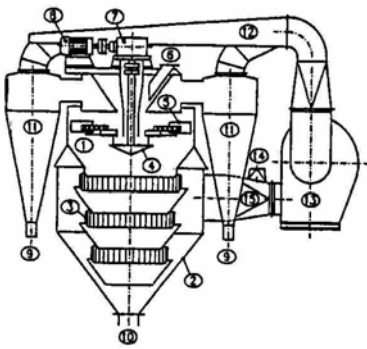
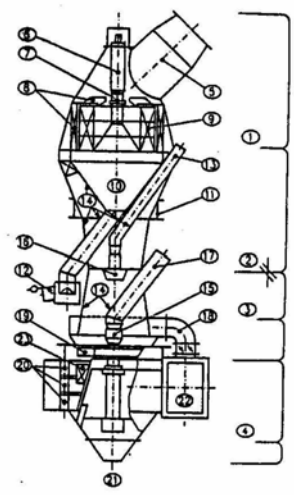
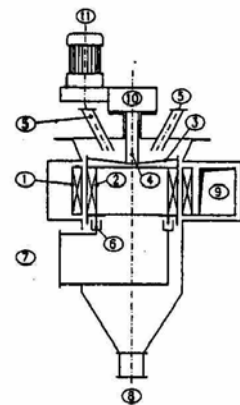


Item	Improvement of separator	Application
		Finishing process
Background	<p>With the conventional separator, which has built-in fan, such as "sturtevant-separator", it is difficult to expand the grinding capacity by the scale-up because of lower classification efficiency. Therefore, a new high efficiency separator has been developed.</p>	
Descriptions	<p>The separators are divided into three types according to their structures. The first generation is the built-in fan type, the second is the cyclone air type, and the third is the rotor type.</p> <p>1) Mechanism</p> <p>(1) The cyclone air separator comprises the separation section and the cyclones to collect the fine particles. The air circulates by the outside (located) fan. The separation section consists of air vanes and turning blades.</p> <p>(2) The rotor type separator is the vortex flow type air separator comprised of guide vanes and rotating rotor. The fine particles are collected by a bag filter and cyclones equipped outside the separator housing.</p> <p>2) Characteristics</p> <p>(1) The second and third types have lower circulation of the fine particles and higher classification efficiency with more grinding capacity and less specific power consumption. The third type boasts higher classification efficiency with more compact structure.</p> <p>(2) The second and third types can adjust easily the fineness of products under various operating conditions. The third type can control classifying points in a more wide range just by varying the revolutions per minute.</p> <p>(3) The products temperature has been decreased as a result of the second and third types introducing much cooler air into the separator. The false set of cement is hard to occur.</p>	
	 <p><b>Fig. 1. Cyclone air separator</b></p> <ul style="list-style-type: none"> <li>① separation chamber</li> <li>② tailings cone</li> <li>③ air vanes</li> <li>④ distributor plate</li> <li>⑤ counterblades</li> <li>⑥ feed spout</li> <li>⑦ gearbox</li> <li>⑧ motor</li> <li>⑨ fines outlet</li> <li>⑩ tailings outlet</li> <li>⑪ cyclones</li> <li>⑫ air duct to fan</li> <li>⑬ fan</li> <li>⑭ dust collecting pipe to filter</li> <li>⑮ return air duct</li> </ul>	 <p><b>Fig. 3. Rotating type separator</b></p> <ul style="list-style-type: none"> <li>① separator part</li> <li>② optional duct ext. to fit layout</li> <li>③ desagglomerator</li> <li>④ grit separator</li> <li>⑤ fines outlet</li> <li>⑥ bearing housing</li> <li>⑦ shaft rotor joint</li> <li>⑧ guide vane</li> <li>⑨ rotor blade</li> <li>⑩ reject cone</li> <li>⑪ support</li> <li>⑫ reject outlet valve</li> <li>⑬ feed inlet</li> <li>⑭ densit wearcast 2000</li> <li>⑮ air lock</li> <li>⑯ spreader plate</li> <li>⑰ feed from press</li> <li>⑱ air by-pass</li> <li>⑲ desagglomerator rotor</li> <li>⑳ guide vane sections</li> </ul>
	 <p><b>Fig. 2. Rotating type</b></p> <ul style="list-style-type: none"> <li>① guide vanes</li> <li>② rotor blades</li> <li>③ distributor plate</li> <li>④ rotor shaft</li> <li>⑤ feed spouts</li> <li>⑥ sealing</li> <li>⑦ air + fines outlet</li> <li>⑧ tailings outlet</li> <li>⑨ air inlet</li> <li>⑩ gear box</li> <li>⑪ motor</li> </ul>	

<b>Results</b>	1)Grinding capacity                    15% to 25% (Increase) 2)Specific power consumption    10% to 20% (Reduction)
<b>Cost estimation</b>	About 4.5 million US\$ for 3,000kW-mill    [1US\$=¥110]
<b>Related matters</b>	
<b>Reference</b>	