

Title (en)
Screen and foil for papermaking

Title (de)
Sortierer und Flügel für die Papiererzeugung

Title (fr)
Tamis et pale pour la fabrication de papier

Publication
EP 1143065 A3 20011219 (DE)

Application
EP 01107055 A 20010321

Priority
AT 5522000 A 20000403

Abstract (en)
[origin: EP1143065A2] The assembly to sort wood and cellulose materials, for the production of paper and cardboard, has paddles rotating within a sieve body with a structured radial gap (ar) between the paddle and sieve surfaces. An assembly to sort wood and cellulose materials, comprises paddles rotating within a sieve body (2), has a radial gap between the leading end (31) of the paddles in the direction of rotation (dr) and especially the leading end point or leading edge (310) of the paddle surface (30) towards the sieve, and the facing surface (20) of the sieve body, with a minimum gap (arv) at the leading end and an increased maximum gap (arh) at the trailing zone (33) or end edge (330) of the paddle. The paddles of the rotor are arranged in rows over each other, offset by height and/or around the periphery in relation to the sorting and/or peripheral line of the sieve body. The paddles are fitted to their shafts or the rotor body (300) by screws or rivets and/or an adhesive, solder or welding, especially so that the paddles can be replaced. The tangent plane (etf) at the leading end zone or near the tip or the leading edge of the paddle, towards the sieve body, is at an angle (α) of 0-15 degrees and preferably 0-8 degrees and especially 0-2 degrees with the tangent plane (ets) on the surface of the sieve body towards the paddle at the radial working line (ezs). When the rotor (300) with the paddles is in position, within the sieve body, the paddle surface at right angles to the rotor axis has a curvature which is larger than the curvature of the sieve surface towards the paddles. If the paddles are mounted outside the sieve body, their surface curvature is smaller than the facing outer surface (20') of the sieve body. The paddles have a plate structure, with a constant thickness (ms) from the leading to the trailing ends, preferably of 2-8 mm and especially 5-6 mm. The paddle plates are of curved sheets, with parallel outer and inner surfaces. The paddle surface towards the sieve body has a stronger curvature at the leading zone at the leading tip or edge than in the trailing zones, with a stronger curvature of 5-20% and preferably 10-15% stronger than the curvature of the facing surface of the sieve body. The curvature of the trailing zones of the paddle surface towards the sieve surface is 0-4% stronger than the curvature of the facing sieve surface. The transit between the two curvature structures is at the center one-third of the longitudinal line of the paddle surface, with a steady shift from the stronger to the weaker curve line. The surface of the paddle towards the sieve is parallel to the rotor (300) axis. The end surface of the paddle surface has a narrow rectangle shape, and both leading edge corners (3101, 3102) are rounded. On a plan view, the leading end of the paddle surface, in the direction of rotation, is narrower than the trailing end, in the shape of a triangle, delta, trapezoid or swallowtail. The side edges of the paddle surface are aligned outwards and back from the leading end by an angle of 40-120 degrees and preferably 60-90 degrees. The side edges are straight, curved or stepped. The paddle surface can be fitted with spaced linear projections or recesses, pitched at an angle of 10-45 degrees and especially 15-30 degrees to the working end (esf). The projections are held in place by solder, welding or an adhesive, or recesses are machined out as grooves. The separate paddles at the rotor together form an expanding spiral configuration in the direction of rotation. The rotor (300), fitted with the paddles, forms rotor modules, with the paddles fitted by carrier bars to the shafts from the rotor center. The ratio of the minimum paddle surface/sieve surface gap to the maximum gap (arh) is 0.05-0.5 and preferably 0.1-0.3. An independent claim is included for paddles with mountings to be fitted to the carrier bars a sleeves, openings, drillings or shoulders, or threaded holes for screw fasteners.

IPC 1-7
D21D 5/02

IPC 8 full level
D21D 5/02 (2006.01)

CPC (source: EP US)
D21D 5/026 (2013.01 - EP US)

Citation (search report)
• [X] EP 0887459 A1 19981230 - VOITH SULZER PAPIERTECH PATENT [DE]
• [X] US 5232552 A 19930803 - LUNDBERG N JOERGEN [SE], et al
• [A] US 4832832 A 19890523 - FUJIWARA HARUYOSHI [JP], et al
• [A] US 5497886 A 19960312 - YOUNG DOUGLAS L G [US], et al
• [A] EP 0332123 B1 19950118 - TAMPELLA OY VALMET [FI]
• [A] US 6029821 A 20000229 - EINOEDER NORBERT [DE]

Cited by
US8714364B2; WO2010043756A1; CN114850024A; DE102005016192A1; DE102013216433A1; US2011284430A1; AT518213A1; AT518213B1; DE102011086205A1; WO2017133803A1; WO2007094967A1; US8328021B2; US8950584B2; EP2203590B2

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)
EP 1143065 A2 20011010; EP 1143065 A3 20011219; EP 1143065 B1 20051207; AT 408997 B 20020425; AT A5522000 A 20010915; AT E312230 T1 20051215; BR 0101296 A 20011106; CA 2342436 A1 20011003; CN 1205382 C 20050608; CN 1318433 A 20011024; DE 50108272 D1 20060112; ES 2252103 T3 20060516; MX PA01003401 A 20070725; US 2001045379 A1 20011129; US 6588599 B2 20030708

DOCDB simple family (application)
EP 01107055 A 20010321; AT 01107055 T 20010321; AT 5522000 A 20000403; BR 0101296 A 20010403; CA 2342436 A 20010328; CN 01119259 A 20010402; DE 50108272 T 20010321; ES 01107055 T 20010321; MX PA01003401 A 20010402; US 82550401 A 20010403