CLAIMS

1. A rotor comprising:

a disk including slots circumferentially arranged around its periphery;

blades including respective roots that are mounted in respective ones of the slots, the roots being smaller than the slots such that there are circumferential gaps between the roots and circumferential sides of the slots; and

wedges respectively located in the circumferential gaps, the wedges being free floating with regard to the blades and the disk.

2. The rotor as recited in claim 1, wherein each of the wedges includes less than three flat sides.

3. The rotor as recited in claim 1, wherein each of the blades includes a ceramic material.

4. The rotor as recited in claim 3, wherein the ceramic material is a multi-layer fiber structure including a ceramic matrix.

5. The rotor as recited in claim 1, wherein each of the wedges includes at least one crowned side.

6. The rotor as recited in claim 1, wherein each of the wedges includes a plurality of crowned sides.

7. The rotor as recited in claim 1, wherein each of the wedges includes sides that are in contact with either the blades or the circumferential sides of the slots, each of the sides being either a flat side or a crowned side such that there is a number N_1 of flat sides and a number N_2 of crowned sides, and a ratio of N_1/N_2 is 2 or less.

8. The rotor as recited in claim 7, wherein N_1 is 2 and N_2 is 1.

9. The rotor as recited in claim 7, wherein N_1 is 0 and N_2 is 2.

10. The rotor as recited in claim 7, wherein Ni is 2 and N_2 is 3.

11. The rotor as recited in claim 7, wherein N_1 is 1 and N_2 is 2.

12. The rotor as recited in claim 7, wherein N_1 is 1 and N_2 is 1.

13. The rotor as recited in claim 1, further including a width dimension (Q) of a neck of the respective blades, a length dimension (L) of a side of the respective wedges in contact with the circumferential side of the disk, a length dimension (E) of a straight portion of another side of the respective wedges, a length dimension (H) of a straight portion of another, different side of the respective wedges, an overlap dimension (X) between the circumferential side of the disk and the side of the respective wedges that has length dimension (L), a gap dimension (B) between a flared root of the respective blades and the side of the respective wedges that has length simension (E) at a point of transition between a straight portion and a curved portion, and a gap dimension (W) between the neck and the side of the respective wedges that has length dimension (H) at a point of transition between a straight portion and a curved portion, and including at least one of:

W/Q is less than or equal to 0.025,
W/H is less than or equal to 0.1,
X/L is less than or equal to 0.050, and
B/E is less than or equal to 0.080.

14. The rotor as recited in claim 1, wherein each of the wedges includes a coating thereon that surrounds a core.

15. The rotor as recited in claim 1, including bias members located in respective ones of the slots radially inwardly of the blades, the bias members biasing the blades radially outwardly.

16. A gas turbine engine comprising:

optionally, a fan
a compressor section;
a combustor in fluid communication with the compressor section; and
a turbine section in fluid communication with the combustor, the turbine section being

coupled to drive the compressor section and the fan, at least one of the fan, the turbine section and the compressor section including a disk having slots circumferentially arranged around its periphery, blades including respective roots that are mounted in respective ones of the slots, the roots being smaller than the slots such that there are circumferential gaps between the roots and circumferential sides of the slots, and wedges respectively located within the circumferential gaps, the wedges being free floating regard to the blades and the disk.

17. A rotor comprising:

a disk including slots circumferentially arranged around its periphery;

blades mounted in respective ones of the slots, each of the blades including an airfoil, a neck that extends radially inwardly from the airfoil, a flared root and, relative to the flared root, a narrow fillet joining the neck and the flared root, each of the blades including a coating over at least a portion of the neck, the narrow fillet and at least a portion of the flared root, the coating including a relatively thick section on each circumferential side of the narrow fillet, the relatively thick portion being operable as a wedge to compress the narrow fillet upon rotation of the disk wherein the wedge includes less than three flat sides.

18. The rotor as recited in claim 17, wherein the coating includes a silicon-containing material.

19. The rotor as recited in claim 17, wherein the coating is silicon metal.

20. The rotor as recited in claim 17, wherein the coating is silicon carbide.

CLAIMS

1. A rotor comprising:

a disk including slots circumferentially arranged around its periphery;

blades including respective roots that are mounted in respective ones of the slots, the roots being smaller than the slots such that there are circumferential gaps between the roots and circumferential sides of the slots; and

wedges respectively located in the circumferential gaps, the wedges being free floating with regard to the blades and the disk.

2. The rotor as recited in claim 1, wherein each of the wedges includes less than three flat sides.

3. The rotor as recited in claim 1, wherein each of the blades includes a ceramic material.

4. The rotor as recited in claim 3, wherein the ceramic material is a multi-layer fiber structure including a ceramic matrix.

5. The rotor as recited in claim 1, wherein each of the wedges includes at least one crowned side.

6. The rotor as recited in claim 1, wherein each of the wedges includes a plurality of crowned sides.

7. The rotor as recited in claim 1, wherein each of the wedges includes sides that are in contact with either the blades or the circumferential sides of the slots, each of the sides being either a flat side or a crowned side such that there is a number N_1 of flat sides and a number N_2 of crowned sides, and a ratio of N_1/N_2 is 2 or less.

8. The rotor as recited in claim 7, wherein N_1 is 2 and N_2 is 1.

9. The rotor as recited in claim 7, wherein N_1 is 0 and N_2 is 2.

10. The rotor as recited in claim 7, wherein Ni is 2 and N_2 is 3.

11. The rotor as recited in claim 7, wherein N_1 is 1 and N_2 is 2.

12. The rotor as recited in claim 7, wherein N_1 is 1 and N_2 is 1.

13. The rotor as recited in claim 1, further including a width dimension (Q) of a neck of the respective blades, a length dimension (L) of a side of the respective wedges in contact with the circumferential side of the disk, a length dimension (E) of a straight portion of another side of the respective wedges, a length dimension (H) of a straight portion of another, different side of the respective wedges, an overlap dimension (X) between the circumferential side of the disk and the side of the respective wedges that has length dimension (L), a gap dimension (B) between a flared root of the respective blades and the side of the respective wedges that has length simension (E) at a point of transition between a straight portion and a curved portion, and a gap dimension (W) between the neck and the side of the respective wedges that has length dimension (H) at a point of transition between a straight portion and a curved portion, and including at least one of:

W/Q is less than or equal to 0.025,

W/H is less than or equal to 0.1,

X/L is less than or equal to 0.050, and

B/E is less than or equal to 0.080.

14. The rotor as recited in claim 1, wherein each of the wedges includes a coating thereon that surrounds a core.

15. The rotor as recited in claim 1, including bias members located in respective ones of the slots radially inwardly of the blades, the bias members biasing the blades radially outwardly.

16. A gas turbine engine comprising:

optionally, a fan

a compressor section;

a combustor in fluid communication with the compressor section; and

a turbine section in fluid communication with the combustor, the turbine section being

coupled to drive the compressor section and the fan, at least one of the fan, the turbine section and the compressor section including a disk having slots circumferentially arranged around its periphery, blades including respective roots that are mounted in respective ones of the slots, the roots being smaller than the slots such that there are circumferential gaps between the roots and circumferential sides of the slots, and wedges respectively located within the circumferential gaps, the wedges being free floating regard to the blades and the disk.