CLAIMS

1. A circulating mass dryer for drying wet sludge, characterized in that the circulating mass dryer includes two adjacent circulating mass systems in heat exchange communication with one another, wherein the first circulating mass system is a sludge drying side and the second circulating mass system is a heat releasing side, and the first and the second circulating mass system each comprises at least one elongated riser, and the riser of the first circulating mass system and the riser of the second circulating mass system are adjacent in such a way that a common heat exchange surface is formed therebetween.

2. The dryer according to claim 1, characterized in that the first circulating mass system includes first fluidization material feeding means for feeding fluidization material to the fluidization chamber of the first circulating mass system, wet sludge feeding means for feeding sludge to the fluidization chamber, gas feeding means for feeding gas to the fluidization chamber, at least one elongated first riser in which wet sludge is conveyed upwards together with the fluidization material and gas while being dried, a first set of return channels for returning the mixture formed by solid fluidization material and dried sludge to the fluidization chamber and dried sludge discharge means for discharging the dried sludge from the dryer.

3. The dryer according to claim 1 or 2, characterized in that the first circulating mass system includes a first separator part for separating the mixture formed by dried sludge and fluidization material from the rest of the suspension.

4. The dryer according to claim 3, characterized in that the first separa-

tor part comprises a separator arrangement including a substantially vertical separator inlet channel, a flow guide, a substantially horizontal separator chamber, a substantially horizontal central tube and a conical part of the separator.

5. The dryer according to any one of claims 1 - 4, characterized in that the second circulating mass system includes second fluidization material feeding means for feeding fluidization material to the fluidization chamber of the second circulating mass system, heat releasing material feeding means for feeding heat releasing material to the fluidization chamber, at least one elongated second riser, in which heat releasing material is fluidized upwards together with the fluidization material, a second set of return channels for returning the fluidization material to the fluidization chamber and fluidization material outlet means for discharging the fluidization material from the dryer.

6. The dryer according to any one of claims 1 - 5, characterized in that the second circulating mass system includes a second separator part for separating the heat releasing material and fluidization material from one another.

7. The dryer according to claim 6, characterized in that the second separator part comprises a separator arrangement including a substantially vertical separator inlet channel, a flow guide, a substantially horizontal separator chamber and a substantially horizontal central tube and a conical part of the separator.

8. The dryer according to any one of claims 1 - 7, characterized in that the second circulating mass system including the assembly formed by the fluidization chamber, the second separator part and the second set of return channels

comprises a regulating device fitted in the return channel for regulating the fluidization material flow in the return channel.

9. The dryer according to any one of claims 1 - 8, c h a r a c t e r i z e d in that the first and the second circulating mass system form a tubular heat exchanger, wherein the first circulating mass system is provided on the tube side of the heat exchanger and the second circulating mass system is provided on the jacket side of the heat exchanger.

10. A method for drying wet sludge, c h a r a c t e r i z e d in that wet sludge is dried by means of a circulating mass dryer including two adjacent circulating mass systems in heat exchange communication with one another and wherein the first circulating mass system is a sludge drying side and the second circulating mass system is a heat releasing side and wherein the first and the second circulating mass system each comprises at least one elongated riser and the riser of the first circulating mass system and the riser of the second circulating mass system are adjacent in such a way that a common heat exchange surface is formed therebetween, and wet sludge is fed to the first circulating mass system and heat releasing material is fed to the second circulating mass system.

11. The method according to claim 10, c h a r a c t e r i z e d in that fluidization material is fed by first fluidization material feeding means, wet sludge is fed by wet sludge feeding means and gas is fed by gas feeding means to the fluidization chamber of the first circulating mass sys-

tem, wet sludge is conveyed upwards together with the fluidization material and gas while being dried in at least one elongated first riser, the mixture formed by solid fluidization material and dried sludge is returned by a first set of return channels to the fluidization chamber and dried sludge is discharged by dried sludge discharge means from the drier.

12. The method according to claim 10 or 11, c h a r a c t e r i z e d in that the mixture formed by dried sludge and fluidization material is separated from the rest of the suspension by means of a first separator part in the first circulating mass system.

13. The method according to any one of claims 10 - 12, c h a r a c t e r i z e d in that fluidization material is fed by second fluidization material feeding means and heat releasing material is fed by heat releasing material feeding means to the fluidization chamber of the second circulating mass system, heat releasing material is fluidized upwards together with the fluidization material in at least one elongated second riser, the fluidization material is returned by a second set of return channels to the fluidization chamber and fluidization material is discharged as needed by fluidization material outlet means from the drier.

14. The method according to claim 13, c h a r a c t e r i z e d in that the heat releasing material is separated from fluidization material by a second separator part in the second circulating mass system.

15. The method according to any one of claims 10 - 14, c h a r a c t e r i z e d in that the fluidization material flow is regulated in the return channel of the second circulating mass system including the assembly formed by the fluidization chamber, the second separator part and the second

set of return channels by means of a regulating device fitted in the return channel.

16. The method according to any one of claims 10 - 15, c h a r a c t e r i z e d in that hot gas is used as the heat releasing material.