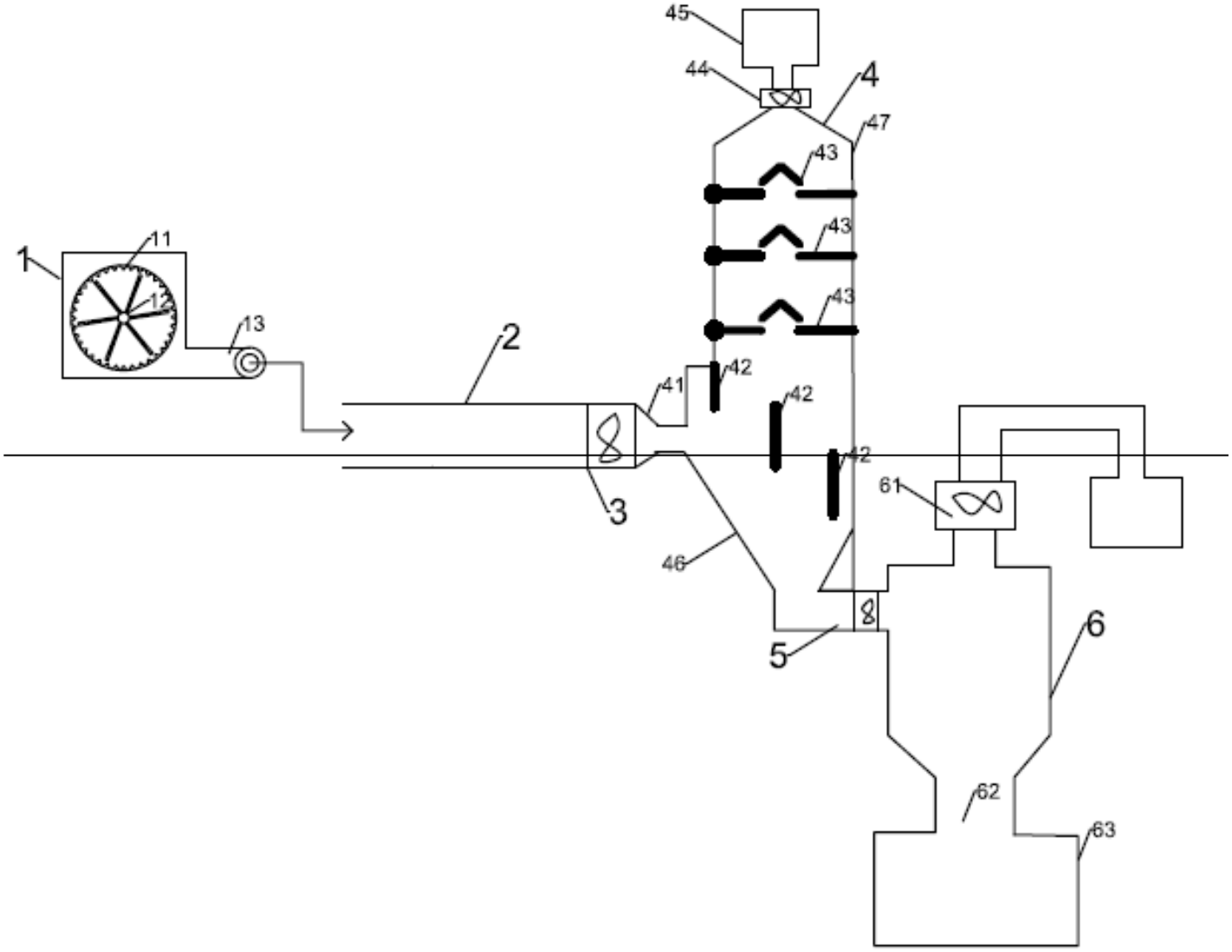
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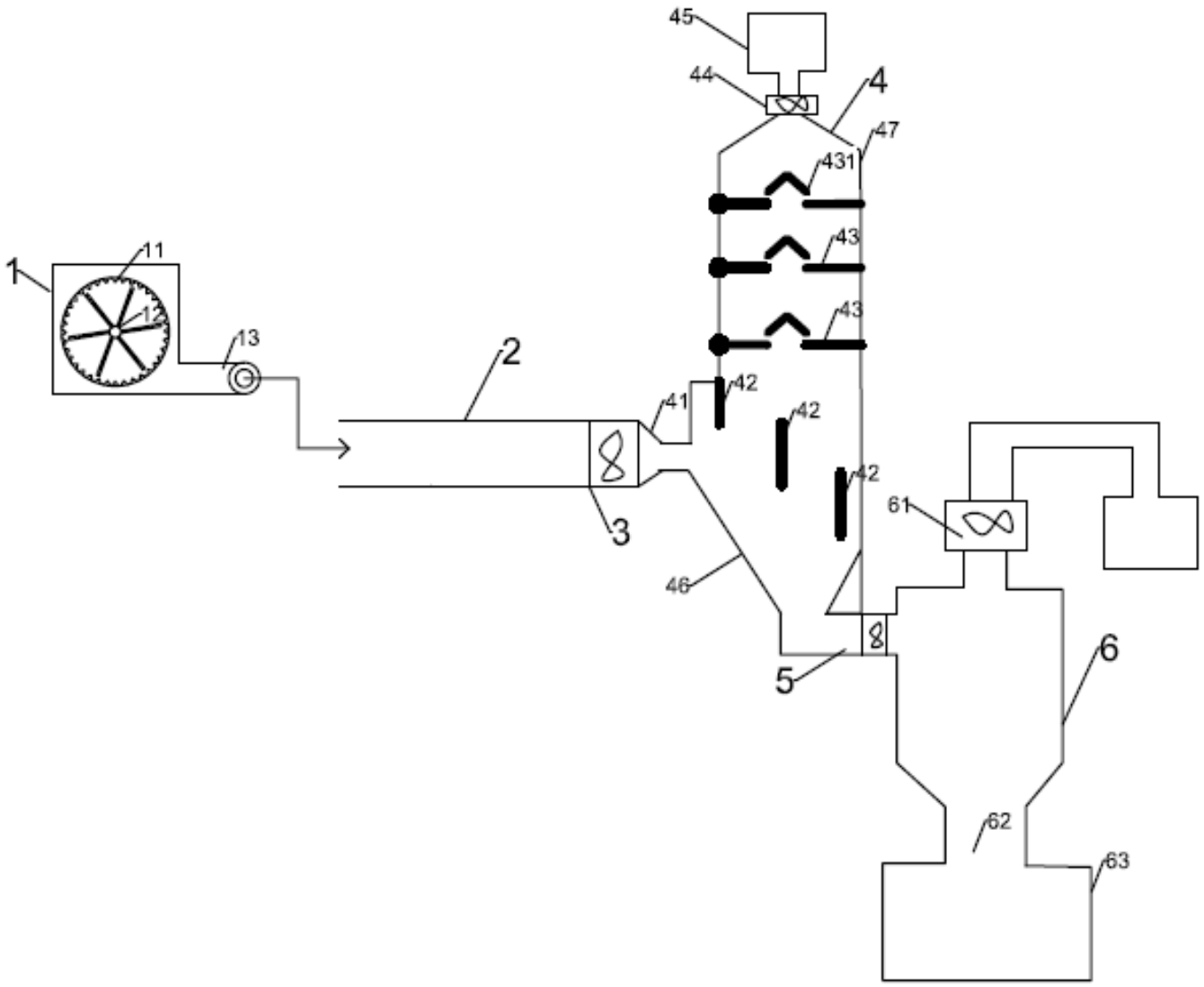


FIG. 1

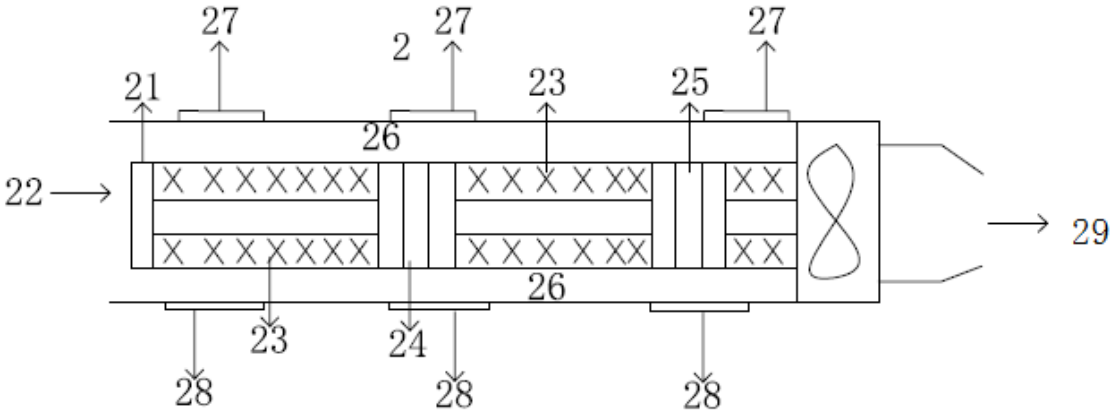


FIG. 2

Paper material

Flow speed

Magnetic force

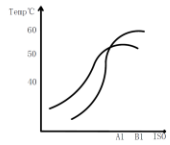
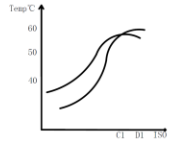
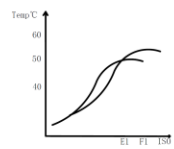
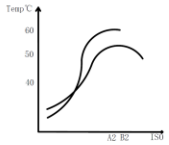
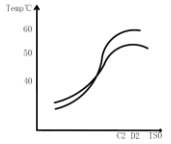
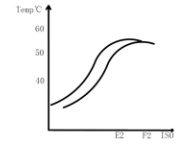
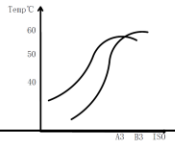
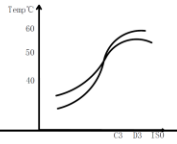
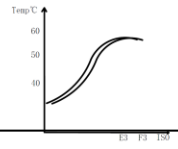
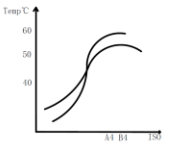
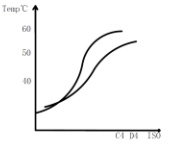
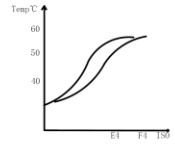
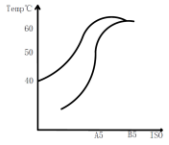
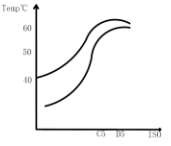
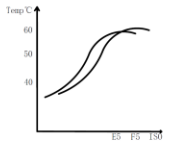
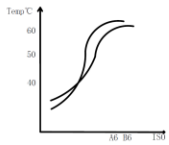
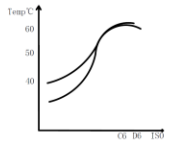
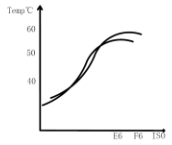
		120mT	140mT	160mT
Laser-printed A4 paper	0.48g/cm³			
	0.58g/cm³			
Same fiber material ISO comparison	F1>F2>E2>E1>D1>B1>D2>C1>C2>A1>B2>A2			
A4 paper drawn and written with ball pens and sign pens	0.48g/cm³			
	0.58g/cm³			
Same fiber material ISO comparison	F3>E3>F4>E4>D3>B3>D4>C3>C4>A3>B4>A4			
Ink-printed white cardboard	0.48g/cm³			
	0.58g/cm³			
Same fiber material ISO comparison	F6>F5>E5>E6>D6>D5>C6>C5>B5>B6>A5>A6			
Overall ISO comparison	F1>F2>F6>F3>F5>E3>F4>E2>E1>E5>E4>D1>D3>E6>B1>D2>D6>D5>B3>D4>C1>C6>C2>C3>C5>C4>A1>A3>B5>B2>A2>B4>B6>A5>A6>A4			

FIG. 3

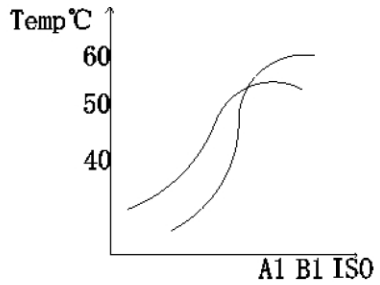
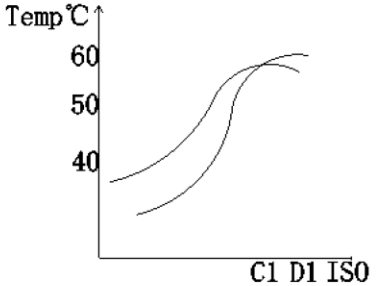
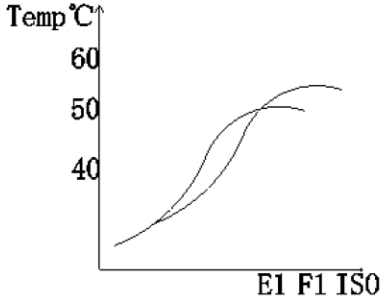
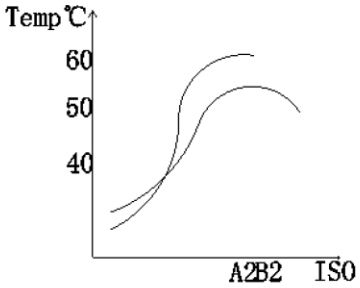
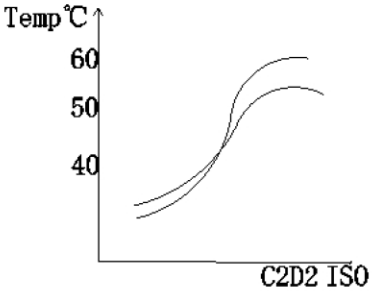
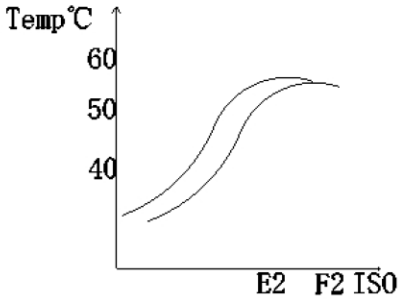
Paper material / Flow speed / Magnetic force		120mT	140mT	160mT
Laser-printed A4 paper	0.48g/cm³			
	0.58g/cm³			
Same fiber material ISO comparison	F1>F2>E2>E1>D1>B1>D2>C1>C2>A1>B2>A2			

FIG. 3a

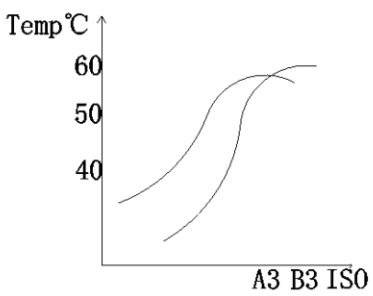
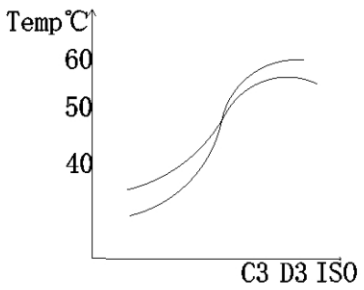
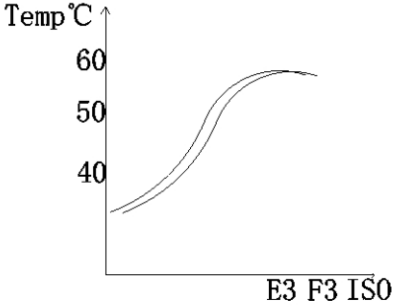
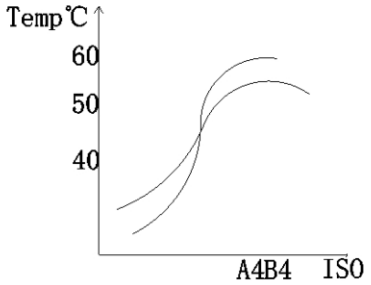
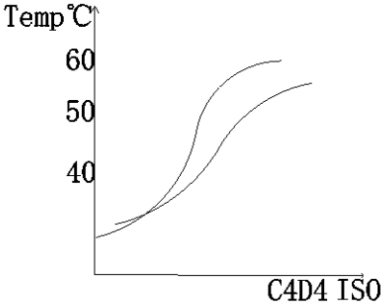
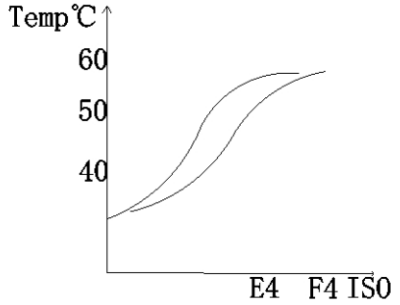
Paper material / Flow speed / Magnetic force		120mT	140mT	160mT
A4 paper drawn and written with ball pens and sign pens	0.48g/cm³			
	0.58g/cm³			
Same fiber material ISO comparison	F3>E3>F4>E4>D3>B3>D4>C3>C4>A3>B4>A4			

FIG. 3b

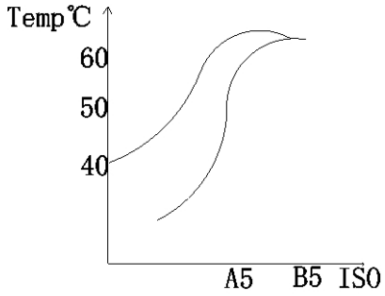
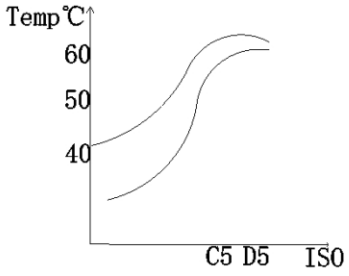
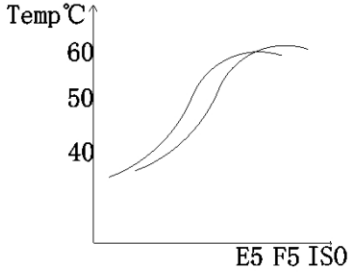
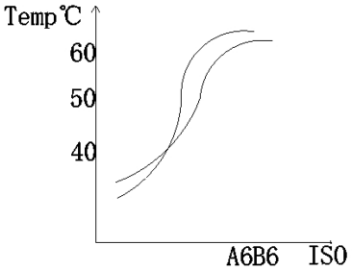
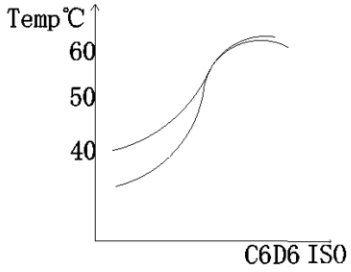
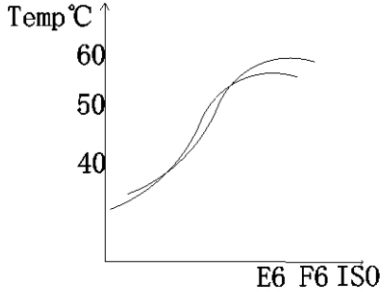
Paper material / Flow speed / Magnetic force		120mT	140mT	160mT
Ink-printed white cardboard	0.48g/cm³			
	0.58g/cm³			
Same fiber material ISO comparison	F6>F5>E5>E6>D6>D5>C6>C5>B5>B6>A5>A6			
Overall ISO comparison	F1>F2>F6>F3>F5>E3>F4>E2>E1>E5>E4>D1>D3>E6>B1>D2>D6>D5>B3>D4>C1>C6>C2>C3>C5>C4>A1>A3>B5>B2>A2>B4>B6>A5>A6>A4			

FIG. 3c

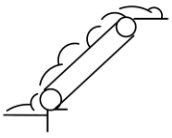
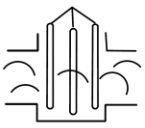
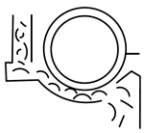
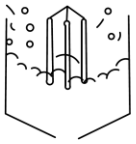
Conventional Method 1	Conventional Method 2	Conventional Method 3	Conventional Method 4	Conventional Method 5
				

FIG. 4

Test results of recycled paper products made of fibers obtained according to different separating methods to separate ink materials and fibers

	Original paper pulp	Embodiment 1	Embodiment 2	Conventional methods 1-4	Conventional method 5
Whiteness %ISO	79.23	96.34	94.18	90.5	92.85
Fiber yield rate %	/	98.78	98.12	97.3	96.2
residual ink mm^2/kg	51067	908	971	1922	1532
Deinking rate %	/	97.82	97.13	90.22	95.96

FIG. 5