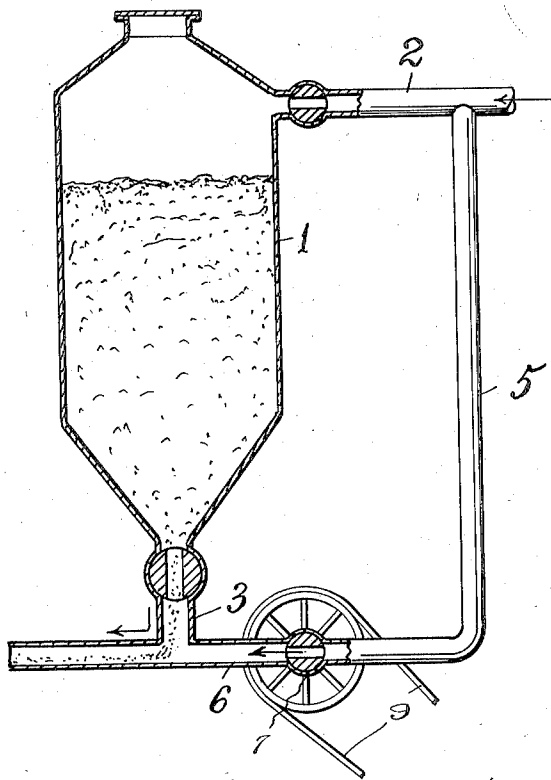


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APPARATUS FOR PNEUMATIC CONVEYANCE OF MATERIALS.
APPLICATION FILED MAR. 19, 1917.

1,308,464.

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APPARATUS FOR PNEUMATIC CONVEYANCE OF MATERIALS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JENS WESTLY, a subject of the King of Norway, residing at Lysaker, near Christiania, Norway, have invented certain new and useful Improvements in Apparatus for Pneumatic Conveyance of Materials; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention has for its object improvements in apparatus for the conveyance of materials by means of a current of air or other gas.

In pneumatic conveyers for materials in the condition of powder it is frequently connected with difficulties to obtain a uniform supply of material from the storing container into the conveyer conduit or at other places where the sectional area of the conveyer conduit undergoes a reduction, the conduit at such places gradually becoming choked up so that after a shorter or longer period the working of the apparatus comes to a stop.

This invention now has for its object to provide means whereby it is made possible to obtain a continuous and uniform supply without resorting to mechanically acting conveyers for keeping the channels open. According to the present invention this result is achieved by maintaining the blast under a constantly varying pressure.

The invention may be adapted for use in various industries and can be used with advantage for instance to effect the supply of materials to metallurgical furnaces by means of the blast. An embodiment of the invention adapted for use for instance in connection with pyrite smelting furnaces is diagrammatically illustrated in the accompanying drawing.

In the example illustrated 1 is a closed vessel serving as a reservoir for ore in the state of a powder. This vessel is maintained under pressure by means of compressed air supplied at 2. At the lower end at 3 this vessel is connected with the pipe 4 which leads to the pyrite furnace. The material

which falls down into the pipe 4 from the vessel 1 is carried along by the current of air supplied through the pipes 2, 5, 6, to the pyrite furnace. In case a uniform pressure is maintained in the pipe 6, 4 it will be found that the supply of material through the channel 3 will come to a stop after a short period. But if the pressure as according to the present invention is subjected to sudden changes no choking up of the channel will take place. Thus in the example shown if the valve 7 with shorter or longer intervals is moved so as to alternately open and close wholly or partly the supply of air to the conduit the supply of material through the channel will be maintained constant. The most satisfactory results are achieved by maintaining a rapidly varying pressure for instance, by causing the valve to revolve at a comparatively high speed by means of a pulley 8 secured to the valve spindle and driven by a belt 9.

I claim:

1. Apparatus for the conveyance of fine ore and other materials in the state of a loose powder to metallurgical furnaces by means of a current of gas under pressure, comprising a closed vessel acting as a reservoir for the material to be conveyed and containing the material in the state of rest, means to maintain a gas pressure in said vessel, a closed channel for conducting material from said vessel into the metallurgical furnace, said channel being constantly in open connection with the vessel, a conduit for supplying compressed gas to said channel, a valve inserted in said conduit and means for intermittently opening and closing said valve to produce sudden and frequent variations of gas pressure in the closed conveyer channel.

2. Apparatus for the conveyance of fine ore and other materials in the state of a loose powder to metallurgical furnaces by means of a current of gas under pressure comprising a closed vessel acting as a reservoir for the material to be conveyed and containing the material in the state of rest, means to maintain a gas pressure in said vessel, a closed channel for conducting material from said vessel into the metallurgical furnace, said channel being in open connection with the vessel, a conduit of the same cross sectional area as said channel for sup-

plying compressed gas to said channel, and a constantly revolving valve inserted in said conduit.

3. An apparatus for supplying powdered
5 material to metallurgical furnaces, comprising a closed vessel containing the material in a state of rest, a pipe for supplying compressed air to the vessel to maintain a constant pressure above the material, a vertical
10 discharge spout communicating with the bottom of the vessel, a closed channel into which the spout discharges arranged at right angle to the latter and adapted to conduct

the material to the furnace, and means for intermittently projecting a charge of compressed air across the open end of the spout into the channel, whereby a constant flow of material from the spout is maintained. 15

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses. 20

JENS WESTLY.

Witnesses:

C. NORMAN,
C. FABRICIUS HANSEN.