Patent Claims

1. A conveyor device for coins (1), comprising means for moving at least one coin (1) in a predetermined movement direction, which differs from the effective direction of gravity, under a force uninfluenced by a moved mechanical component, the conveyor device (21) being coupled to a detection device (25), which identifies the presence of the coin (1), in order to accelerate the coins (1) in the predetermined movement direction (arrow 28) as required.

2. The conveyor device as claimed in claim 1, **characterized in that** the machine comprises a coin support surface (17) and/or a coin channel (8), at least one magnet element (4) for generating a traveling magnetic field conveying the coin (1) being associated with the coin support surface (17) or the coin channel (8) as means for moving the coin (1), at least in portions.

3. The conveyor device as claimed in claim 2, **characterized in that** the magnet element (4) is connected to a control system (26) that is coupled to the detection device (25), which identifies the presence of a coin (1), in order to generate as required the traveling magnetic field conveying the coin (1).

4. The conveyor device as claimed in one of claims 2 to 3, **characterized in that** the magnet element (4) is arranged in a region of the coin support surface (17) or of the coin channel (8) in which an acceleration of the coin

(1) for transport thereof is necessary, preferably at a location potentially arranged higher, in particular in or before an arch-shaped course portion or an ascending portion, or a descending portion with low incline.

5. The conveyor device as claimed in one of claims 2 to 4, **characterized in that** at least one rotating permanent magnet (13) or a plurality of individual magnets arranged on the periphery of a rotating body (11) or an electromagnet arrangement (19) are provided as a magnet element (4).

6. The conveyor device as claimed in claim 3 or 5, **characterized in that** the control system (26) controls the voltage supply of a coil arrangement of the electromagnets of the electromagnet arrangement (19).

7. The conveyor device as claimed in one of claims 5 to 6, **characterized in that** the electromagnets form the coin support surface (17) and/or the coin channel (8).

8. The conveyor device as claimed in claim 7, **characterized in that** a substantially E-shaped upper yoke (2) comprises coil-wound armatures (5), the coin support surface (17) or the coin channel (8) being formed between free end faces (7) of the armatures (5) and a lower yoke (2) distanced therefrom.

9. The conveyor device as claimed in claim 3 or 5, **characterized in that** the control system (26) controls the voltage supply of an electric motor (10) rotating the permanent magnets (13) or the rotating body (11).

10. The conveyor device as claimed in claim 1, **characterized in that** a fan (32) for generating an airflow

transporting the coin (1) is associated with a coin channel (8) as means for moving the coin (1) and is connected to the control system (26) so as to be supplied with voltage as required, the control system being coupled to the detection device (25), which identifies the presence of a coin (1).

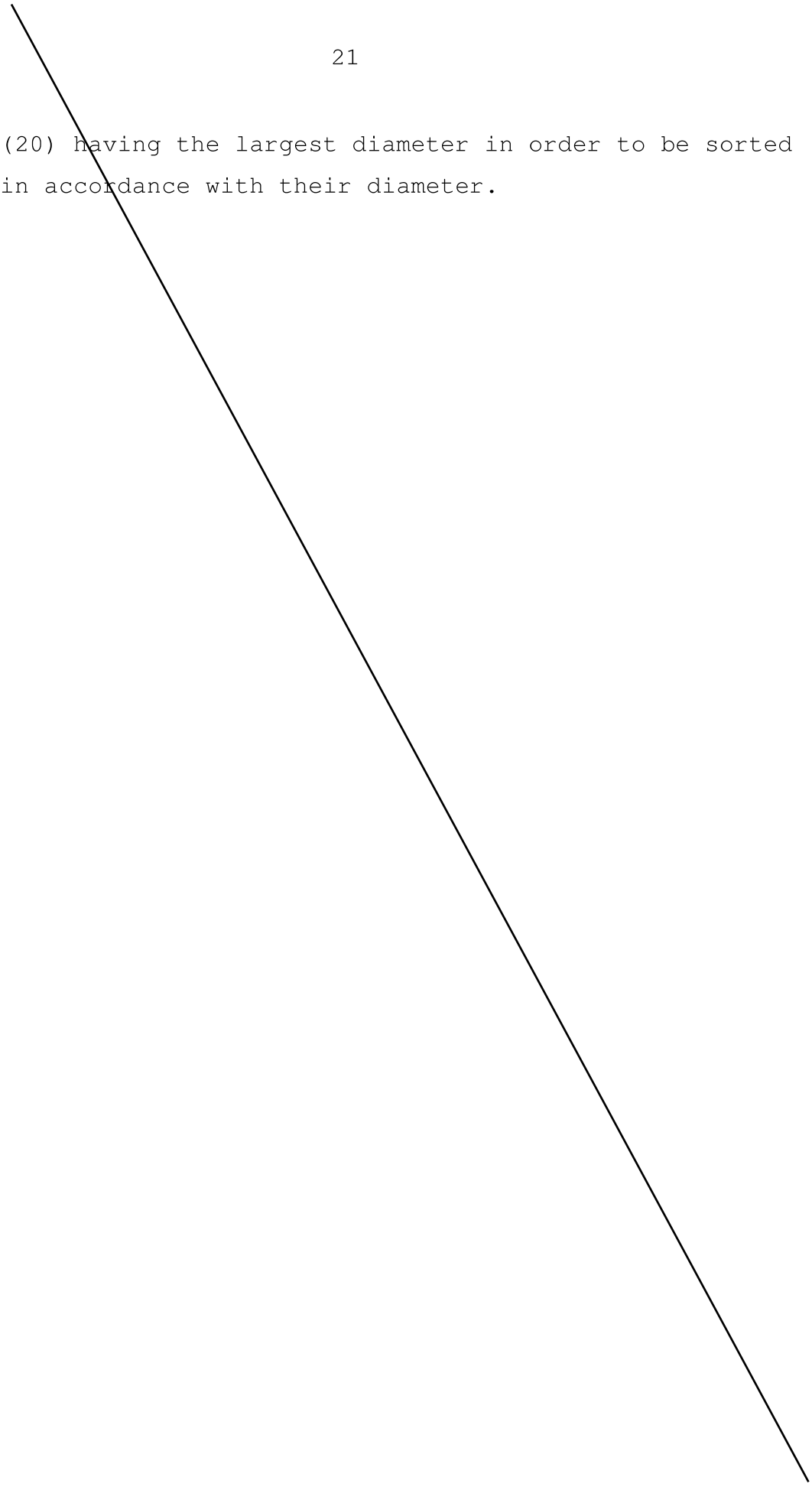
11. A machine, in particular an amusement machine, comprising a coin slot (22) that is connected by a coin channel (8) to a coin inspector and a coin cash box (33), a conveyor device (21) as claimed in one of claims 1 to 10 being associated with the coin channel (8), at least in portions.

12. A machine, in particular an amusement machine, comprising a counting unit (34) for coins (1), a conveyor device (21) as claimed in one of claims 1 to 10 being associated with said counting unit, the control system (26) of the counting unit (34) being coupled to the means and/or the detection device (25).

13. The machine as claimed in claim 12, **characterized in that** the conveyor device (21) is arranged upstream or downstream of a coin stack tube (20) for feeding in and/or for dispensing an individual coin (1).

14. The machine as claimed in claim 12 or 13, **characterized in that** the counting unit (34) comprises a plurality of coin stack tubes (20), which are arranged in succession and have different diameters, the coins (1) being transportable above the coin stack tubes (20) by means of the conveyor device (21) from the coin stack tube (20) having the smallest diameter to the coin stack tube

(20) having the largest diameter in order to be sorted in accordance with their diameter.



Patent Claims

1. A conveyor device for coins, comprising;

a magnetic drive having at least one magnet element for generating a traveling magnetic field for moving at least one metal coin in a predetermined movement direction, which differs from the effective direction of gravity, under a magnetic force uninfluenced by contact with a moved mechanical component;

a detection device, which identifies the presence of the coin, in order to cause the magnetic drive to accelerate the coins in the predetermined movement direction as required; and

a coin support surface and/or a coin channel, wherein the magnetic drive conveys the coin associated with the coin support surface or the coin channel, thru at least a portion thereof.

2. The conveyor device as claimed in claim 1, further comprising a control system that is coupled to the detection device, which identifies the presence of a coin, in order to generate a signal to the magnetic drive as required for the traveling magnetic field to convey the coin.

3. The conveyor device as claimed in claim 1, wherein the magnet element is arranged in a region of the coin support surface or of the coin channel in which an acceleration of the coin for transport thereof is necessary.

4. The conveyor device as claimed in claim 2, wherein the at least one magnet element comprises at least one rotating permanent magnet or a plurality of individual magnets arranged on the periphery of a rotating body.

5. The conveyor device as claimed in claim 2, wherein the at least one magnet element and electromagnet and the control system controls the voltage supply of a coil arrangement of the electromagnets of the electromagnet arrangement.

6. The conveyor device as claimed in claim 5, wherein the electromagnets form the coin support surface and/or the coin channel.

7. The conveyor device as claimed in claim 6, wherein a substantially E-shaped upper yoke comprises coil-wound armatures, the coin support surface or the coin channel being formed between free end faces of the armatures and a lower yoke distanced therefrom.

8. The conveyor device as claimed in claim 4, wherein the control system controls the voltage supply of an electric motor rotating the permanent magnets or the rotating body.

9. An amusement machine having a conveyor device as claimed in claim 1 further, comprising a coin slot that is connected by the conveyor device coin channel to a coin inspector and a coin cash box.

10. A machine, in particular an amusement machine, comprising a counting unit for coins, a conveyor device as claimed in claim 1 being associated with said counting unit, the control system of the counting unit being coupled to the means and/or the detection device.

11. The machine as claimed in claim 10, wherein the conveyor device is arranged upstream or downstream of a coin

stack tube for feeding in and/or for dispensing an individual coin.

12. The machine as claimed in claim 10, wherein the counting unit comprises a plurality of coin stack tubes, which are arranged in succession and have different diameters, the coins being transportable above the coin stack tubes (by means of the conveyor device from the coin stack tube having the smallest diameter to the coin stack tube having the largest diameter in order to be sorted in accordance with their diameter.