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ROTARY FEEDER FOR PNEUMATIC CONVEYERS

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Fig. 1.

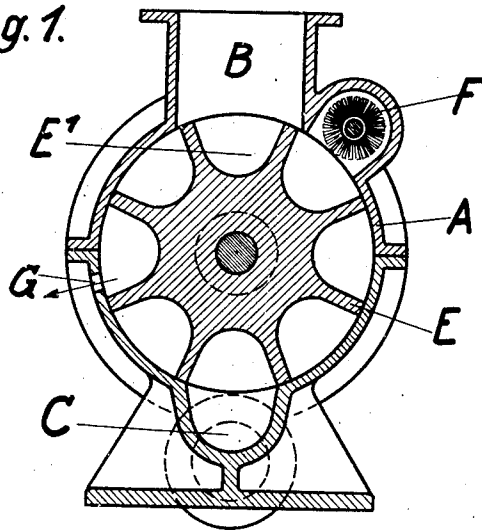
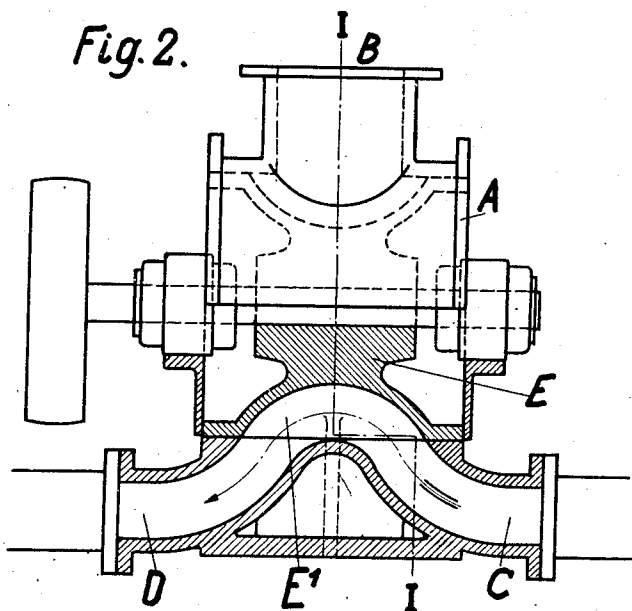


Fig. 2.



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ROTARY FEEDER FOR PNEUMATIC CONVEYERS

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The present invention relates to an improvement in rotary feeders for pneumatic conveyers as especially used in paper and pulp mills for conveying pulp stuff by air-pressure in a state of rather high density.

In conveying granular or fibrous materials through pipes by means of air-pressure, conveyer-screws or cell-wheels are generally used to introduce the material (to be conveyed) into the air-current.

In so doing, especially with higher pressures in the conveyer pipeline, it may happen that difficulties are experienced, in so far as the cells, in case of damp material, are not completely emptied, while conveyer-screws for higher pressures are unsuitable.

In order to promote complete emptying of the cells, an arrangement was introduced by which compressed air, partly with higher pressure as prevailing in the conveyer pipeline, was blown in the cells from their bottom at the instant of emptying. However, this arrangement naturally resulted in a very complicated arrangement of the feeding device.

The object of the present invention pursues the same purpose i. e. unconditional and complete emptying of the cells of the feeding-device even under the highest conveyer pressures and under the most unfavourable conditions of the conveyed material, simply in that way, that the cells of the cell-wheel together with the air-inlet and discharge ducts are designed in such a way that when the position for emptying is established, the respective cell and the connecting ducts form a curved passage which enters and leaves the cell-wheel on its periphery without materially changing the free section of the passage.

This arrangement requires seals on the outer cover of the cylinder only and are kept more easily in good order than are seals on the front of the rotor.

The attached drawing shows one example of the arrangement and in particular Fig. 1 is a cross-section 1—1 through the feeding device and Fig. 2 in the lower half, is a longitudinal section, while the upper half gives a view of the feeder.

In a casing "A" with inlet "B" arranged

on top, and air-pipe connection "C" and conveyer-pipe connection "D" at the bottom, a rotor "E" revolves horizontally on its axis. On the periphery of the rotor "E" are cells "E'" shaped in such a way as to make the crown to the passage formed by the curved air-inlet and discharge duct.

Near the feeder-funnel the casing houses a revolving brush "F" and, on the opposite side, an opening "G" for ventilation purposes. Through funnel "B" the feeding device is constantly filled with material which also enters cell "E'" when passing under the funnel. After the seals have been cleaned by the revolving brush "F" and rotor "E" has completed one half of one revolution the cell reaches the air-inlet and discharge branch thus establishing connection between both in such a way that a bend passage is formed. As evidently in this position the passage shows no material difference compared with a common pipe the material is blown clean through the cell with the same efficiency as it is conveyed through the conveyer pipe. If the rotor continues to revolve the blown-out cell reaches the ventilation opening "G" which establishes connection with the outer-air thus allowing compressed air, still retained in the cell, to escape whereupon the cell is again ready for charging.

In order to reach a maximum of a continuity, two or more feeding devices can be arranged in parallel all connected to a common conveyer pipe and arranged for compounded action.

The present feeding device is naturally applicable for a suction conveyor-system as well in which the air-inlet duct "C" has to be connected to the open air.

It is to be understood that various changes as to form, structure and material may be made without departing from the spirit and scope of the invention.

What is claimed is:—

1. In a rotary feeder for pneumatic conveyers for pulp and the like, a casing having a vertically disposed feeder, a rotary wheel mounted in the casing having a plurality of curvate cells set inwardly of its periphery, and an oppositely disposed inlet and outlet

pipe connection in communication and integral with the casing and having an up-bent portion, the bottom edge of which is in coincidence with the periphery of the wheel and is diametrically opposed to said feeder, said cells by their curvature forming a complementary section of the pipe connection and a continuous passage entering and leaving the cell wheel, whereby pulp and the like fed into the wheel cells are in the path of conveyance in the pipe.

2. In a rotary feeder for pneumatic conveyers for pulp and the like, a casing having a vertically disposed feeder and an air outlet therein, a rotary wheel mounted in the casing having a plurality of curvate cells set inwardly of its periphery, the curvature of said cells being such as to have its maximum depth toward the center of the wheel, means for driving said wheel, an inlet and outlet pipe connection integral with the casing and having an up-bent portion, the bottom edge of which is in coincidence with the periphery of the wheel, said cells by their curvature forming a complementary section of said pipe connection and a continuous passage entering and leaving the cell wheel, whereby pulp and the like fed into the wheel are rotated through 180° and brought into the path of conveyance in the pipe.

In testimony whereof I affix my signature.

WILHELM THALER.

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