tion it has been shown that the second fraction has already lost much of the fines and its water content.

In view of the above, in yet another aspect of the invention, there is provided a separation-apparatus for separating from a particle-stream at least a first fraction with particles of a first group of dimensions, and a second fraction with particles of a second group of dimensions, wherein the particles in the first group generally are of smaller diameter than the particles in the second group, comprising an infeed-device for the particle-stream, a rotatable drum having at its circumference plates, each plate having a radially extending hitting surface for the particles, and a receiving area for receipt of the particles of the second fraction, wherein the said receiving area is provided with a conveyor for discharging the particles received in said receiving area, the conveyor in the receiving area for the second fraction moving during use at a speed of at least 2 m/s, **characterized in that** distant from the drum and downwardly inclined in a direction pointing away from the drum is a collision plate which extends at least in part above the conveyor in the receiving area for the second fraction, wherein the collision plate is inclined at an angle of less than 45° with respect to the horizon.

The invention will hereinafter be further elucidated with reference to an exemplary schematic embodiment of the separation-apparatus of the invention and with reference to the drawing.

In the drawing a single Fig. 1 shows schematically the separation-apparatus of the invention.

With reference to Fig. 1 the separation-apparatus of the invention is generally denoted with reference numeral 1. This separation-apparatus 1 is used for separating particles 3 of a first fraction and of a second fraction wherein the respective fractions pertain to particles having different dimensions.

The particles 3 are collectively supported by an infeed-device 2, 10. The infeed-device comprises a conveyor 10 followed by a slide plate 2 which is arranged to be vibrating causing that the particles 3 leave the slide plate 2 over the edge 2′ in a particle stream as symbolised by the arrow 4. Prior to leaving the slide plate 2 at its edge 2′ the particle stream 4 is supported by said slide plate 2. This slide plate 2 is downwardly sloping in order to support the development of a monolayer-type flow of said particle stream 4 with a thickness measured from the surface of plate of two to three times, and at most four times the maximum particle diameter.

The edge 2′ of the vibrating plate 2 is positioned above a drum 5, which can rotate around its axis 8 of rotation and which drum 5 has at its circumference 13, plates 6, 6′. Each plate 6, 6′ has a radially extending hitting surface for impinging on the particles 3 that arrive in the vicinity of the drum 5.

As already mentioned it is preferred to apply a slide plate 2 that slightly tilts downwards as seen from the transitional area 2′′ between the conveyor 10 and the slide plate 2. This tilting downwards is preferably 85° degrees with respect to the horizon.

As Fig. 1 clearly shows the edge 2′ of the vibrating slide plate 2 is positioned vertically or near vertically above the axis 8 of rotation of the drum 5 so as to cause that in use the particles 3 of the particle stream 4 fall towards the drum 5

CLAIMS

1. Separation-apparatus ~~(1)~~ for separating from a particle-stream ~~(4)~~ at least a first fraction with particles ~~(3)~~ of a first group of dimensions, and a second fraction with particles ~~(3)~~ of a second group of dimensions, wherein the particles in the first group generally are of smaller diameter than the particles in the second group, comprising an infeed-device ~~(2, 10)~~ for the particle-stream ~~(4)~~, a rotatable drum ~~(5)~~ having at its circumference ~~(13)~~ plates ~~(6, 6')~~, each plate having a radially extending hitting surface for the particles, and a receiving area ~~(12)~~ for receipt of the particles of the second fraction, wherein the said receiving area ~~(12)~~ is provided with a conveyor ~~(17)~~ for discharging the particles received in said receiving area ~~(12)~~, the conveyor ~~(17)~~ in the receiving area ~~(12)~~ for the second fraction moving during use at a speed of at least 2 m/s, **characterized in that** distant from the drum ~~(5)~~ and downwardly inclined in a direction pointing away from the drum ~~(5)~~ is a collision plate ~~(22)~~ which extends at least in part above the conveyor ~~(17)~~ in the receiving area ~~(12)~~ for the second fraction, wherein the collision plate ~~(22)~~ is inclined at an angle of less than 45° with respect to the horizon.

2. Separation apparatus ~~(1)~~ according to claim 1, **characterized in that** the conveyor ~~(17)~~ in the receiving area for the second fraction ~~(12)~~ has an inclined position such that it moves the particles deposited thereon upwards to the conveyor's outlet.

3. Separation apparatus ~~(1)~~ according to claim 1, **characterized in that** the surface of the conveyor ~~(17)~~ moves at a speed of 4 m/s.

4. Separation apparatus ~~(1)~~ according to claim 1 or 2, **characterized in that** at the conveyor's outlet a scraper ~~(23)~~ is provided for removal of particles of the first fraction that stick to the surface of the conveyor ~~(17)~~.

5. Separation apparatus ~~(1)~~ according to any one of claims 1-3, wherein at the conveyor's outlet a first blower ~~(19)~~ is provided supplying a downwardly directed air-flow ~~(18)~~ for removal of particles of the first fraction that are

dragged along by particles of the second fraction, **characterized in that** the air flow ~~(18)~~ supplied by the first blower ~~(19)~~ has an airflow speed in the range 15-30 m/s.

6. Separation apparatus ~~(1)~~ according to any one of claims 1-4, wherein the infeed-device ~~(2, 10)~~ comprises a vibrating slide plate ~~(2)~~ that is inclined at an angle in the range 70-90° with respect to the horizon, which slide plate ~~(2)~~ has an edge ~~(2')~~ positioned above the drum ~~(5)~~, which edge ~~(2')~~ is embodied as an outlet for the particle-stream ~~(4)~~, and in that the edge ~~(2')~~ of the vibrating slide plate ~~(2)~~ is positioned vertically above an axis ~~(8)~~ of rotation of said drum ~~(5)~~ so as to cause that in use the particles ~~(3)~~ of the particle-stream ~~(4)~~ fall towards the drum ~~(5)~~ in a direction aimed towards said axis ~~(8)~~ of rotation, and to arrange that the plates ~~(6, 6')~~ of the drum ~~(5)~~ impinge on said falling particles ~~(3)~~ at a moment that said plates ~~(6, 6')~~ are in an approximately vertically upwards oriented position extending from the drum ~~(5)~~, **characterized** in that the slide plate is inclined at an angle of approximately 85°.

7. Separation apparatus ~~(1)~~ according to any one of the previous claims, **characterized in that** a second blower ~~(21)~~ providing a downwardly directed airflow is placed in the vicinity of the drum ~~(5)~~ for early removal to a second receiving area ~~(11)~~ of particles of the first fraction from the stream of particles that move away from the drum ~~(5)~~ after the plates ~~(6, 6')~~ of the drum ~~(5)~~, at the moment that said plates ~~(6, 6')~~ are in a vertically upwards oriented position extending from the drum ~~(5)~~, have impinged on said particles ~~(3)~~ falling along the slide plate ~~(2)~~ of the infeed device ~~(2, 10)~~ towards the drum ~~(5)~~.

8. Separation apparatus ~~(1)~~ according to any one of the previous claims, **characterized in that** the collision plate ~~(22)~~ is inclined at an angle between 15° and 30° with respect to the horizon.