



Fire Retardant Mattresses May Save Many Lives

Customer

The Serta Restokraft Company, Detroit, Michigan, manufacturer of mattresses.

Situation

No one knows exactly how many people are seriously injured or killed each year by accidentally setting fire to their mattresses while smoking in bed. The danger is grave enough at any rate, so that current federal regulations require manufacturers to produce mattresses which are "fire resistant to cigarette ignition." In line with such regulations, Serta Restokraft has taken action to assure that all the cotton felt used in their mattresses will not burn.

Problem

The fire-retardant used to impregnate the cotton-felt in mattresses is boric acid powder. Such powders are usually stored in bins and discharged by gravity through funnel-shaped bottoms. Unfortunately, boric acid powder tends to wedge and pack making uniform flow virtually impossible to obtain. Without it, proper treatment of the mattresses and their fire-retardancy would be questionable.

Key

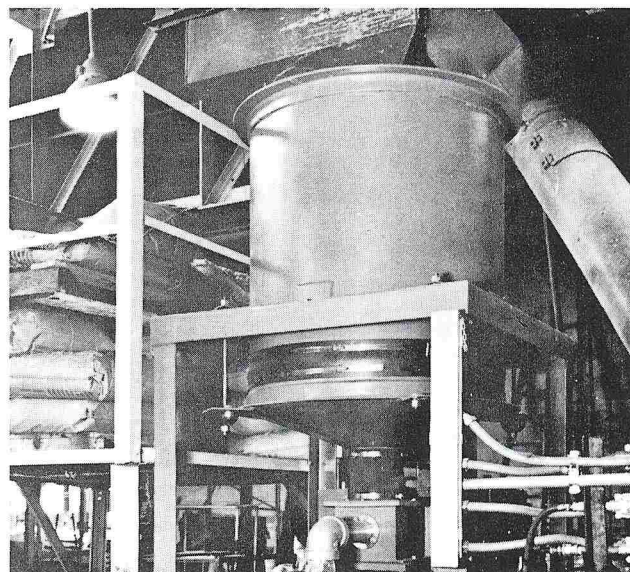
Vibra Screw Controlled-Vibration Equipment
One Live Bottom Bin
One 2" Live Bin Feeder

Solution

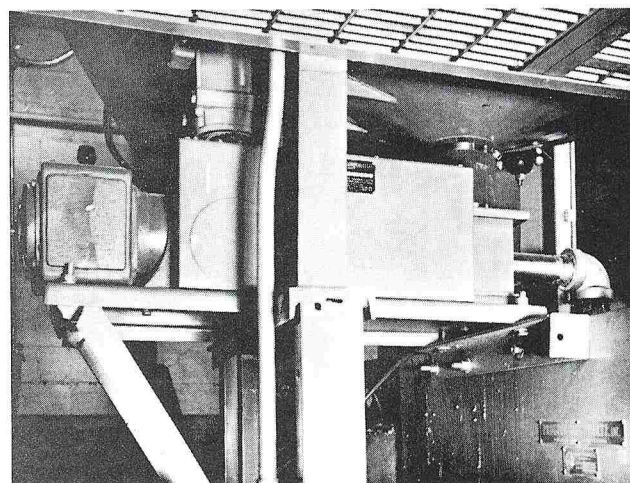
The Vibra Screw Live Bottom Bin is capable of containing 30 cu. ft. of boric acid powder and discharging it on demand. The bottom section of the bin has a Bin Activator; a vibrating discharger that replaces the compaction-causing cone section of static bins. A gyrator vibrates the Bin Activator and the bin contents—but not the bin—causing the boric acid powder to flow in a continuous, uninterrupted stream. A curved baffle, directly above the 6-inch discharge opening, directs the vibrations up into the bin, inhibiting bridging. Material falls freely through the discharge outlet to a metering Vibra Screw Feeder below. The feeder vibrates the powder to a consistent density, filling each screw flight uniformly, insuring a precise, regulated flow.

Results

The accuracy of flow of fire-retardant into the process materials used in the construction of these mattresses is ± 1 to 2 percent of the specified pounds-per-hour requirement. This high standard of quality control helps assure the maximum reliability of fire retardance in the company's mattresses.



Vibra Screw Live Bottom Bin discharges boric acid on demand, without the packing and wedging experienced with gravity flow.



Vibra Screw Live Bin Feeder fills each screw flight uniformly, providing ± 1 to 2 percent accuracy and maximum reliability of fire-retardancy.