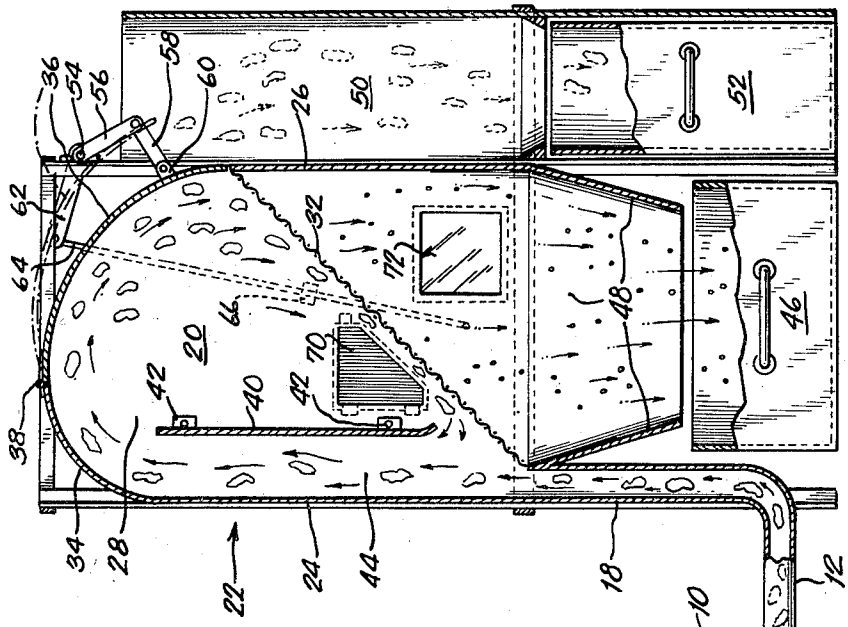
April 23, 1957 L. H. HILLS 2,789,694

MINERAL WOOL DEPELLETIZING APPARATUS

Filed March 21, 1955

Fig. 2.



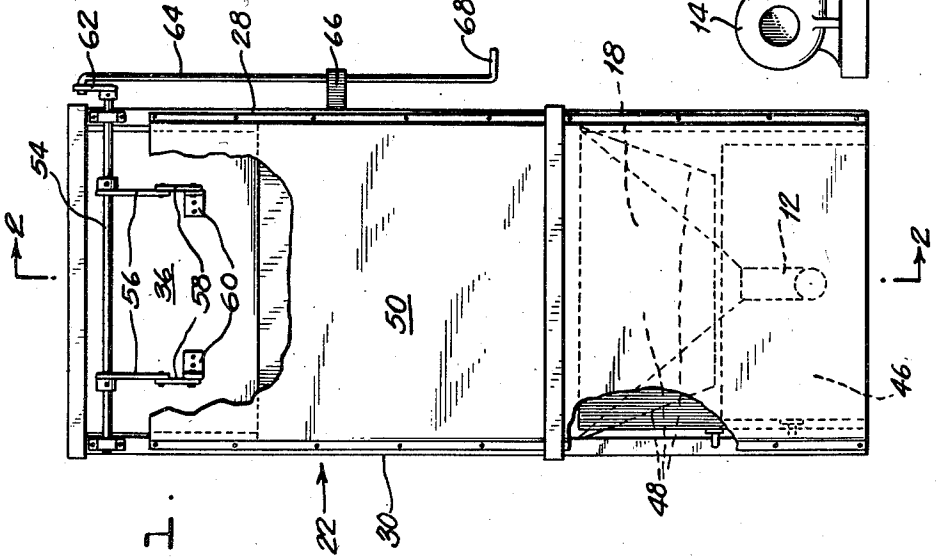


Fig. 1.

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MINERAL WOOL DEPELLETIZING APPARATUS

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Application March 21, 1955, Serial No. 495,565

1 Claim. (Cl. 209—250)

This invention relates to apparatus for removing pellets from mineral wool to adapt it for use for certain purposes. More particularly, this invention is an improvement upon the apparatus disclosed in my copending application No. 439,829, filed June 28, 1954, and now Patent No. 2,711,247. Apparatus according to this invention may be used either in place of or in combination with the apparatus disclosed in said copending application.

An important object of this invention is the provision of improved depelletizing apparatus which controls the duration of treatment of mineral wool in such manner that depelletizing may be completely accomplished while harmful excessive agitation of the wool is avoided.

This and other objects, which will be apparent from the following description, may be derived from apparatus according to this invention of which a single embodiment is more or less diagrammatically shown, for illustrative purposes, in the accompanying drawing without, however, limiting the invention to that particular embodiment.

In the drawing:

Figure 1 is a side elevational view of depelletizing apparatus according to this invention, partly broken away to show certain interior details; and

Fig. 2 is a central, vertical sectional view substantially on the line 2—2 of Fig. 1.

The illustrated apparatus comprises a hopper 10 of suitable size for receiving a preferably measured charge of mineral wool to be depelletized and passing it into a conduit 12 wherein an air current maintained by a blower 14 entrains the wool as it passes from a deflector 16 at the hopper outlet and carries it (as indicated by arrows) into and upwardly in a fan-shaped or upwardly diverging duct 18, the upper end of which opens into a depelletizing chamber 20 defined largely by walls of a cabinet or housing 22. More particularly, the housing 22 comprises side walls 24, 26, a front wall 28, and a back wall 30.

The depelletizing chamber is defined by said front wall 28, back wall 30, side wall 24 and a sharply sloping screen 32 which may be considered as both the bottom and one side of said chamber; and the top of said chamber comprises a partially cylindrical, fixed wall 34 and a partially cylindrical, movable wall or door 36, pivotally connected at 38 to the upper edge of wall 34 to adapt it to be swung from a closed position as shown in full lines in Fig. 2 to an open position as shown in broken lines. It will be understood that wall 26 terminates at the lower end of door 36 (in the latter's closed position) to permit the latter's pivotal movement between its said two positions.

Within the depelletizing chamber 20, preferably extending completely from front to back thereof, is a baffle plate 40 fixed in an upright position by brackets 42 to walls 28 and 30, thereby forming a throat 44. Assuming that door 36 is closed, the air flow in duct 18 is strong enough to entrain the wool from said duct upwardly in throat 44 and throw it toward or against and

about the cylindrical walls 34 and 36 whence it gravitates within chamber 20 to screen 32 and downwardly thereon and passes beneath baffle plate 40 to re-enter throat 44 and recirculate in chamber 20 as just described. This circulation of the wool (indicated by arrows) in chamber 20 continues as long as door 36 remains closed. It should be understood that, within this invention, the described circulation may be achieved without the baffle plate 40, but the use of said plate provides the throat 44 which facilitates such circulation while requiring less generated air-flow force than would be necessary if the baffle were omitted.

During the described circulation of the wool in chamber 20, the pellets in the wool are shaken free thereof and fall down upon and through screen 32 into a drawer 46 or other suitable receptacle for removal. The screen, of course, should be of a fineness adapting it to pass the pellets but not the wool, and the housing 22 may be formed, if desired, with converging walls 48 to funnel the pellets into said drawer.

It may become known, from experience, that depelletizing of the wool becomes complete after the described circulation thereof in chamber 20 for a certain length of time. Upon completion of such depelletizing, the operator opens door 36 whereupon the depelletized wool, instead of being guided by said door toward the screen 32, is guided into an adjacent receiving chamber 50 from which the depelletized wool drops into a drawer 52 or other suitable receptacle for removal. After all the depelletized wool of one charge has been collected in drawer 52, the door 36 is closed and another charge of pellet-containing wool is introduced into the apparatus through hopper 10 for treatment in the manner described.

Any suitable means may be provided to permit the described operation of door 36. For example, as illustrated, a horizontal shaft 54, suitably supported for rotation by the housing 22, adjacent to the door, has one or more arms 56 fixed thereto at an intermediate point or points on the shaft and pivotally connected by link or links 58 and bracket or brackets 60 to the upper or outer surface of door 36. On the front end of shaft 54 is fixed a crank or arm 62 to the end of which is pivoted an operating rod 64 which extends downwardly, slidably through a guide-strap 66 on the housing and terminates in a handle 68. An operator may close door 36 by pushing rod 64 upwardly and may open the door by pulling said rod downwardly. A clean-out door 70 and an inspection window 72 may be provided in the front wall of the housing.

It will readily be realized that this invention may be used to completely depelletize mineral wool or may be used to treat such wool which has previously been partially depelletized by the apparatus shown in my said copending application or by other means.

It will be understood, also, that the present improvements may be utilized in various other structures than those disclosed herein without, however, departing from the invention set forth in the following claim.

I claim:

Mineral wool depelletizing apparatus comprising a depelletizing chamber having a sloping screen defining a portion of the bottom and a portion of one side of said chamber, an upright wall defining an opposite side of said chamber, opposed side wall portions interconnecting corresponding sides of said upright wall and said one side of the chamber, a duct for conducting air and mineral wool to said chamber, said duct opening vertically upwardly into the bottom of said chamber, between and in intimate association with the lower end of said screen and said upright wall which is opposite said screen, an upright baffle plate in said chamber forming, with said last-mentioned upright wall, a throat positioned

to receive air and mineral wool from said duct and conduct them to an upper area of said chamber, said baffle plate terminating at its upper and lower ends, respectively, in spaced relationship to the top and bottom of said chamber; the apparatus further comprising a deflector adjacent to the upper end of said throat, positioned to deflect air and mineral wool laterally from said throat to an area over said screen, means for generating a forceful flow of air in said duct toward said chamber and means for introducing mineral wool into said duct and into air flowing therein toward said chamber; the entire area, in said chamber, between said baffle plate and said one side of said chamber being a clear space

through which the mineral wool may descend freely from said deflector to said screen; the latter being adapted to permit pellets from the mineral wool to fall therethrough and to guide falling mineral wool to the bottom of said throat and into air passing from said duct to said throat to cause recirculation of the mineral wool in said chamber.

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