foregoing details have been given for the purpose of exemplification and not limitation since numerous modifications may be made in the apparatus and methods disclosed herein without departing from the spirit of our invention or the scope of the claims appended hereto. For instance, it is obvious that any suitable perforated base portion and any suitable horizontally extending forwardly moving conveyor may be respectively substituted for the rearwardly moving conveyor 14 and forwardly movable conveyor 16. Such a modified form is shown in Figure 7 and includes any suitable blow chamber 120 having a base portion which is provided with a screened hopper 122 and a perforated forwardly movable horizontally extending conveyor belt 124. This modified form of the blow chamber, of course, is provided with some suitable suction blower construction 126 whereby the gases may be withdrawn from the blow chamber through the forwardly movable conveyor and then fed back into the blow chamber through the hopper or discharged into the outer atmosphere in any desired proportion.

I claim:

1. A mineral wool blow chamber having a roof portion, a wall portion, a base portion, an open portion adapted to receive a blast of mineral wool fiber formation and a suction blower means, an upwardly extending blow tube operatively connected to said open portion, and a fluid blast nozzle means mounted on said blow tube in a manner adapted to direct a shredding blast downwardly through said blow tube into the interior of said blow chamber, said base portion including two endless foraminous conveyor belts movably mounted in substantial alignment with each other and being provided with driving means to drive one of said belts in one direction and the other of said belts in an opposite direction, said suction blower means being operatively connected to each of said belts in a manner adapted to withdraw gases out of said blow chamber through one of said conveyor belts and to feed back at least a portion of the withdrawn gases into said blow chamber through the other of said belts.

2. A mineral wool blow chamber having a roof portion, a wall portion, a base portion, and an open portion adapted to receive a blast of mineral wool fiber formation and a suction blower means, said base portion including two endless foraminous conveyor belts movably mounted in substantial alignment with each other and being provided with driving means to drive one of said belts in one direction and the other of said belts in an opposite direction, said suction blower means being operatively connected to each of said belts in a manner adapted to withdraw gases out of said blow chamber through one of said conveyor belts and to feed back at least a portion of the withdrawn gases into said blow chamber through the other of said belts and including a blower having an intake side and a discharge side and being operatively connected on its intake side to the inner surface of one of said belts and being operatively connected on its discharge side to the inner side of the other of said belts, said blower being also connected on

its discharge side to the atmosphere outside of said blow chamber.

3. A mineral wool blow chamber having a roof portion, a wall portion, a base portion, and an open portion adapted to receive a blast of mineral wool fiber formation and a suction blower means, said base portion including two endless foraminous conveyor belts movably mounted in substantial alignment with each other and being provided with driving means to drive one of said belts in one direction and the other of said belts in an opposite direction, said suction blower means being operatively connected to each of said belts in a manner adapted to withdraw gases out of said blow chamber through one of said conveyor belts and to feed back at least a portion of the withdrawn gases into said blow chamber through the other of said belts and including a blower having an intake side and a discharge side and being operatively connected on its intake side to the inner surface of one of said belts and being operatively connected on its discharge side to the inner side of the other of said belts, said blower being also connected on its discharge side to the atmosphere outside of said blow chamber, said blower being provided with a plurality of conduits and a plurality of damper means in said conduits whereby any desired proportion of the withdrawn gases may be either fed back into the blow chamber or discharged into the atmosphere outside said blow chamber.

4. A mineral wool blow chamber of the character described, said blow chamber having a roof portion provided with an opening, a wall portion, a base portion including a forwardly movable foraminous conveyor and a rearwardly movable foraminous conveyor, a blast nozzle means mounted over the opening in said wall portion and being adapted when operatively connected to a fluid pressure supply system to disintegrate a stream of suitable molten materials into mineral wool fibers, shot, and slugs and to hurl said fibers, shot and slugs downwardly into the interior of said blow chamber toward said rearwardly movable conveyor and a suction means including a blower having a fluid inlet and a fluid outlet, a conduit operatively connected to said fluid inlet and to said forwardly movable belt in a manner adapted to withdraw the gases from said blow chamber through said forwardly movable conveyor and a conduit operatively connected to said rearwardly movable conveyor adapted to feed back at least a portion of the withdrawn gases into said blow chamber through said rearwardly movable conveyor.

5. A mineral wool blow chamber of the character described, said blow chamber having a roof portion provided with an opening, a wall portion, a base portion including a forwardly movable foraminous conveyor and a rearwardly movable foraminous conveyor, a blast nozzle means mounted over the opening in said wall portion and being adapted when operatively connected to a fluid pressure supply system to disintegrate a stream of suitable molten materials into mineral wool fibers, shot, and slugs and to hurl said fibers, shot, and slugs downwardly into the interior of said blow chamber toward said rearwardly movable conveyor and a suction means including a blower having a fluid inlet and a fluid outlet, a conduit operatively connected to said fluid inlet and to said forwardly movable belt in a manner adapted to withdraw the gases from said blow chamber through said forwardly movable conveyor and a conduit operatively connected to said rearwardly

movable conveyor adapted to feed back at least a portion of the withdrawn gases into said blow chamber through said rearwardly movable conveyor, said suction means being also provided with a third conduit operatively connected to the output side of said blower and to the wall portion of said blow chamber in a manner adapted to direct a stream of the withdrawn gases over said rearwardly movable conveyor and toward and in the general direction of the movement of said forwardly movable conveyor.

6. A mineral wool blow chamber of the character described, said blow chamber having a roof portion provided with an opening, a wall portion, a base portion including a forwardly movable foraminous conveyor and a rearwardly movable foraminous conveyor, a blast nozzle means mounted over the opening in said wall portion and being adapted when operatively connected to a fluid pressure supply system to disintegrate a stream of suitable molten materials into mineral wool fibers, shot, and slugs and to hurl said fibers, shot, and slugs downwardly into the interior of said blow chamber toward said rearwardly movable conveyor and a suction means including a blower having a fluid inlet and a fluid outlet, a conduit operatively connected to said fluid inlet and to said forwardly movable belt in a manner adapted to withdraw the gases from said blow chamber through said forwardly movable conveyor and a conduit operatively connected to said rearwardly movable conveyor adapted to feed back at least a portion of the withdrawn gases into said blow chamber through said rearwardly movable conveyor, said suction means being also provided with a third conduit operatively connected to the output side of said blower and to the wall portion of said blow chamber in a manner adapted to direct a transversely moving stream of the withdrawn gases over said rearwardly movable conveyor and toward and in the general direction of the movement of said forwardly movable conveyor.

7. A mineral wool blow chamber of the character described having a roof provided with an inlet opening, a wall having an opening in its rear portion, a base portion having a rearwardly moving conveyor and a forwardly moving conveyor in substantial alignment with and adjacent to each other, a downwardly directed blast nozzle means mounted above said opening in said rear wall portion and operatively connected to a fluid pressure supply system to provide a downwardly directed blast disintegrating a stream of suitable molten materials into a stream of intermingled mineral wool fibers and shot and directing said last mentioned stream downwardly toward said base and above said rearwardly moving conveyor and a driven blower means having a fluid discharge conduit operatively connected through said rear wall opening to direct a fluid stream laterally into said chamber against said downwardly directed blast to blow said fibers away from said rearwardly moving conveyor and on said forwardly moving conveyor, said conduit being provided with a driven laterally and reciprocally movable damper means whereby said fluid stream may blow said fibers to and fro transversely over said forwardly moving conveyor and thereby distribute the fibers in the form of a moving blanket more evenly upon said last mentioned conveyor.

8. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket of at least partially de-shotted min-

eral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly on said stream, directing upwardly and against said first-mentioned blast an upwardly moving gaseous stream to halt the downward movement of said fibers while allowing a continuation of the downward descent of at least a substantial portion of said shot and collecting the fibers in the form of a blanket off-set with respect to the line of travel of said shot.

9. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket of at least partially de-shotted mineral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly on said stream, directing upwardly and against said first-mentioned blast an upwardly moving gaseous stream to halt the downward movement of said fibers while allowing a continuation of the downward descent of at least a substantial portion of said shot, collecting said fibers in the form of a blanket off-set with respect to the line of travel of said shot and withdrawing the gases from said gaseous blast and said gaseous stream through said blanket during the formation thereof.

10. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket consisting at least of partially de-shotted mineral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly into a relatively stationary atmosphere, directing upwardly into said atmosphere and in opposition to said commingled blast a gaseous stream to halt the downward movement of said fibers while allowing the downward descent of at least a portion of said shot and collecting the fibers in the form of a blanket offset and moving away from the line of travel of said shot.

11. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket consisting at least of partially de-shotted mineral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly into a relatively stationary atmosphere, directing upwardly into said atmosphere and in opposition to said commingled blast a gaseous stream to halt the downward movement of said fibers while allowing the downward descent of at least a portion of said shot, collecting said fibers in the form of a blanket offset and moving away from the line of travel of said shot, and moving said shot in a direction other than the direction of movement of said blanket.

12. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket consisting at least of partially de-shotted mineral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly into a relatively stationary atmosphere, directing upwardly into said atmosphere and in opposition to said commingled blast a gaseous stream to halt the downward movement of said fibers while allowing the downward descent of at least a portion of said shot, collecting the fibers in the form of a blanket offset and moving away from the line of travel of said shot and withdrawing said gases in said

blast and said gaseous stream through said blanket during the formation thereof.

13. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket consisting at least of partially de-shotted mineral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly into a relatively stationary atmosphere, directing upwardly into said atmosphere and in opposition to said commingled blast a gaseous stream to halt the downward movement of said fibers while allowing the downward descent of at least a portion of said shot, collecting the fibers in the form of a blanket offset and moving away from the line of travel of said shot, and directing a second gaseous stream upon and in the direction of said blanket.

14. The method of making from a stream of suitable molten mineral materials, a mineral wool blanket consisting at least of partially de-shotted mineral wool fibers; said method comprising shredding said stream into a commingled blast of mineral wool fibers and shot with a gaseous blast directed downwardly into a relatively stationary atmosphere, directing upwardly into said atmosphere and in opposition to said commingled blast a gaseous stream to halt the downward movement of said fibers while allowing the downward descent of at least a portion of said shot, collecting the fibers in the form of a blanket offset and moving away from the line of travel of said shot, and feeding back a portion of the withdrawn gases to supply said gaseous stream.

DANIEL C. DRILL.