~~PATENT~~ **CLAIMS**

1. A fragmentation system ~~(1)~~ for the electrodynamic fragmentation of material ~~(5)~~, comprising:

(a) an inlet ~~(3)~~ and comprising at least one outlet ~~(4)~~ for the material ~~(5)~~; ~~and~~

(b) ~~comprising~~ a transport path ~~(8)~~ leading from the inlet ~~(3)~~ to the outlets ~~(4)~~ for transporting material ~~(5)~~ along the transport path ~~(8)~~ in a transport direction ~~(9)~~,;

(c) a plurality of fractionation sections in a sequential arrangement along the transport path,

(i) wherein each fractionation section comprising ~~at least one~~a high-voltage pulse source ~~(11), wherein each of the high-voltage pulse sources (11) comprises~~ with at least one first electrode ~~(10a)~~ and at least one second electrode ~~(10b)~~ for generating a high-voltage discharge ~~(19)~~;

(ii) wherein the high voltage pulse source of each fractionation section operates with operating parameters including at least one of a voltage and a power ~~in a discharge chamber, wherein the transport path (8) has at least one fractionation section (18), wherein the fractionation section (18) extends through the discharge chamber,~~; and

(iii) wherein magnitude of the operating parameters of the high voltage pulse source of each fractionation section successively decreases over the sequential arrangement of the fractionation sections along the transport path leading from the inlet; and

(d) ~~comprising~~ a selection means for selectively extracting the material ~~(5)~~ as it travels along the transport path ~~(8)~~ in order to channel material ~~(5)~~ and/or fragments of the material having a diameter smaller than a minimum diameter past at least one portion of one of the fractionation sections ~~(18), the arrangement of the system being such that there is no requirement to pass material larger than the minimum diameter back through the transport path~~.

2. The fragmentation system ~~(1)~~ as claimed in claim 1, characterized in that the selection means comprises the first electrode ~~(10a)~~ and the second electrode ~~(10b)~~.

3. The fragmentation system ~~(1)~~ as claimed in claim 1 or 2, characterized in that the first electrode ~~(10a)~~ and the second electrode ~~(10b)~~ form a rail.

4. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that the fractionation section ~~(18)~~ forms an inclined plane sloping downward in the transport direction ~~(9)~~.

5. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that the first electrode ~~(10a)~~ and the second electrode ~~(10b)~~ have a longitudinal extent, wherein the first electrode ~~(10a)~~ and the second electrode ~~(10b)~~ are arranged with the longitudinal extent in the same direction as the transport direction ~~(9)~~.

6. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that at least two of the electrodes ~~(10a,b)~~ form a chute for the material ~~(5)~~, said chute sloping downward in the transport direction ~~(9)~~ in relation to the direction of gravity.

7. The fragmentation system ~~(1)~~ as claimed in claim 6, characterized in that a length and/or an inclination angle of at least one of the electrodes ~~(10a,b)~~ of the chute and/or a distance between at least two of the electrodes ~~(10a,b)~~ of the chute are/is variable.

8. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized by a conveying apparatus ~~(14)~~ for conveying a medium ~~(16)~~ in a media conveying direction in order to support the transport of the material ~~(5)~~.

9. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that the distance between the first electrode ~~(10a)~~ and the second electrode ~~(10b)~~ is variable and/or settable.

10. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that the at least one high-voltage pulse source ~~(11)~~ is configured to output a high-voltage pulse having a working voltage of greater than 10 kV as high-voltage discharge ~~(19)~~.

~~11. The fragmentation system (1) as claimed in any of the preceding claims, characterized by a plurality of high-voltage pulse sources (11) for outputting high-voltage discharges (19) having different working voltages.~~

~~12~~11. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, in that the transport path ~~(8)~~ is configured for conveying more than ten tons of the material ~~(5)~~ per hour.

~~13~~12. The fragmentation system ~~(1)~~ as claimed in any of claims 3 to ~~12~~11, characterized in that the fractionation section ~~(18)~~ sloping downward as an inclined plane has a slope angle for transporting the material ~~(5)~~ based on a downhill force, wherein the slope angle is settable for the purpose of setting a transport speed for the material along the fractionation section ~~(18)~~.

~~14~~13. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that the fractionation section ~~(18)~~ has conveying structures.

~~15~~14. The fragmentation system ~~(1)~~ as claimed in any of the preceding claims, characterized in that the transport path ~~(8)~~ has at least one sieve structure for extracting fractions of the material ~~(5)~~.

~~16. A method for the electrodynamic fragmentation of material (5), wherein material (5) is transported from an inlet (3) toward an outlet (4) along a transport path (9), wherein the transport path (8) has a fractionation section (18), wherein at least one high-voltage pulse source (11) has at least one first electrode (10a) and at least one second electrode (10b), wherein the high-voltage pulse source (11) generates a high-voltage discharge in a discharge chamber, wherein the discharge chamber is arranged between the first electrode (10a) and the second electrode (10b), wherein material (5) and/or fragments of the material having a diameter smaller than a minimum diameter are/is channeled past at least one portion of one of the fractionation sections (18) as it travels along the transport path (8), the method being such that there is no requirement to pass material larger than the minimum diameter back through the transport path.~~

~~17. The method as claimed in claim 16, wherein the method is carried out by the fragmentation system (1) as claimed in any of claims 1 to 15.~~