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 first suction system of hot air from said at least one dryer; 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 wherein said first suction system of hot air sucks hot air from said at least one dryer with the establishment of a hot airflow oriented from the first dryer portion provided with the burner towards the second dryer portion in which the at least one dryer comprises adjustable deviation means for the deviation or for the adjustment of the quantity of said 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 divided into two zones of which a first zone constitutes a first chamber or combustion chamber in which the flame of the burner develops and of which a second zone constitutes a second chamber or drying chamber within which said materials are present, the first dryer portion being provided with a passage integral with the first dryer portion itself, the passage putting in communication the combustion chamber of the first dryer portion with the second dryer portion generating a preferential path for a high temperature gas flow for heating the material of the second dryer portion, the first dryer portion being thus intended to constitute: a supply conduit of the hot airflow produced by the burner towards the second dryer portion in a condition in which materials to be treated are not present inside the first dryer portion; or the portion for the treatment of the materials to be treated inside the first dryer portion in a condition in which materials to be treated are not present inside the second dryer portion; or both a supply conduit of the hot airflow produced by the burner towards the second dryer portion and the portion for the treatment of the materials to be treated inside the first dryer portion in a condition in which materials to be treated are present both inside the first dryer portion 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 high 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 allow 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.

Fig. 11 shows the airflows inside a part of the dryer in accordance with the present invention.