WHAT IS CLAIMED IS:

1. A cyclone settling apparatus comprising:

a body which is shaped like a cylindrical tank and comprises a high speed nozzle extending in a tangential direction thereof on an upper outer peripheral surface thereof to communicated therewith and a funnel-shaped floc eliminating cone formed at a lower portion thereof;

a water supply unit which is connected to the high speed nozzle and comprises a mixer for mixing chemicals and polluted water to supply the chemicals-mixed polluted water into the body; and

a draining unit comprising a porous pipe vertically installed at a central portion of the body, funnel-shaped multistage inclined cones fixed to an outer peripheral surface of the porous pipe and gradually expanding downward, and an uppermost inclined cone for discharging fresh water to the outside of the body unit, which is additionally provided above the multistage inclined cones and has a wall integrally extending downward from a lower outer periphery thereof so that the uppermost inclined cone surrounds upper and lateral sides of the multistage inclined cones.

2. The cyclone settling apparatus as claimed in

claim 1, wherein the mixer of the water supply unit comprises an inline mixer and a closed low-speed mixing tank.

3. The cyclone settling apparatus as claimed in claim 2, wherein the multistage inclined cones and the uppermost inclined cone have a same inclination angle, the inclined angle is 45 to 60 degrees with respect to a horizontal plane, the multistage inclined cones comprise 2 to 10 stages, a gap between an inner peripheral surface of the body and an outer peripheral surface of the wall of the uppermost inclined cone is 0.02D to 0.2D (D: a diameter of the body), and a gap between an inner peripheral surface of the wall of the uppermost inclined cone and a lower outer periphery of the multistage inclined cones is 0.02D to 0.2D.

4. The cyclone settling apparatus as claimed in claim 3, wherein a height of the wall of the uppermost inclined cone is 0.15D to 2.5D, and a sediment draining hole having a diameter of 0.02 to 0.2D is formed at a lower end of the porous pipe of the body such that flocs are sunk and drained through the sediment draining hole.

【CLAIMS】

【Claim 1】A cyclone settling apparatus comprising:

a body which is shaped like a cylindrical tank and comprises a high speed nozzle extending in a tangential direction thereof on an upper outer peripheral surface thereof to communicated therewith and a funnel-shaped floc eliminating cone formed at a lower portion thereof;

a water supply unit which is connected to the high speed nozzle and sequentially comprises an inline mixer and a closed low-speed mixing tank having rotary blades for mixing chemicals and polluted water to condense foreign substances into coarse particles of flocs and supply the chemicals-mixed polluted water into the body; and

a draining unit comprising a porous pipe vertically installed at a central portion of the body, funnel-shaped multistage inclined cones fixed to an outer peripheral surface of the porous pipe and gradually expanding downward, and an uppermost inclined cone for discharging fresh water to the outside of the body unit, which is additionally provided above the multistage inclined cones and has a wall integrally extending downward from a lower outer periphery thereof so that the uppermost inclined cone surrounds upper and lateral sides of the multistage inclined cones.

【Claim 2】

The cyclone settling apparatus as claimed in claim 1, wherein the multistage inclined cones and the uppermost inclined cone have a same inclination angle, the inclined angle is 45 to 60 degrees with respect to a horizontal plane, the multistage inclined cones comprise 2 to 10 stages, a gap between an inner peripheral surface of the body and an outer peripheral surface of the wall of the uppermost inclined cone is 0.02D to 0.2D (D: a diameter of the body), and a gap between an inner peripheral surface of the wall of the uppermost inclined cone and a lower outer periphery of the multistage inclined cones is 0.02D to 0.2D.

【Claim 3】

The cyclone settling apparatus as claimed in claim 2, wherein a height of the wall of the uppermost inclined cone is 0.15D to 2.5D, and a sediment draining hole having a diameter of 0.02 to 0.2D is formed at a lower end of the porous pipe of the body such that flocs are sunk and drained through the sediment draining hole.