WHAT IS CLAIMED IS:

1. A method (200) of machining an abradable material of a gas turbine engine utilizing a system (100) including a frame (102), a first arm (106) extending from a central location (108) of the frame (102), and a cutting apparatus (112) coupled to a first distal end (110) of the first arm (106) and including a rotating shaft (114) and a plurality of cutting disks (116) coupled to the rotating shaft (114) such that the cutting disks (116) define a helical cutting profile (120), wherein the gas turbine machine has an axial centerline axis (12) extending along an axial direction (A) and a radial direction (R) extending perpendicular from the axial centerline (12), the method (200) comprising:

securing (202) the frame (102) of the system (100) to at least a fan rotor (38) of the gas turbine engine utilizing an attachment structure (122) of the system (100), the attachment structure (122) coupled to the frame (102) at the central location (108);

adjusting (204) the cutting apparatus (112) in the axial direction (A) of the gas turbine engine utilizing an axial adjuster (136) coupled between the first distal end (110) of the first arm (106) and the cutting apparatus (112) such that the cutting apparatus (112) is axially aligned with the abradable material;

driving (206) the rotating shaft (114) of the cutting apparatus (112) such that the plurality of cutting disks (116) rotates about an axis parallel to the axial direction A; and

adjusting (208) the cutting apparatus (112) in the radial direction (R) of the gas turbine engine utilizing a radial adjuster (138) coupled between the first distal end (110) of the first arm (106) and the cutting apparatus (112) such that at least one of the cutting disks (116) contacts the abradable material in order to machine the abradable material.

2. The method (200) of claim 1, further comprising:rotating the system (100) around a circumferential direction of the gas turbine engine such that the cutting apparatus (112) machines at least a portion of the abradable material along the circumferential direction.

3. The method (200) of claim 1 or 2, wherein the system (100) further includes a second arm (130) extending from the central location (108) of the frame (102) and an axially aligned measurement assembly (132) including a measurement probe (160) coupled to a second distal end (134) of the second arm (130), the method (200) further comprising:

inspecting a contour of the abradable material by adjusting a position of the measurement probe (160) along the axial direction.

4. The method (200) of claim 3, wherein adjusting the position of the measurement probe (160) comprises rotating an adjustment wheel (164) coupled to a threaded rod (162) operable with the measurement probe (160) in order to adjust the measurement probe (160) axially forward or aft.

5. The method (200) of any of claims 1 to 4, wherein adjusting the cutting apparatus (112) in the axial direction comprises rotating an axial adjustment wheel (140) drivingly coupled to a threaded rod (142) of the axial adjuster (136) extending at least partially along the axial direction, the threaded rod (142) operable with the cutting apparatus (112) such that the cutting apparatus (112) is adjusted at least partially in the axial direction.

6. The method (200) of any of claims 1 to 5, wherein adjusting the cutting apparatus (112) in the radial direction comprises rotating a radial adjustment wheel (146) operable with one or more jacks (148) of the radial adjuster (138), the one or more jacks (148) configured to extend and retract the cutting apparatus (112) at least partially in the radial direction of the gas turbine engine.

7. The method (200) of any of claims 1 to 6, wherein the abradable material comprises a repaired portion (118).

8. A system (100) for machining an abradable material of a gas turbine engine, the system (100) comprising:

a gas turbine engine, the gas turbine engine having an axial centerline axis (12) extending along an axial direction (A) and a radial direction (R) extending perpendicular from the axial centerline (12);

a frame (102) including a first arm (106) extending from a central location (108);

an attachment structure (122) coupled to the frame (102) at the central location (108), the attachment structure (122) configured to couple to at least a fan rotor (38) of the gas turbine engine; and

a cutting apparatus (112) coupled to a first distal end (110) of the first arm (106) opposite the central location (108), the cutting apparatus (112) including a rotating shaft (114) and a plurality of cutting disks (116) coupled to the rotating shaft (114), wherein the plurality

of cutting disks (116) define a helical cutting profile (120) and are mounted to rotate, in use, about an axis parallel to the centerline axis (12) of the gas turbine engine; and

a radial adjuster coupled between the first distal end (110) of the first arm (106) and the cutting apparatus (112) for adjusting the cutting apparatus (112) in the radial direction (R) of the gas turbine engine, such that the at least one of the cutting disks (116) contacts the abradable material in order to machine the abradable material;

an axial adjuster (136) configured to adjust the cutting apparatus (112) in the axial direction (A);

wherein the helical cutting profile (120) is configured to machine a contour within the abradable material complementary to at least one fan blade (44) of the gas turbine engine.

9. The system (100) of claim 8, wherein the plurality of cutting disks (116) are configured to extend along a total length of the abradable material in an axial direction of the gas turbine engine.

10. The system (100) of claim 8 or 9, wherein the frame (102) further includes a second arm (130) extending from the central location (108), the system (100) further comprising:a measurement assembly (132) coupled to a second distal end (134) of the second arm (130) opposite the central location (108), wherein the measurement assembly (132) is configured to inspect the contour of the abradable material.

11. The system (100) of claim 10, wherein the measurement assembly (132) comprises a threaded rod (162) configured to extend at least partially along an axial direction of the gas turbine engine, a measurement probe (160) extending from and operable with the threaded rod (162), and an adjustment wheel (164) configured to rotate the threaded rod (162) such that the measurement probe (160) is adjusted at least partially in the axial direction of the gas turbine engine.

12. The system (100) of claim 8-11, wherein the axial adjuster (136) includes a threaded rod (142) operable with the cutting apparatus (112) and configured to extend at least partially along the axial direction (A) of the gas turbine engine and an axial adjustment wheel (140) configured to rotate the threaded rod (142) such that the cutting apparatus (112) is adjusted at least partially in the axial direction (A).

13. The system (100) of claim 8 or 12, wherein the radial adjuster (138) includes at least one jack (148) operable with the cutting apparatus (112) and a radial adjustment wheel (146) configured to extend and retract the cutting apparatus (112) at least partially in the radial direction (R) of the gas turbine engine.

14. The system (100) of any of claims 8 to 13, wherein the rotating shaft (114) includes a key (154) extending along a length of the rotating shaft (114), and wherein each cutting disk (116) of the plurality of cutting disks (116) includes a notch operable with the key (154) such that the plurality of cutting disks (116) define the helical cutting profile (120).