dimensioned on the high rated powers of operation of the plant.

Aim of the invention

Embodiments of the present invention provide a dryer and a plant that guarantee a reduction in the employed rated power and reduced maintenance.

Concept of the invention

According to an aspect of the present invention, there is provided a plant for the production and distribution of bituminous conglomerates including: at least one dryer for drying materials to be treated wherein the at least one dryer is provided with a burner generating drying heat for the materials to be treated by means of at least one flame of the burner, obtaining treated materials; a mixer for mixing at least the treated materials; a control unit; wherein the plant is adapted and intended for the treatment of the materials to be treated including inert lithic materials and materials containing bitumen, bituminous conglomerates or recycled bituminous material or mixed materials containing at least one part of materials containing bitumen, in which the at least one dryer is made up of at least one first dryer portion and of a second dryer portion which are arranged one after the other with the interposition of a hot air passage compartment between the first dryer portion and the second dryer portion, in which the material advances within the first dryer portion according to a direction of advancement of the material in the first dryer portion and in which the material advances within the second dryer portion according to a direction of advancement of the material in the second dryer portion, and further in which the first dryer portion is provided with said burner generating drying heat for the materials present within the first dryer portion and the second dryer portion is devoid of a respective burner intended for the generation of heat for drying the materials which are present within the second dryer portion, the whole drying heat of the materials which are present within the second dryer portion being generated by means of said burner of the first dryer portion said heat being transferred to said second dryer portion by means of a hot airflow oriented from the first dryer portion provided with the burner towards the second dryer portion, characterized in that the first dryer portion is provided with a passage putting in communication the first dryer portion with the second dryer portion generating a preferential path for the hot airflow for heating the material of the second dryer portion and constituting a bypass passage with respect to said hot air passage compartment between the first dryer portion and the second dryer portion, said passage defining an external flow zone of hot airflow which is located between an external surface of the passage and an internal surface of the first dryer portion, the external flow zone being in communication with the air passage compartment, adjustable sealing means being provided which are adjustable into at least three configurations: a first configuration in which the sealing means leave at least partially open said passage and completely close the flow communication between the external flow zone and the second dryer portion; a second configuration in which the sealing means completely close said passage and completely close the flow communication between the external flow zone and the second dryer portion; a third configuration in which the sealing means leave at least partially open said passage and leave at least partially open the flow communication between the external flow zone and the second dryer portion.

Advantageous effects of the invention

Embodiments of the present invention, by the considerable creative contribution the effect of which constitutes an immediate and important technical progress, has various advantages.

Embodiments of the present invention allow to reduce the rated power of the plant, facilitating the installation of plants according to simpler and faster authorization procedures.

Embodiments of the present invention also allow to save energy in the phases of production and operation of the plant.

Embodiments of the present invention also allow to reduce the release of polluting compounds into the environment during the production of mixtures in the form of conglomerates with bituminous and non-bituminous binders.

Embodiments of the present invention also allow to make more compact plants reducing the occupied surface.

Embodiments of the present invention also allow to use recycled materials in a flexible mode with used percentages in the final mixture of the final product which can be in the range 0 to 100%.

Furthermore, with embodiments of the present invention, it is allowed to provide plants with a reduced nominal used power, with a hi capacity of use of recycled materials and with reduced maintenance.

Embodiments of the present invention also allow to reduce the phenomena of jamming of the material, making the plant more efficient.

Furthermore, the plant integrating embodiments of the invention also allows to obtain further advantages with regard to the reduced maintenance thereof, making the plant more efficient and reducing operating costs.

Embodiments of the invention, moreover, are more cost-effective due to:

- the simplification of the heat generation parts;
- the simplification of the structures for supporting the various components;
- the elimination of the direct compartment under the sieve, by direct compartment meaning a hopper that collects the material coming from the dryer, normally containing recycled material, without passing for the sieve.

Description of the drawings

In the following a solution is described with reference to the enclosed drawings, which are to be considered as a non-exhaustive example of the present invention in which:

Fig. 1 represents a possible embodiment of a plant in accordance with the present invention.

Fig. 2 represents a detail of an upper part of the plant of Fig. 1.

Fig. 3 represents a front view of an upper part of the plant of Fig. 1.

Fig. 4 represents a side view of an upper part of the plant of Fig. 1.

Fig. 5 represents a detail of an intermediate part of the plant of Fig. 1.

Fig. 6 schematically represents the devices present in the plant of Fig. 1.

Fig. 7 schematically represents a side view partially in section of an upper part of the plant of Fig. 1.

Fig. 8 shows one of the operating modes of a plant in accordance with the present invention.

Fig. 9 shows another of the operating modes of a plant in accordance with the present invention.

Fig. 10 shows still another of the operating modes of a plant in accordance with the present invention.