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(54) **DEVICE FOR DEWATERING FEEDSTOCK THAT IS POURABLE OR FREE-FLOWING**

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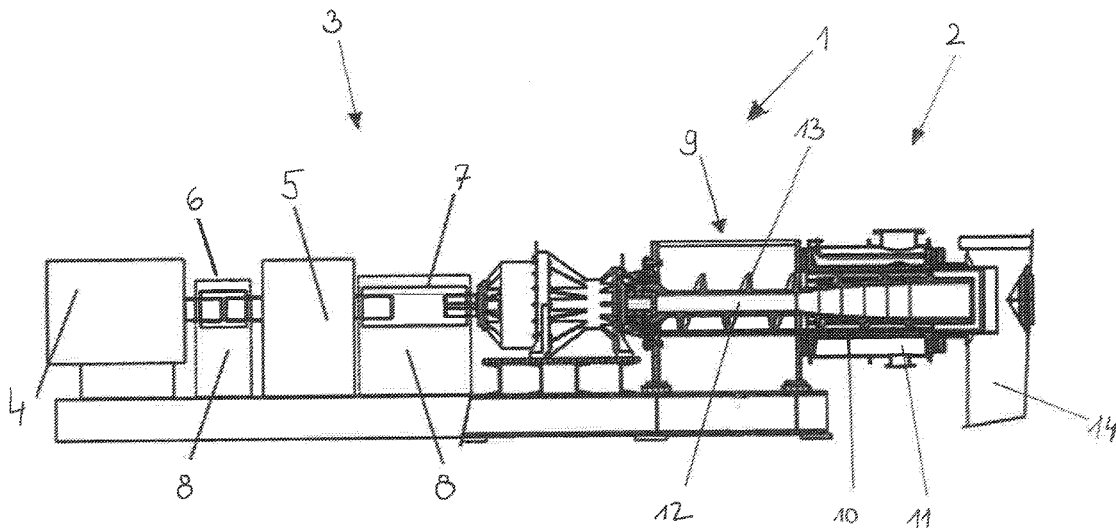
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(57) **ABSTRACT**

A device for dewatering feedstock that is pourable or free-flowing by compression and segments for use with such a device. A housing has a shell pipe in which a shaft with flights running around its circumference rotates around an axis of rotation. A feedstock is transported through the housing and compressed. The pressate is conveyed out of the device through holes in the shell pipe. An internal pipe is provided within the shell pipe. The internal pipe has numerous segments with holes. The outer surface of the segments rests directly on the inner surface of the shell pipe. The holes in the segments overlay the holes in the shell pipe. The segments are made of wear-resistant cast or sintered material.



sintered from wear-resistant material, which also offers the opportunity to form the holes 25 easily right away in one process. The design of the segments 21, 22 as cast or sintered parts means that substantially harder materials can be used that no longer require machining with normal cutting tools, such as drills.

[0025] In order to be able to save on further machining, only the contact surfaces 26 on the longitudinal sides of the segment 21, 22 edges close to the ends of the segments 21, 22 have to be machined lightly in order to guarantee that the individual segments 21, 22 are positioned exactly. As several segments 21, 22 are arranged in longitudinal direction, it is also possible only to replace the segments with the most wear. With this type of inner lining in the housing, repairs can be made quickly and easily on site.

[0026] FIG. 4 shows the simple installation using a segment 21 as an example. The figure shows three segments 21 with grooves 24 around the circumference of a bottom half shell 16, resulting in 6 segments over the entire circumference of the housing 10. The holes 25 that overlay the corresponding holes 17 in the half shell 16 are shown in the last segment 21. In addition, the fastening screws 20 and the machined contact surfaces 26 are visible. The segments 21 (and also 22) are not machined on the face ends. The outer surfaces and inner surfaces are not machined either because the grooves 24 can also be cast along with the part.

[0027] FIGS. 5, 6, and 7 show various embodiments of segments 21, 22, and 22'. They show holes 23 for the fastening screws 20, dewatering holes 25, and contact surfaces 26. The difference between segments 21 and 22 is that segment 21 has a groove 24 in addition that prevents the material from rotating with the shaft and fighting. FIG. 7 contains a variant of a segment 22' in which a strip 27 is provided instead of a groove 24. This strip is also intended to prevent the material from rotating with the shaft and fighting. With a cast or sintered part, this strip can be integrated well and manufactured in one piece. This avoids the disadvantages of strips being screwed on. In addition, there is no need to rework the segment afterwards, e.g. in metal-cutting processes (grinding a groove, drilling holes for screws) so harder materials can be used.

[0028] The invention is not limited to examples in the drawings, which show a slightly conical housing. The housing can also be cylindrical, for example, and have cylindrical segments inserted into it. In addition, the housing could comprise three or four parts if the diameters are larger.

1. A device for dewatering feedstock that is pourable or free-flowing by compression, comprising:

a housing (10) with a shell pipe (15, 16) in which a shaft with flights (13) running around its circumference rotates around an axis of rotation, the shell pipe (15, 16) defining an inner surface and having a plurality of holes (17) each having a diameter,

an internal pipe comprising segments (21, 22) defining an outer surface and having a plurality of holes (25) each having a diameter, the segments being formed of wear-resistant cast or sintered material,

wherein a feedstock is transported through the housing (10) and compressed to yield pressate that is conveyed out through the holes (17) in the shell pipe (15, 16), and wherein the outer surface of the segments (21, 22) rests directly on the inner surface of the shell pipe (15, 16) and the holes (25) in the segments align with the holes

(17) in the shell pipe (15, 16), the diameter of the holes (25) in the segments (21, 22) being smaller than the diameter of the holes (17) in the shell pipe (15, 16), and each hole (25) in the segments (21, 22) being assigned to a hole (17) in the shell pipe (15, 16).

2. The device according to claim 1, wherein the shell pipe (15, 16) is substantially cylindrical.

3. The device according to claim 1, wherein the shell pipe (15, 16) is conical.

4. The device according to claim 1, wherein the internal pipe comprises at least four segments (21, 22) in a circumferential direction.

5. The device according to claim 1, wherein the internal pipe comprises at least two segments (21, 22) in a longitudinal direction in accordance with the direction of the axis of rotation.

6. The device according to claim 1, wherein the holes (25) in the segments (21, 22) become wider conically towards the outer surface.

7. The device according to claim 1, wherein the segments (21, 22) each have a groove (24) extending in a longitudinal direction.

8. The device according to claim 1, wherein the segments (21, 22) each has a strip (27) extending in a longitudinal direction.

9. The device according to claim 8, wherein each strip (27) is integrated into a segment (21, 22).

10. A segment (21, 22) of an internal pipe for a device for dewatering feedstock that is pourable or free-flowing, the device having a housing (10) comprising a shell pipe (15, 16) with holes (17) each having a diameter, and in which the internal pipe is located, comprising:

holes (25) each with a diameter that is smaller than the diameter of the holes in the shell pipe (15, 16), wherein the segment (21, 22) is made of wear-resistant cast or sintered material.

11. The segment according to claim 9, wherein the segment (21, 22) defines an outer surface and the holes (25) become wider conically towards the outer surface.

12. The segment according to claim 9, comprising a groove (24) extending in a longitudinal direction.

13. The segment according to claim 9, comprising a strip (27) extending in a longitudinal direction.

14. The segment according to claim 12, wherein the strip (27) is integrated into a segment (21, 22).

15. The device according to claim 6, wherein the segments (21, 22) each have a groove (24) extending in a longitudinal direction.

16. The device according to claim 6, wherein the segments (21, 22) each has a strip (27) extending in a longitudinal direction.

17. The device according to claim 3, wherein the holes (25) in the segments (21, 22) become wider conically towards the outer surface.

18. The device according to claim 4, wherein the internal pipe comprises at least six segments (21, 22) in a circumferential direction.

19. The segment according to claim 11, comprising a groove (24) extending in a longitudinal direction.

20. The segment according to claim 11, comprising a strip (27) extending in a longitudinal direction.

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