

The invention relates to a method for dewatering ashes quenched in the water bath of an ash-removing device, said ashes being ejected from the water bath by means of a discharge piston via a discharge chute. The invention also relates to an apparatus for carrying out the method. A method and an apparatus of this kind are known from the document DE-A-2 539 615.

In firing installations, the burnt fuel is advanced via an ash chute to an ash-removing device which is filled with water and has an arcuate discharge chute and a reciprocating discharge piston which conveys the ashes quenched in the water bath out of the water bath through the ascending discharge chute towards the exterior (c.f., e.g. DE-A 25 39 615). The quenching of the ashes in the water bath means that they are necessarily saturated with water, this causing problems with the further treatment or disposal of the ashes. One of the problems consists in that the adherent water is partially released during subsequent transportation. This can lead to the undesired outflow of water from the conveying means and, as this water can be contaminated with harmful constituents, can contribute to pollution of the environment or of the groundwater. Another considerable problem consists in that the adherent water increases the weight of the ashes accordingly, resulting in a considerable increase in transportation and dumping costs.

The aim of the invention is to allow for extensive dewatering of the ashes originating from a firing installation in the simplest possible manner without additional cost-intensive installations.

Departing from the method of the type specified at the outset,

this problem is solved according to the invention in that the discharge chute of the ash-removing device is oscillated. Particularly good results are obtained if, in a further embodiment of the invention, the water-free region of the discharge chute is oscillated. By virtue of the oscillation transferred from the discharge chute to the ashes situated in the discharge chute, the latter are extensively dewatered and after the treatment according to the invention have a water content of only approximately 12 %, whereas ashes leaving the ash-removing device without treatment according to the invention have a water content of approximately 18 to 22 %. This means that a considerable quantity of water is extracted, this significantly reducing the consumption of fresh water or feed water. The ashes obtained after this treatment still feel earth-moist and no longer have any adherent drip water.

In order to carry out the method, it is sufficient according to the invention for an oscillation generator, especially an unbalance-type generator, to be mounted on the discharge chute. This results in a particularly simple apparatus for carrying out the method, as, apart from the arrangement of an oscillation generator, no alterations have to be made to the existing installation, i.e. to the ash-removing device present, so that existing ash-removing devices can be retro-fitted in a simple manner.

It has proven to be advantageous for the oscillation generator, especially an unbalance-type generator, to be mounted on the bottom of the discharge chute.

The best dewatering results were obtained by connecting the oscillation generator, especially an unbalance-type generator,

to the discharge chute at the boundary between the part thereof filled with water and the water-free part.

One embodiment of the invention will now be described in more detail. In the drawing, the single figure is a partial longitudinal section through an ash-removing device.

The ashes originating from a grate (not shown) drop into an ash chute 2 of an ash-removing device 1. The ash chute 2 opens into a curved tank 3 at the bottom 4 of which there is a reciprocating discharge piston 5. With each stroke, the discharge piston 5 displaces the ashes resting on the bottom 4 into the discharge chute 6, from where the ashes are finally released.

The discharge piston 5 is hinged at its rear end on to one or more thrust cranks 7 which are non-rotatably mounted on a shaft 8 which is connected to a drive means (not shown).

The discharge piston 5 has an end face 9 which is situated substantially perpendicularly to the bottom surface 4 of the curved tank 3 and serves to eject the ashes. In the embodiment shown, the discharge piston 5 has a piston stage 10 which exerts an additional thrust.

The discharge chute 6 is defined in its front upper region by a rounded edge 11 which extends into the water bath situated in the curved tank 3 in order to ensure airtight sealing of the ash chute, as negative pressure prevails in the combustion chamber. The water level is designated 12.

The ashes quenched in the curved tank 3 in the water bath are

displaced by the end face 9 and the additional stage 10 of the piston into the upwardly sloping discharge chute 6, where they emerge from the water surface as a compact strand. Here, the water adhering to the outside can flow back into the water bath.

In order to obtain particularly good dewatering of the ashes emerging from the discharge chute 6, an oscillation generator in the form of an unbalance-type generator 13 is provided at the bottom of the discharge chute and supports an unbalanced weight 15 on a driven shaft 14 so that the entire discharge chute is oscillated. This oscillation is transferred to the ashes and to the water adhering to the ashes, resulting in extensive dewatering of the ashes. The water extracted then flows back into the water bath, so that, apart from the arrangement of an oscillation generator, no alterations have to be made and no additional equipment has to be fitted. In the preferred embodiment shown in the drawing, the oscillation generator 13 is rigidly connected to the bottom 19 of the discharge chute at the boundary designated 16 between the water-filled part 17 and the water-free part 18 thereof, so that the oscillation is transferred to the entire discharge chute and thus also to the ashes.

CLAIMS

1. Method for dewatering ashes quenched in the water bath of an ash-removing device, said ashes being ejected from the water bath by means of a discharge piston via a discharge chute, characterised in that the discharge chute of the ash-removing device is oscillated.
2. Method according to claim 1, characterised in that the water-free region of the discharge chute is oscillated.
3. Apparatus for carrying out the method according to claim 1 or claim 2, characterised in that an oscillation generator (13), especially an unbalance-type generator, is mounted on the discharge chute (6).
4. Apparatus according to claim 3, characterised in that the oscillation generator (13), especially an unbalance-type generator, is mounted on the bottom (19) of the discharge chute (6).
5. Apparatus according to claim 3 or claim 4, characterised in that the oscillation generator (13), especially an unbalance-type generator, is connected to the discharge chute (6) at the boundary between the water-filled part (17) and the water-free part (18) thereof.

